

Research on the Performance of Rural Residential Environment Governance in the Yangtze River Delta Region

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Abstract

Since the proposal of the rural revitalization strategy, "livable", "suitable for work", and "beautiful" have become the development goals of rural areas in the new era, among which the improvement of rural living environment issues has become an inherent requirement for rural revitalization. This article is based on the provincial and municipal regions of the Yangtze River Delta region, constructs a performance evaluation system for rural human settlement environment governance, and uses the entropy weight method to explore the influencing factors of rural human settlement environment governance performance in the Yangtze River Delta region.

Keywords

Rural Revitalization; Environmental Governance; Entropy Weight Method.

1. Introduction

Since the proposal of the rural revitalization strategy, "livable", "suitable for work", and "beautiful" have become the development goals of rural areas in the new era, among which the improvement of rural living environment issues has become an inherent requirement for rural revitalization. In the 2018 "Three Year Action Plan for Rural Residential Environment Improvement", it was pointed out that "prioritize the development of agriculture and rural areas", "take the construction of beautiful and livable villages as the guidance, and focus on rural garbage and sewage treatment and village appearance improvement as the main direction of attack, mobilize all forces, integrate various resources, and strengthen various measures". In recent years, in order to further promote rural revitalization, the General Office of the Central Committee of the Communist Party of China and the General Office of the State Council have issued the "Five Year Action Plan for Improving Rural Human Settlements (2021-2025)", providing strong support for comprehensively improving the quality of rural human settlements and building a beautiful China. Therefore, this article has important practical value in studying the governance of rural living environment in the Yangtze River Delta region.

The Yangtze River Delta region, as one of the regions with the most active economic development, the highest degree of openness, and the strongest innovation ability in China, has always received attention from all sectors of society. However, there is relatively little research on the governance of human settlements in the Yangtze River Delta region, and a systematic scientific evaluation system has not yet been formed. From the perspective of research objects and subjects, scholars mainly focus on cities or rural areas, with less research on regions. From

the perspective of research direction, scholars have conducted research from the perspectives of village participation and satisfaction, digital platform construction, multi-agent collaborative governance, and ecological civilization. From the perspective of indicator establishment, Wang Qiubing and others have constructed a three-layer rural living environment indicator system. Liu Quan and Chen Yu summarized and proposed a rural living environment construction indicator system consisting of seven aspects, including hygiene and environment, and 35 indicators. Du Yan and others established an indicator system from four aspects, including the production environment in rural areas. Luo Hangyu et al.

Summarizing the existing research methods and content of scholars, this article constructs a performance evaluation system for rural human settlement environment governance based on the provinces and cities in the Yangtze River Delta region, and uses the entropy weight method to explore the influencing factors of rural human settlement environment governance performance in the Yangtze River Delta region.

2. Current Situation and Problems of Rural Living Environment Improvement in the Yangtze River Delta Region

Since the introduction of the "Three Year Action Plan for Rural Residential Environment Improvement" in 2018, the rural living environment has been continuously improved. More than 95% of villages in the country have carried out rectification work and achieved significant results. Among them, the popularization rate of rural sanitary toilets is over 68%, the proportion of domestic waste collection and treatment exceeds 90%, and the treatment rate of domestic sewage is 25.5%. The rural living environment has undergone tremendous changes. However, there are still a series of issues. Focusing on the Yangtze River Delta region, the issues are as follows:

2.1. Low Participation of Enterprises and Villagers, Insufficient Publicity and Education

Although the policy encourages active participation of social forces and constructs a multi-party co construction and co management pattern among the government, market entities, village collectives, and villagers, some villagers still have poor living habits, weak environmental awareness, low participation in village affairs, and personal interests as the starting point for treating garbage and sewage treatment. Secondly, enterprises pursue the maximization of their own interests, with high participation from state-owned enterprises, while private enterprises have low participation in financial and material resources.

