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A REVIEW OF THE RESEARCH ON MY COUNTRY'S RURAL HUMAN SETTLEMENT ENVIRONMENT

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Abstract: The product of rural human settlement environment has mixed attributes of public product and private product, and "multivariate co-governance" has become the optimal choice for the improvement plan of rural human settlement environment. Improving the living environment in rural areas is an important task in implementing the rural revitalization strategy. my country attaches great importance to the rural living environment, and has successively introduced a series of normative and encouraging policies to provide impetus and support for the further improvement of the rural living environment. With the continuous improvement of rural human settlements in our country, academic research on rural human settlements has been on the rise. An overall grasp of the cutting-edge research trends on rural human settlements will help deepen theoretical research in this field.
Keywords: Rural human settlements; Environmental protection; Rural governance; Rural revitalization

1.INTRODUCTION

The overall quality of rural human settlements in my country is not high, and there are problems such as unbalanced regional development, imperfect basic living facilities, and unsound management and protection mechanisms. There is still a big gap between rural residents' yearning for a better life. Improving the living environment in rural areas is an important task in implementing the rural revitalization strategy. my country attaches great importance to the living environment in rural areas, and has successively introduced a series of normative and encouraging policies to provide impetus and support for the further improvement of the living environment in rural areas. In 2013, the No. 1 Central Document proposed to strengthen rural ecological construction, environmental protection and comprehensive improvement, and strive to build beautiful villages. In 2014, the "Guiding Opinions of the General Office of the State Council on Improving the Rural Human Settlement Environment" clearly stated that by 2020, the basic living conditions of rural residents in the country, such as housing, drinking water and travel, will be significantly improved, and the living environment will basically be clean, tidy and convenient. Build a group of beautiful and livable villages with their own characteristics. In February 2018, the General Office of the Central Committee of the Communist Party of China and the General Office of the State Council issued the "Three-Year Action Plan for the Improvement of the Rural Human Settlement Environment". In December 2021, the General Office of the Central Committee of the Communist Party of China and the General Office of the State Council issued the "Five-Year Action Plan for Improvement and Improvement of the Rural Human Settlement Environment [2021-2025]". With the continuous improvement of rural human settlements in our country, academic research on rural human settlements has been on the rise. An overall grasp of the frontier dynamics of rural human settlements will help deepen theoretical research in this field.

2. DEFINITION OF RURAL HUMAN SETTLEMENTS

The concept of human settlements is developed in foreign urban planning ideas. Howard and Gaddis are considered to be the pioneers of urban planning, and they are also considered to be the pioneers of human settlements research [1]. In the 1950s, the Greek scholar Daussayadis first proposed "Human Settlement Science", which regarded human settlements such as cities, towns, and villages as a whole, and conducted systematic research on people, houses, society, and nature. From the perspective of development stages, the research on rural human settlements in foreign countries has gone through three stages: rural geography, rural development and rural transformation, and the research trend has also developed from a single discipline to a comprehensive discipline [2]. From the perspective of research fields, foreign scholars focus on rural settlements and rural settlement geographic theory system, rural settlement location and land use, counter-urbanization and rural migration, rural human settlement environment evolution and mechanism, rural human settlement environment planning and construction, etc. Rural human settlements are studied in depth.

At the same time, relevant international academic organizations have been established one after another. In 1963, the World Society for Human Settlements was established. In 1976, the United Nations convened the first International Conference on Human Settlements and established the United Nations Habitat Center [renamed UN-Habitat in 2002] .

Research has an important guiding role [3]. In 2016, UN-Habitat adopted the "New Urban Agenda", which outlines a clear framework blueprint for building inclusive, safe and resilient cities and human settlements around the world.

China's research on human settlements began in the 1990s, and the main subjects involved are architecture, geography, and social politics [4]. In 1993, Wu Liangyong proposed the idea of establishing "Human Settlement Science".