2.2. Inadequate Governance Work

In terms of sewage treatment, the coverage rate of rural sewage treatment facilities in Jiangsu Province is around 75%, except for cities such as Wuxi, Suzhou, Yancheng, and Zhenjiang, according to data published by local governments. The coverage rate of sewage collection by sewage treatment facilities in Anhui Province will basically reach 75% in 2022. The coverage area has significantly increased, and it is still difficult to solve professional problems such as the inability to achieve full collection and treatment of sewage and equipment maintenance and operation management for different households with different drainage locations. In terms of garbage treatment: The treatment system for rural household waste is lagging behind, failing to achieve full coverage of garbage treatment villages. Secondly, the untimely garbage collection leads to garbage stacking, odor, and corruption. There is no specialized garbage collection equipment in rural areas, and there are a large number of tricycles replacing garbage collection vehicles.

2.3. Insufficient Capital Investment

Although the government has increased financial investment in rural living environment, the intensity and precision of investment vary from region to region, and the funds invested by the government are limited. However, there are many projects that need to be allocated, including sewage, toilets, garbage treatment, etc., and a portion of the funds need to be borne by village and town collectives and social enterprises. The participation and enthusiasm of enterprises and villagers will affect the progress of the project.

2.4. Lack of Overall Planning

The governance of rural living environment involves a lot of content, diverse project types, and a lack of overall coordination and arrangement of personnel and funds. In addition, there is a lack of analysis tailored to local conditions in the design and planning, which cannot fully utilize the geographical location and resource advantages of the village. Therefore, the improvement of rural living environment must establish a sound and effective management and protection mechanism, fully play the role of farmers as the main body, and increase the support and participation of social forces.

3. Indicator System and Research Methods

3.1. Construction of Indicator System

On the basis of in-depth research on the achievements of existing scholars and national policies, following the principles of operability, scientificity, dynamism, and comparability, and considering the accessibility of data, an evaluation index system is constructed from five aspects: infrastructure, living conditions, ecological environment, public services, and economic development.

3.1.1. Infrastructure Evaluation Indicators

The primary task of handling rural living environment is to build rural infrastructure and provide convenient production and living environment for villagers. The criterion layer includes three indicators: "pipeline coverage rate X1", "road hardening rate X2", and "proportion of villages with improved farmland and water conservancy facilities X3". As the saying goes, "If you want to be rich, build roads first." Firstly, the road conditions provide guarantees for villagers' travel and wealth introduction; Secondly, achieving the transformation from dirt roads to cement roads is the primary measure to improve the appearance of the village. The selection of indicators for X2 takes into account that rural areas mainly focus on planting agricultural products, and improved farmland water conservancy facilities can provide security for farmers' main income, improve their working conditions, and alleviate labor pressure. Due to the traditional production and lifestyle, as well as the development and utilization of rural resources, the pollution of rural water environment is gradually becoming severe. At the same time, the level of rural household sewage treatment is relatively low, and there is an urgent need for the popularization and full coverage of sewage treatment pipelines. Therefore, the coverage rate of sewage pipelines is selected as one of the indicators.

3.1.2. Residential Condition Evaluation Indicators

The living conditions are closely related to the evaluation indicators of villagers, and the improvement of living conditions is conducive to enhancing the convenience of villagers' lives, and the level of livable construction is a key link in the governance of rural living environment. Natural gas belongs to renewable and clean energy. The widespread use of natural gas in households has changed the original coal burning method, saved non renewable energy, improved air quality, and ensured the safety of residents' lives. In the "Three Year Action Plan

for Rural Residential Environment Improvement", the "Toilet Revolution" was widely promoted and actively promoted in various regions, not only because of the improvement of village appearance, but also because clean and hygienic toilets can reduce the risk of public infectious diseases among the masses. Due to the different economic conditions in rural areas and the different housing conditions in villages, the government has the responsibility to assist in the rectification of dangerous and disorderly houses. This not only improves the appearance of the village, but also ensures the living environment of residents. Therefore, this criterion layer selects four indicators for evaluation: "natural gas to household ratio X4", "village dry toilet ratio X5", "tap water penetration rate X6", and "residential area owned by residents X7".

3.1.3. Ecological Environment Evaluation Indicators

Green waters and green mountains are golden mountains and silver mountains. The ecological environment can not only provide us with a good living environment to meet the growing demand for beautiful ecology, but also drive our economic development and promote the improvement of social living standards. So in the renovation of rural living environment, improving the ecological environment is also a work that cannot be ignored. With the pursuit of crop yield by farmers, a large amount of fertilizers and pesticides are added to production operations, which has also caused a series of problems such as land pollution, excessive chemical substances, and water environment deterioration. The governance of rural ecological environment cannot be achieved without the research of fertilizer application amount. However, in terms of rural waste management, there are still common practical problems such as difficulty in raising construction funds, inconvenient centralized transportation and treatment, and weak environmental awareness among farmers. Therefore, the criteria layer selects four indicators for evaluation: "Village vegetation coverage rate X8", "Number of black and odorous ditches X9", "Garbage collection coverage rate X10", and "Fertilizer application intensity X11".

3.1.4. Public Service Evaluation Indicators

Strengthening rural public services is an important part of achieving rural revitalization. To strengthen rural public services, it is necessary to improve the construction of supporting facilities, enrich the cultural construction of villagers, enhance their sense of happiness and spiritual satisfaction. Therefore, this criterion layer selects "the number of health technicians in village clinics X12", "the number of township cultural stations X13", "the number of village public toilets X14", and "the popularization rate of fitness facilities X15" as evaluation indicators.

3.1.5. Economic Development Evaluation Indicators

The improvement of rural living environment cannot be separated from economic support, and various expenses such as infrastructure construction, personnel salary distribution, and event organizing funds need to be included in the consideration of the level of improvement. In addition to financial support from regional governments, external support from society and the participation and investment of villagers are key factors for good governance. Therefore, this criterion layer selects "per capita disposable income of residents X16", "financial expenditure on urban and rural community affairs X17", and "regional industrial income X18" as evaluation indicators.

Table 1. Evaluation Indicators for Rural Residential Environment Governance Level

Target layer	Criterion layer	Indicator layer	Unit
Evaluation indicators for the governance level of living environment	Infrastructure	Sewage pipeline coverage rate X1	%
		Road hardening rate X2	%
		Proportion of villages with complete farmland and water conservancy facilities X3	%
	Residential conditions	Natural gas to household ratio X4	%
		Village dry toilet ratio X5	%
		Tap water penetration rate X6	%
		Number of dilapidated buildings renovated X7	
	Ecological environment	Village vegetation coverage rate X8	
		Number of black and odorous ditches X9	
		Garbage collection coverage rate X10	%
		Fertilizer application intensity X11	Kg·hm ⁻²
	Public service	Number of health technicians in the village clinic X12	
		Number of township cultural stations X13	
		Number of village public toilets X14	
		Fitness facility penetration rate X15	%
	Economic development	Per capita disposable income of residents X16	Ten thousand yuan
		Financial expenditure for urban and rural community affairs X17	RMB100mn
		Regional Industrial Income X18	Ten thousand yuan

3.2. Evaluation Method

The entropy weight method is a method of weighting indicators based on the amount of information provided by the entropy values of each indicator (i.e. the degree of dispersion). The entropy value of the index reflects its dispersion degree in the overall research object, and its dispersion degree is inversely proportional to the information entropy value, and its weight is proportional to its dispersion degree; If the values of a certain indicator are all equal, the degree of dispersion of the indicator is zero, and it does not play a role in comprehensive evaluation. Compared to the Analytic Hierarchy Process (AHP), which requires subjective behavior participation such as expert scoring, the entropy weight method can avoid human interference, make the evaluation results more realistic, and thus have higher objectivity.