Subsequently, he elaborated on the research content of "Human Settlement Science" [5], and completed the book "Introduction to Human Settlement Science" in 2001. Wu Liangyong divided the human settlement environment into five major systems: human, natural, residential, social and other systems, and divided it into five levels according to the actual situation in our country: architecture, community, city, region, and global system, making the concept of human settlement environment systematized, theoretical, Chinese Characteristics. Zhou Zhi et al. believe that the human settlement environment, when analyzed in a general sense, is a general term for the natural, economic, social and cultural environments of human living and living, covering living conditions, physical and geographical conditions related to living and living, and ecological environment. , life convenience, education and cultural foundation, social customs, quality of life, etc.; from the perspective of urban ecology, it is a complex ecological system composed of various environmental factors surrounding urban populations, with people as the main body; from the form From the perspective of resource science, its connotation should be the coordination of humanities and nature, the combination of production and life, and the unity of material enjoyment and spiritual satisfaction; from the perspective of resource science, it refers to the process of human activities including living, working, sanitation, transportation, communication, The organic combination of various resources such as the ecological environment, cultural entertainment, etc., and the physical structures constructed to maintain these human activities [6]. Zhao Wanmin put forward the concept of "Mountain Human Settlement Environment", and its research content includes: theoretical construction of academic framework, practical exploration of basic work and construction of research talent team [7]. Rural human settlement environment is the concrete manifestation of human settlement environment in rural areas, and it is an important part of human settlement environment science. The academic circles also have different opinions on the definition of its concept, and there is no consensus. Hu Wei and others believe that the human settlement environment in rural villages and towns refers to the fact that human beings carry out activities such as living, farming, transportation, culture, education, health, entertainment, etc. in the context of a large geographical system such as the countryside, and in the process of utilizing and transforming nature. Created Environments [8]. Li Bohua et al. pointed out that the rural human settlement environment is an organic combination of material and non-material needs for the production and life of farmers in rural areas [9], and is a logical connection between the rural human environment, geographical space environment and natural ecological environment [10]. Peng Zhenwei and others believe that the rural human settlement environment is composed of social environment, natural environment and artificial environment, and has ecological and social functions [11]. Zhao Xia believes that the rural human settlements include not only rural sanitation and the housing conditions of farmers, but also rural infrastructure, education, cultural entertainment and 82 Social Science Trends Medical services, etc., are an important indicator to measure the quality of life of farmers, one of the important contents of the construction of new countryside, and one of the important contents of promoting the overall construction of urban and rural areas [12]. Lv Jianhua and others believe that the rural human settlement environment includes not only climate conditions, natural resources, ecological environment of regional characteristics, and macroeconomic environment created by different levels of economic development, but also hard environment such as housing and infrastructure, and soft environment such as information exchange, which reflects the rural environment. The relationship between geographical space, living conditions and society is an organic whole of interdependence and mutual influence [13].

Combining the researches of Wu Liangyong, Li Bohua, etc. on human settlement science and rural human settlement environment, rural human settlement environment is a general term for the natural environment, economic environment, social environment and cultural environment related to human living and living within the scope of rural space. It is an organic combination of material [hard environment] and non-material [soft environment] needed by farmers for production and life. Compared with cities with high-density population, rural human settlements are generally loosely distributed in villages in agricultural areas, including rural ecological environment, building systems, social systems, and population-economic systems [14]. The functional transformation and evolution of the rural human settlements have inherent laws, which are influenced by self-organization [internal factors]. For example, the spatial changes of rural households in terms of living, consumption, employment, and social interaction directly lead to changes in the rural spatial order, breaking through the The balance state of the traditional rural living environment [15]; it is also affected by other organizations [external factors], such as the national macro policy and the interests of related groups.

3. CONSTRUCTION TASKS OF RURAL HUMAN SETTLEMENTS

Judging from the current government-led top-down rural human settlements construction actions, rural toilet improvement, domestic sewage, domestic garbage, and village appearance are the main construction tasks of rural human settlements. In July 2015, Xi Jinping inspected and investigated in Yanbian, Jilin. When he learned that some villagers were still using traditional dry toilets, he proposed to carry out a "toilet revolution" to allow rural people to use sanitary toilets . Li Hui et al. introduced five types of toilets that are commonly used in rural areas from the aspects of working principle, existing advantages, and domestic transformation. In the pilot projects of toilet transformation in rural areas, it is common for toilets to operate poorly or even be idle due to poor management. He proposed that the renovation of rural toilets should focus on solving the problem of disposal of end products, and establish an industrial system in which farmers and enterprises are mutually beneficial and win-win, and resources can be effectively recycled.

Zhang Yongjiang and others proposed that the rural toilet revolution should be promoted in an orderly manner with the thinking of the people as the main body. The standards of the toilet revolution should be determined according to the needs of farmers. Toilet revolution as a means to improve the living environment in rural areas and implement the strategy of rural revitalization a major livelihood project.