The basic steps to follow when using the entropy weight method to analyze and solve problems are as follows:

(1) Construct a decision matrix X with evaluation objects having $n=\{n_1, n_2, \dots, n_n\}$, evaluation indicators having $m=\{m_1, m_2, \dots, m_m\}$, and evaluation objects and indicators marked as $x_{ij}=\{i=1,2,\dots, n; j=1,2,\dots, m\}$.

(2) Max - Min Standardized Decision Matrix.

Due to certain differences in the dimensions and order of magnitude of indicators, in order to eliminate the impact on the evaluation results, it is necessary to standardize each indicator. Form a matrix $R=(r_{ij}) m \times n$ from the previous step.

For positive indicators:

$$r_{ij} = \frac{x_{ij}-\min(x_j)}{\max(x_j)-\min(x_j)} \tag{1}$$

For negative indicators:

$$r_{ij} = \frac{\max(x_j) - x_{ij}}{\max(x_j) - \min(x_j)} \quad (2)$$

(3) Calculate the proportion K_{ij} of the i -th evaluation object in the j th indicator of the evaluation system.

$$K_{ij} = \frac{R_{ij}}{\sum_{i=1}^n R_{ij}} \quad (i = 1, 2, \dots, n; j = 1, 2, \dots, m) \quad (3)$$

(4) Calculate the entropy value E_j of the j th indicator among n evaluation objects and m evaluation indicators.

$$E_j = -\frac{1}{\ln n} \sum_{i=1}^n K_{ij} \ln K_{ij} \quad (i = 1, 2, \dots, n; j = 1, 2, \dots, m) \quad (4)$$

(5) Calculate the coefficient of difference G_j for the j th indicator. The larger the coefficient of difference, the higher the importance of the indicator.

$$G_j = 1 - E_j \quad (j = 1, 2, \dots, m) \quad (5)$$

(6) Calculate the weight W_j of the j th indicator.

$$W_j = \frac{G_j}{\sum_{j=1}^m G_j} \quad (j = 1, 2, \dots, m) \quad (6)$$

4. Measurement and Analysis of the Performance of Rural Residential Environment Governance in the Yangtze River Delta Region

4.1. Evaluation Object and Data Source

This article selects the level of rural human settlement environment governance in the Yangtze River Delta region as the research object, and explores the weight of factors that affect the level of rural human settlement governance under regional differences. The administrative scope of the study includes four provinces, namely Shanghai, Jiangsu, Zhejiang, and Anhui, with a total of 41 cities.

The main sources of raw data in this article include the 2021 Jiangsu Statistical Yearbook, Zhejiang Statistical Yearbook, Shanghai Statistical Yearbook, Anhui Statistical Yearbook, and the National Economic and Social Development Statistical Bulletin of each district (county).

After completing the construction of the evaluation indicator system, the observation values of the evaluation samples on each indicator can be obtained. However, these observation values have different units and indicator types, and cannot be directly calculated. Therefore, it is necessary to process the original data. Due to the fact that all indicators selected in this article are positive indicators, the main focus of data processing is on dimensionless indicators.

Based on the different units and orders of magnitude of indicators, it is necessary to perform dimensionless processing on the data, that is, standardization processing. The specific method is to subtract the minimum value from the same variable and then divide it by the difference

between the maximum and minimum values. This method can maximize the preservation of the original attributes of the data. Specific formula:

$$r_{ij} = \frac{x_{ij} - \min(x_j)}{\max(x_j) - \min(x_j)}$$

Among them, i is the province and j is the measurement indicator.

After standardization, according to the formula, the data needs to be translated, i.e. $r_{ij} + 0.001$, to exclude the possibility of data being 0.

4.2. Measurement Results and Analysis

4.2.1. Partial Measurement Results and Analysis

(1) Infrastructure. The analysis results show that the basic road surfaces in Anhui, Shanghai, Zhejiang, and Jiangsu have achieved comprehensive hardening. In terms of effective irrigation area, in 2021, the average area of 13 cities in Zhejiang was 129000 hectares, with Ningbo having the highest area of 175.53 thousand hectares and Zhoushan having the lowest area of 14.56 hectares. The differences between cities are relatively small. According to the statistics of Anhui Province in 2020, the average effective irrigation area is 287.99 thousand hectares, of which the maximum area in Bozhou is 503.37 thousand hectares, and the minimum area in Mount Huangshan is 62.36 thousand hectares. There are significant differences in the effective irrigation area among 16 cities in Anhui Province, with significant fluctuations between cities. The average coverage rate of sewage treatment facilities in administrative villages in Jiangsu Province is as high as 84%, while the coverage rate in natural villages is relatively low. By 2023, full coverage can be basically achieved. According to data analysis, only Huai'an, Zhenjiang, Taizhou, and Suqian have a low coverage rate of about 70%. The sewage treatment facilities in Anhui Province are led by Hefei, with Wuhu ranking second and Xuancheng third.

(2) Residential conditions. The result analysis shows that Jiangsu has done the best in the popularization of tap water renovation, achieving full coverage of tap water. The average coverage rate of 16 cities in Anhui is also over 90%, and some cities, such as Bengbu, Huainan, Chuzhou, Huaibei, Anqing, and Liu'an, are at the level of 80%. And there is also a significant difference in the rate of natural gas entering households. Taking Anhui Province as an example, Hefei and Wuhu, as the top two cities in Anhui Province in terms of economic development, have a much higher natural gas household entry rate than other cities, with Bengbu ranking third. The second tier is Fuyang, Huainan, Ma'anshan, Lu'an, and Huaibei, with an average gas supply of 60 million cubic meters per year. The third echelon is Tongling, Anqing, Mount Huangshan, Chuzhou and Suzhou, with an average gas supply of only 40 million cubic meters per year. This is similar to the ranking of economic development level in Anhui Province.

(3) Ecological environment. The results showed significant differences in fertilizer usage among the three provinces. Overall analysis shows that the amount of fertilizer used in Zhejiang Province is less than that in Anhui, while Jiangsu Province is known as a bell shaped distribution. First of all, Hefei, Mount Huangshan, Tongling and Chizhou in Anhui Province use less, of which Hefei, the provincial capital, uses the least, followed by Mount Huangshan, which is dominated by tourism. The average fertilizer application in Bozhou, Suzhou, Bengbu, Fuyang, Huainan, Chuzhou, Lu'an, Xuande, Anqing, and Wuhu reached 230000 tons. This is related to both terrain and economic form. According to data from Jiangsu Province in 2020, Yancheng, Suqian, Huai'an, and Xuzhou have relatively high levels of fertilizer application, with Yancheng being the city with the highest grain yield in Jiangsu Province. However, relatively developed cities such as Nanjing, Wuxi, Suzhou, Changzhou, and Zhenjiang have an average consumption of only 50000 tons.

(4) Public services. According to data analysis, Anhui Province has the highest number of rural health clinics among the three provinces. In 2020, Hefei had 1195 village clinics, 1809 in Fuyang, 1917 in Lu'an, 1396 in Anqing, and 1334 in Bozhou, ranking among the top in terms of quantity. In 2021, Jiangsu Province ranked among the top in terms of 421 in Nanjing, 416 in Wuxi, and 470 in Suzhou. In 2021, there were 370 top cities in Zhejiang Province, including Hangzhou. Next is the second tier, with 198 in Ningbo, 134 in Taizhou, 161 in Wenzhou, and 157 in Jinhua. The number of rural clinics can reflect the economic development and urban-rural integration construction of a region.

(5) Economic development. The financial expenditure on urban and rural community affairs reflects the investment of a local government in rural construction. The per capita disposable income of residents and regional industrial income can provide reference for the participation of multiple entities in promoting rural construction. The data in this criterion layer has strong regional differences, with different levels of regional economic development and different results, and is not of comparative value. However, it can provide reference for the proposal of suggestions in the future.