The problem of rural domestic waste reflects a variety of information such as local living habits, cultural characteristics, and economic conditions. It has the characteristics of wide and scattered sources, rapid growth, significant regional differences, and large production volumes. Some scholars have carried out in-depth research on the characteristics, treatment technologies and models of rural domestic waste in different regions of my country. Yao Jinpeng et al. compared my country with the United States, Germany, Japan, and South Korea in terms of rural waste management system, resource recovery methods and treatment technologies, and rural waste disposal models. Based on the differences in collection, transportation, classification, and treatment, the regional rural garbage disposal models of Jinhua in Zhejiang, Hetian in Zhejiang, Danling in Sichuan, and Hengxian in Guangxi were summarized. Li Yan et al. took 190 rural households in Shuigaozhuang Village, Xiqing District, Tianjin as the research object, and calculated that the per capita domestic waste production in the area was 0.75 kg/day, and compostable waste and plastic waste accounted for 74.77% of the total waste respectively, 10.33%, by adopting the "two barrels and one net cage" and "two-level classification" model, the simple landfill reduction of rural domestic waste can be achieved by 93.5%. Affected by the level of economic development, climate and topography, factors such as population distribution, quantity of garbage produced, and physical and chemical properties in economically underdeveloped rural living areas in the west make it difficult for them to learn from the economically developed eastern and central regions for their domestic waste management and disposal methods. Nie Erqi et al. took the typical rural areas of 5 provinces [autonomous regions] in western Inner Mongolia, Shaanxi, Sichuan, Guizhou and Guangxi as the research object, and found that the per capita rural garbage generation was 0.193 kg/day, and kitchen waste, dust and paper garbage More than 80% of the total amount is generated. It is proposed that the western region should adopt different garbage disposal methods according to different regional characteristics. Generally speaking, a combination of classified collection, source control, local treatment and centralized treatment should be adopted. Zhou Shangbo and others carried out field investigations in the Taohuaxi River Basin, Laixi River Basin and Liangtan River Basin, which are regional representatives in western Chongqing, and found that the per capita domestic waste generation in western Chongqing was 0.28 kg/day, of which 64.55% was discharged into environment, it is proposed that rural domestic waste treatment should adopt a combination of decentralized and centralized treatment.

Rural domestic sewage is closely related to the safety of rural drinking water, and has the characteristics of large production volume, wide range, and high nitrogen and phosphorus discharge load. my country's rural domestic sewage treatment still has problems such as low proportion of treatment, uneven geographical distribution of treatment, scattered treatment intensity, and insufficient funding. On the one hand, scholars have calculated the discharge of domestic sewage in rural areas. Yu Fawen et al. proposed that the discharge of rural domestic sewage should be calculated based on 40%-90% of domestic water consumption, and concluded that the national rural domestic sewage discharge in 2016 was 5.567-12.526 billion cubic meters, and the eastern, central and western regions were 2.574-5.792 billion cubic meters respectively. cubic meters, 1.437-3.234 billion cubic meters, and 1.547-3.480 billion cubic meters.

Research by Wang Junneng et al. shows that COD emissions in rural domestic sewage account for about 50.8% of the total discharge from domestic sources, and the discharge of sewage and pollutants is mainly directed into water bodies, directly into farmland and other ways. More than 80%, should be guided by source reduction, classified treatment, and recycling, strengthen overall planning, and advance step by step. On the other hand, scholars have conducted research on rural domestic sewage treatment based on the actual situation in various places. Zhou Kai and others conducted field research on rural domestic sewage treatment, and calculated that in 2017, the domestic sewage discharge in Henan reached about 1 billion tons, and the ammonia nitrogen discharge was 59,400 tons. Less than 5% of rural villages in the province have sewage treatment facilities, and the daily treatment capacity It is generally below 100 tons. Suggestions such as strengthening top-level design, implementing market-oriented operations, and selecting treatment processes according to local conditions are put forward. Combined with the actual situation of rural domestic sewage treatment in Beijing, Hu Ming and others proposed to implement the urban belt-village governance model in areas with a high urbanization rate; Joint-village governance model; in marginal mountainous areas where the degree of urbanization is low and it is not conducive to the construction of large-scale water collection pipe networks, the single-village pollution control model is adopted. Taking the Taihu Lake Basin as an object, Wu Hao et al. compared and analyzed four typical rural domestic sewage treatment technologies, and found that although the initial construction cost Slightly high, but the treatment effect is stable, the removal rate of chemical oxygen demand [COD], total nitrogen [TN], total phosphorus [TP] and ammoniacal nitrogen content is over 80%, it is a very good rural domestic sewage Processing technology.

Farmers' courtyards, buildings, village public space environment, rural road network, water network, power grid, communication network and other infrastructure, rural natural environment, historical sites, local culture, architectural style and other village appearance and village appearance are also important aspects of rural human settlements. One of the construction tasks. The appearance of a village is the most direct manifestation of the level of rural economic and social development, and it is the "face" of the countryside as well as the "face" of the country as a whole. Based on the data provided by the rural work leading group offices in 18 provinces across the country and 506 valid questionnaires

from field surveys in Qinghai and Shandong, Wang Changhai evaluated the implementation effect of the No. 1 Central Document on Village Appearance and Village Appearance. Jiang Xueqing gave a systematic and comprehensive introduction to the appearance of rural villages and the improvement of rural living environment in Jiangxi Province, focusing on top-level design, construction implementation, capital investment, management and protection mechanism, and spiritual civilization.

4. GOVERNANCE METHODS OF RURAL HUMAN SETTLEMENTS

Rural human settlements are a mixture of public and private products, and its supply subjects can usually be divided into administrative subjects, village society and market subjects. In practice, there are government-led, social Various governance methods such as regional leadership, capable person feedback, service outsourcing, and multi-dimensional co-governance.

From the perspective of government governance, the development of rural society is inseparable from the role of the government, and the continuous improvement of the rural living environment requires the government to play a key role. Since some rural human settlement products have obvious positive externalities, the government occupies a leading position in the improvement of rural human settlements, especially in terms of capital investment, system design, and technical support. Xiao Wei and others believe that the government must have a sense of mission to seek the overall interests and long-term interests of the public, and provide public goods such as environmental policies and environmental systems to the society responsibly, adhere to the direction of sustainable development at the macro level, and develop market regulation. Bao Haixu et al. conducted quantitative research on 58 core policy documents and found that from the perspective of the value structure horizontally, it presents the characteristics of value elements that prioritize sustainability and lack security. From the vertical perspective, policy value selection is still unbalanced. The phenomenon. Taking X Town, Huanggang City, Hubei Province as the research object, Zheng Huichao found that the government's behavioral logic in the governance of rural human settlements is mainly composed of established rules, interests and social relations. However, factors such as the "results first" mentality of the government and cadres, the complex relationship between cadres, and the ineffective handling of practical details will have a negative effect on the governance of rural human settlements.

From the perspective of rural self-governance, the current rural pollution in my country has the characteristics of small but numerous pollution sources and widespread and scattered pollution. As a result, the government cannot grasp complete information or the cost of obtaining information is too high in the process of promoting rural human settlements. Due to the directness and sufficiency of information and the effectiveness of spontaneous order in rural self -governance organizations, the rural self-governance model is an effective means and method in the governance of rural human settlements. Taking J village in southern Anhui as an example, Tian Meng et al. proposed to rely on the village council's "governance through self-government" to promote the improvement of human settlements through the mechanism of resource absorption and transformation, the transformation mechanism of the nature of public affairs, and the social embedded mechanism of the governance process. Leng Bo, through his research on the "administrative-led self-government" model in Meicun, Hubei Province, proposed setting up village councils to activate villagers' self-government, and to introduce the country's "hard rules" into farmers' life practices in a flexible manner. Therefore, the governance of rural human settlements must respect Farmers' life practice, by giving grassroots organizations a certain amount of autonomy, guides and organizes farmers to independently build beautiful homes. Liao Weidong et al. used the game analysis method to systematically examine the logic mechanism of my country's rural human settlements environmental pollution. He believed that the root cause of my country's rural human settlements environmental pollution lies in the failure of regulations. By establishing a self-executing self-government mechanism among farmers, rural areas can be avoided. The "tragedy of the commons" of public resources in human settlements. Jiang Pei believes that the government-led environmental governance model is "one size fits all" and focuses on "governance".

84 Social Science Trends While ignoring issues such as "use", we should embody the governance concept of "neutralization and education", give play to the subject role of farmers in environmental governance, and let rural environmental governance return to the main body of rural life. Wang Weirong and others pointed out that social capital with social network, social norms and social trust as elements has a significant positive effect on controlling the tendency of villagers to maximize their self-interest and promoting villagers' participation in collective action in rural human settlement environment governance.