4.2.2. Cluster Analysis

After investigation, it was found that there are significant regional differences in the industrial and economic structure of the four provinces. For example, Anhui is divided into three regions: southern Anhui, northern Anhui, and Jianghuai. The southern Anhui region is more dominated by tourism, while the northern Anhui region is more dominated by industry. Jiangsu is divided into northern Jiangsu, central Jiangsu, and southern Jiangsu. Northern Jiangsu is dominated by traditional agriculture, while southern Jiangsu is dominated by high-tech industries. Scholars have not yet studied the governance of rural living environment based on the regional industrial and economic structure. Therefore, this article can perform the following clustering:

Table 2. Cluster Analysis Results

Anhui	Industry	Jiangsu	industry	Shanghai	Industry
Southern Anhui (Mount Huangshan, Wuhu, Xuancheng, Chizhou, Tongling)	tourism	Sunan (Nanjing, Wuxi, Zhenjiang, Suzhou, Changzhou)	Manufacturing and emerging industries	—	Finance, service industry, and tertiary industry
North Anhui (Huaibei, Suzhou, Bengbu, Bozhou, Huainan, Fuyang)	Industry	Suzhong (Yangzhou, Taizhou, Nantong)	Textile, footwear, paper, chemical, pharmaceutical industries		
Central Anhui (Ma'anshan, Hefei, Anqing, Lu'an, Chuzhou)	planting	Subei (Huai'an, Yancheng, Suqian, Xuzhou, Lianyungang)	construction		

The result analysis shows that South Jiangsu is the region with the highest level of development in Jiangsu Province. Nanjing's leading industries, including new electronic information, green intelligent cars, high-end intelligent equipment, biomedicine, energy conservation and environmental protection, are all advanced manufacturing industries. Suzhou is best at and best at manufacturing. It borders Shanghai and inherits Shanghai's industrial and technological resources, proposing the integration of Suzhou and Shanghai for urban development. Changzhou's equipment manufacturing industry is particularly developed. Changzhou's intelligent manufacturing equipment industry has been selected as one of the first batch of national strategic emerging industry clusters, and the new carbon material industry has also been selected as one of the national advanced manufacturing industry clusters. The old urban

area of Zhenjiang mainly develops digital economy and research and development economy. The eastern part is close to Suzhou, Wuxi, and Changzhou, with a focus on developing high-end equipment manufacturing industry. The western part is close to Nanjing, with emerging industries as the main focus, truly achieving industrial structure layout and surrounding radiation driving. The main industries in northern Jiangsu are textile, footwear, paper, chemical, and pharmaceutical industries. The central Jiangsu region, represented by Nantong and Yangzhou, is a hometown of architecture.

Due to the significant limitations of the population and terrain in southern Anhui, its development is mainly limited by the tourism industry, with more industries shifting to northern Anhui. The cities in northern Anhui have abundant labor force and a large area of land. With the continuous planning and expansion of railways, transportation has become more developed. Northern Anhui belongs to the Huanghuaihai Plain, and agriculture has always been a pillar industry in the region. The land is fertile, the water system is developed, and there are various types of agricultural products with large yields, making it an important commodity grain in China A production base for high-quality cotton, tobacco, and mint.

5. Optimize Measures for Improving Rural Living Environment in the Yangtze River Delta Region

Based on the above analysis, the following measures are proposed to further optimize the improvement of rural living environment.