From the perspective of multi-dimensional co-governance, environmental governance is generally a combination of multiple governance models, and rural human settlements often use multi-dimensional models in which various institutional arrangements coexist and complement each other. First of all, the improvement of rural human settlements should be combined with top-down government guidance and bottom-up village self-government. Zhu Yun believes that it is necessary to find a balanced order between administration and self-government, introduce modern rules of grassroots governance into the improvement of village human settlements, and internally integrate endogenous resources to activate the vitality of rural society, so as to achieve low-cost and high-efficiency governance of village human settlements. . Secondly, pluralistic co-governance is the coordination and mutual promotion among other governance modes such as administrative governance, villager self-government, and social organizations. Zhang

Zhisheng believes that to promote the pluralism and co-governance of the rural ecological environment, the local government should assume the responsibility of the "leader", local enterprises need to strengthen their social responsibilities, farmers should enhance their awareness of the subject, NGOs need to improve their ability to participate in governance, and rural communities should play the "home game". "Advantage. Taking W County in Anhui Province as the research object, He Zhen studied the governance of rural human settlements within the county from the perspective of multi-center governance, and proposed a "government-market governance strategy" that adheres to the limited government dominance, advocates active market intervention, and guides the society's precise participation. -Society" multi-linked comprehensive governance model of rural human settlements. In addition, scholars have also provided new ideas for promoting the pluralism and co-governance of rural human settlements from other perspectives. From the perspective of contract management, Wu Weiyu et al. proposed that the implementation of rural environmental contract management to promote the joint participation of multiple subjects such as the government, enterprises, and rural areas in the restoration and improvement of the rural ecological environment is a practical, feasible and low-cost governance path. From the perspective of social organizations, Gu Linyu et al., taking Qinjian Village in Nanjing as an example, studied the practice mode of multi-dimensional embedding of social organizations in rural environmental governance, and proposed that through social organizations and the government, social organizations and villagers, and social organizations "Collaborative re-embedding" to improve the level of rural environmental governance.

5. COMPREHENSIVE EVALUATION OF RURAL HUMAN SETTLEMENT ENVIRONMENT

The rural human settlement environment is a complex and dynamic giant system. Therefore, scholars often measure the development level of the rural human settlement environment by constructing an index system for comprehensive evaluation. From a national perspective, Hu Wei et al. used the idea of system optimization to propose that the rural human settlements environment optimization system takes counties or townships as the basic geographical unit, including the optimization of security pattern subsystems, village and town planning and there are six aspects of socioeconomic subsystem optimization, infrastructure subsystem optimization, environmental sanitation subsystem optimization, and public service facility subsystem optimization. Gao Hui et al. established a set of evaluation index system for rural human settlements environment construction consisting of five sub-levels of ecological environment, infrastructure, public services, living conditions and economic development. Based on the comprehensive index of living environment, combined with the calculation results, the provinces in the country are divided into four types of areas: excellent, good, average and poor. Liu Quan et al. constructed a standard system for the construction of rural human settlements including 7 aspects, including security, living facilities, industrial economy, public services, sanitation, landscape, and construction management, and 35 indicators, and proposed the rural human settlements evaluation measurement Each stage of the indicator refers to the target value. Li Chen et al. conducted a spatio-temporal analysis of the regional differences in rural human settlements in 30 provinces and three major economic belts in China from 2006 to 2015. The results showed that the factors affecting the comprehensive score of rural human settlements were basic public services, ecological environment quality and In terms of economic and social factors, the comprehensive score of rural human settlements in each province maintains a spatial pattern of "east-middle-west" stepwise decline.

From the perspective of relevant regions, Zhu Yuanyuan et al. took the rural areas of the urban agglomeration in the middle reaches of the Yangtze River as a case study, and constructed a comprehensive evaluation index system for rural human settlement environment quality, including production space subsystems, living space subsystems, and ecological space subsystems. ArcGIS spatial analysis and mathematical statistics methods are used to measure and evaluate the quality of rural human settlements in 31 cities. Zhu Bin et al. constructed an evaluation index system for the quality of rural human settlements from five dimensions: infrastructure, public services, energy consumption, living conditions, and environmental sanitation. Discuss its spatial pattern characteristics. Taking 37 districts and counties of Chongqing as the research unit, Tang Ning and others constructed a comprehensive evaluation index system for the quality of rural human settlements, and used the entropy method to measure the quality of rural human settlements in each district and county. Lu Qing used the AHP method and the entropy method to measure the development level of rural human settlements in Hubei Province. The research found that the overall growth rate was stable, and the growth rate continued to increase in stages.

From the perspective of special areas, Zeng Juxin et al. constructed an evaluation system for rural human settlements in key ecological function areas, and used methods such as analytic hierarchy process to evaluate the rural human settlements in Lichuan City, Hubei Province from 1998 to 2012, and analyzed the natural ecological environment. , Spatial variation characteristics of socio-economic factors. Yang Xingzhu et al. used factor analysis method, entropy value method and canonical correlation analysis method to measure the tourism area in southern Anhui, and explored the differences in the quality of rural human settlements in this area and their influencing factors.

Farmers are important participants in the rural human settlements, both as planners and builders, as well as regulators and users. Sun Huibo and others

Through the field investigation in Beijing and Hebei, the structural equation model was used to explore the optimization path of the rural human settlements environment system. The research results show that farmers generally have poor evaluation of the quality of rural human settlements. Li Dongqing et al. used the panel data of more than 1,450 rural households in seven provinces across the country to systematically describe the development trend of rural human settlements in my country from the three aspects of household toilet use, domestic waste treatment and domestic sewage treatment, and quantitatively evaluated them using the instrumental variable-fixed effect model. Implementation effect and mechanism of rural human settlements improvement. Farmers are the direct users and beneficiaries of the improvement of rural human settlements. The quality of rural human settlements directly affects farmers' satisfaction and willingness to pay. Li Bohua et al. used the fuzzy comprehensive evaluation method to evaluate the satisfaction of rural human settlements, and proposed that the breakthrough point for the construction of rural human settlements should be determined according to the degree of difference between residents' own desires and realistic perceptions. Lu Chen built a comprehensive evaluation index system through exploratory factor analysis, and used the comprehensive fuzzy evaluation method to measure the residents' satisfaction level of environmental governance in Xiaogan City, Hubei Province. Based on the questionnaires of 1204 villagers in Tianjin, Chang et al. used the ordered probit model to analyze the influence of personal characteristics, family characteristics and environmental governance participation on the satisfaction and willingness to pay of rural human settlements improvement, and found that due to the low participation of farmers As well as insufficient environmental governance publicity and other reasons, farmers have high satisfaction with rural living environment improvement and low willingness to pay. Tang Xu et al. analyzed the typical survey data of 5 provinces across the country in 2014 and concluded that the actual cost of domestic waste collection and transportation in rural areas of my country is about 23.21 yuan/[month·person], and the rural residents' willingness to pay for domestic waste collection and transportation is about 6.5 yuan/[month•household], the funding gap is obvious.

6. CONCLUSION

The product of rural human settlement environment has mixed attributes of public product and private product, and "multivariate co-governance" has become the optimal choice for the improvement plan of rural human settlement environment. Households, toilets, domestic waste collection, domestic sewage discharge facilities, and green facilities in front of and behind houses of peasant families have obvious characteristics of private goods, while domestic waste transfer, domestic sewage centralized treatment facilities, village roads, education, medical care and other services It has the non-exclusive and non-competitive characteristics of public goods. A single-dominated governance model will lead to dilemmas such as "government failure" and "market failure", making it difficult to effectively solve the problems of rural human settlements. Due to the different identities and perspectives of participants such as the government, the market, enterprises, and individuals, they will inevitably tend to their own preferences and interests, and the diversification of governance subjects has become a new paradigm for rural human settlements governance.

From the existing research, it is found that the rural human settlement environment system can be divided into three subsystems: production space, living space, and ecological space. Or multiple subsystems of different types. Rural human settlements are multifunctional in terms of ecology, economy, society, and culture. First of all, it has the function of ecological environment, which is manifested in the characteristics of natural geography and ecological environment, such as the natural climate conditions in rural areas, pastoral scenery, village greening and ecological protection status, etc.; secondly, it involves economic "functions" such as farmers' income and rural industrial development; The third is the social function, which is more manifested in providing residents with roads, running water, electricity, communications, education, medical care, social security and other life service products with social attributes; the fourth is the cultural function characteristics, whether it is the traditional blood relationship Whether it is cultural traditions of geographical origin or modern market-oriented and contract-based social relations, they all have a significant impact on rural daily lifestyles, habits, environmental protection awareness, and concepts. Therefore, based on the multi-functionality and complexity of the rural human settlement environment, no matter whether it is to examine the development level of the rural human settlement environment itself or the satisfaction of farmers with the improvement effect of the rural human settlement environment, it is necessary to adhere to a systematic and comprehensive concept to carry out comprehensive research. evaluate.

COMPETING INTERESTS

The authors have no relevant financial or non-financial interests to disclose.

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