Firstly, tailor measures to local conditions and develop targeted measures. Analyze the local industrial characteristics and terrain characteristics. The terrain and terrain characteristics determine the distribution structure and governance planning of rural areas. For example, there are various types of landforms in southern Anhui Province, mainly mountainous and hilly areas. The density of village distribution is low, and the cost of investment in sewage discharge pipelines has increased. The mountainous areas are not suitable for the development of planting industry, so the soil and fertilizer pollution level in the area is low. The vegetation in the mountainous areas is lush, and the ecological environment is beautiful. So a small amount of investment can be made in ecological environment governance. In the southern Anhui region, the scenery and scenery are beautiful, and the ancient culture has nurtured a rich and calm folk culture and popularity. Therefore, the tourism industry is developed, and the tourism industry promotes the improvement of rural environment and the appearance of villages. Therefore, there are high requirements for rural public testing, road hardening degree, village culture, and infrastructure. The central Anhui region is located in the plain and is suitable for the development of agriculture. The government needs to increase financial investment in water conservancy facilities construction and control the amount of fertilizer application.

Secondly, developed regions drive underdeveloped regions to form actively developing cities. Each city has different advantageous industries and different economic development conditions. The most fundamental problem to solve the problem of rural residential environment governance is the problem of funds, so the first rich drive the later rich. For example, the development of Zhenjiang area, the old city mainly develops headquarters economy, digital economy, research and development economy, and creative economy. Due to its proximity to Suzhou, Wuxi, and Changzhou, the eastern region has focused on developing industries such as high-end equipment manufacturing, aerospace, new materials, new energy, and modern logistics. The western region is mainly connected to Nanjing, with a focus on developing new energy, intelligent manufacturing, information technology, and ecological agriculture. The coordinated development of the economy in the same province and neighboring areas, led by the government, will drive economic investment in rural living environment governance. For example, in the Yangtze River Delta region, Shanghai's economy

is particularly developed, and its radiation drives the economic development of surrounding cities such as Suzhou, Zhoushan, Wuxi, Changzhou, and Nantong.

Once again, improve policies, divide management responsibilities, assign responsibilities to enterprises, and provide targeted assistance. The current problems are unclear division of government responsibilities, incomplete task allocation among village committee members, delayed transmission of orders, and inadequate supervision. It is recommended to improve various relevant systems such as village rules and regulations, implement the supervision responsibilities of village branch secretaries, village residents' specialized personnel, and team leaders stationed in the village, clarify reward and punishment measures, improve supervision and constraint mechanisms, separate supervision and execution, adopt performance management, monthly scoring or weekly testing, strictly control village garbage cleaning work, sewage treatment work, responsible implementation to households, and conduct door-to-door visits to investigate the situation of natural gas entering households Toilet renovation, sewage discharge, and garbage disposal. Actively listen to the opinions of the masses. To further ensure the progress of garbage and sewage treatment work, responsibility can be assigned to individuals, and each household is responsible for a certain area, promoting the participation of villagers. At the same time, in order to promote the participation of enterprises, the government can take the lead in allocating villages to enterprises. Enterprises are responsible for the governance of the living environment in surrounding villages, and the government can provide preferential land acquisition and tax incentives to enterprises. Responsibility is assigned to enterprises to address economic issues in governance.

Finally, vigorously promote publicity work and enrich the construction of rural spiritual culture. Farmers have always been important direct participants and beneficiaries in promoting the integrated governance of rural living environment. We should fully leverage the unique farmer subjectivity of grassroots farmers in carrying out the overall governance of rural living environment, improve their independent participation in governance, and gradually achieve comprehensive and good coordination with the government, society, and farmers in the implementation of the overall governance of rural living environment nationwide, Promote the orderly and healthy development and effective implementation of the current rural living environment governance mechanism. This requires villagers to first have a good sense of ownership and fully understand the importance of rural living environment governance. The village committee can regularly hold publicity and mobilization work, vigorously promoting the benefits of measures such as toilet renovation, sewage treatment, and natural gas use that benefit the people. Members of the village committee shall conduct visits, investigations, and listen to the opinions of the villagers. After the holiday, it is also necessary to actively organize and carry out cultural and entertainment activities for villagers, such as square dance competitions and local characteristic performances, to enrich the spiritual life of villagers, increase village cohesion, and also enhance their sense of happiness. The improvement of spiritual pursuit will inevitably lead to the pursuit of material life, which is beneficial for villagers to spontaneously govern their villages.

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