

# Exploration on the Construction of Rural Human Settlements Environment Governance System under the Background of Rural Construction in Hemei—Taking P Village in Tianjin as an Example

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**Abstract:** *This paper takes Tianjin P village as a research example, closely follows the problems existing in the rural human settlement environment governance of P village, conducts field research and investigation on the current situation of human settlement environment governance of P village, summarizes and analyzes, and finds out the actual problems. Fundamentally solve the problem mechanism. Through on-the-spot investigation and questionnaire survey, this paper makes a deep investigation and analysis on the policy background, key contents and measures of implementation, and the problems existing in the management system of rural human settlements environment in P village, and finds out the fundamental problems existing in the top-level design and institutional mechanism. There are some problems, such as unclear main body of human settlements environment improvement, imperfect human settlements environment improvement and supervision system, and insufficient infrastructure construction. In view of the above problems, this paper clarifies the responsibilities of the administrative organs, enterprises and villagers to ensure that the responsibility goes to the people, and the responsibility must be pursued ; improve the collaborative governance mechanism and environmental supervision mechanism of rural human settlements ; the construction of rural human settlements environmental governance credit system. The author hopes to build a rural human settlements environment governance system through the study of this issue.*

**Keywords:** *Hemei Village; Rural Living Environment; Governance; Rural Revitalization*

## 1. Introduction

The " Opinions of the Central Committee of the Communist Party of China and the State Council on Doing a Good Job in Comprehensively Promoting the Key Work of Rural Revitalization in 2023 " is a specific deployment made after the 20th National Congress of the Communist Party of China proposed the construction of livable and livable villages and beautiful villages, emphasizing the solid promotion of livable and livable villages and beautiful villages. To promote the construction of a strong agricultural country with Chinese-style modernization, the most arduous and onerous task is still in the countryside, and the most extensive and profound foundation is still in the countryside. The harmonious and beautiful countryside enriches the rural cultural connotation of harmonious coexistence, harmony in diversity and harmonious coexistence that does not exist in the beautiful countryside, and further clarifies the goal of building a livable and livable countryside in China [1-2], which is the vision and expectation of hundreds of millions of farmers for a better life. Improving the construction of rural living environment and beautiful and livable villages is the eager expectation of the broad masses of farmers, the inevitable requirement of deepening the "Ten Million Project" and one of the key paths to realize the high-quality development of agriculture and rural areas. Agriculture and rural areas is an indispensable basic unit for the realization of ecological civilization and the construction of beautiful China. The implementation of ecological environment governance is an effective channel to achieve the goal of rural revitalization. The construction of Hemei Village needs to be realized through the governance of rural human settlements. The effect of rural human settlement environment governance directly affects the success or failure of rural construction in Hemei. The governance of rural human settlements environment is the foundation and premise of rural construction in Hemei. Only when the living environment of rural residents is effectively improved and promoted, can the prosperity of rural culture and the improvement of social governance be further promoted, and the harmony and beauty of the countryside be realized [3-5].

## **2. The concept of rural living environment governance system**

The governance system of rural human settlements environment is a comprehensive concept, which includes many aspects. It can be summarized as the following parts : policy system and work promotion mechanism, system regulations and standard system construction, science and technology and talent support, organizational guarantee, villagers ' main role, construction and management mechanism, multi-subject collaborative governance, community foundation, mass subject and co-construction, co-governance and sharing.

## **3. Analysis of the living environment of P village in Tianjin**

### ***3.1 Basic situation of P village in Tianjin***

P Village is located in the southern plain of Jizhou District, Tianjin, and belongs to the administrative jurisdiction of Dongshi Ancient Town. The village is about 20 kilometers away from Jizhou City, covering an area of 1.1 square kilometers. It is composed of 262 families and a total population of 861 people. In the process of village governance and development, a five-person leadership team of the village two committees and 38 members of the Communist Party of China play an important role. P village further promotes the improvement of rural living environment and is committed to creating a beautiful and livable rural environment. Through the implementation of measures such as the construction of facility agriculture, the development of ecological leisure tourism industry, and the excavation of historical and cultural heritage, the village has achieved a gorgeous transformation from " dirty and poor " to " clean and rich. " At the same time, the village has also won a number of honors, such as "Tianjin Rural Governance Demonstration Village in 2020 and 2021", "Tianjin Civilized Village in 2018-2020" and "Tianjin Democratic Rule of Law Demonstration Village" in 2022.

### ***3.2 The main practices of human settlements environmental governance in P village of Tianjin***

The optimization of rural living environment is the deep-seated demand of members of agricultural society, and it is also an important cornerstone for realizing the overall revitalization of rural areas. This process can not only significantly improve the comprehensive image of rural areas, but also greatly enhance the sense of happiness and belonging of rural residents. In addition, the optimized living environment has a positive impact on attracting external investment and promoting the development of local industries, which has laid a solid foundation for the sustainable and healthy development of the rural economy.

#### ***3.2.1 Demolition of pigsty and garbage disposal***

The party branch of P village actively implements the strategy of rural revitalization, deeply mobilizes farmers ' thoughts, and emphasizes the important role of environmental health in improving the quality of rural life. In this process, the party members played a vanguard and exemplary role. By taking the lead in dismantling the pig houses in the village, they led the villagers to participate in environmental sanitation remediation with practical actions. In view of the environmental pollution problem of the pig farm outside the village, the P village party branch has implemented a series of scientific and effective control measures, including the construction of anti-seepage sewage wells, equipped with professional transport vehicles, and the construction of septic wells, which has realized the harmless environmental protection treatment of manure and laid the foundation for the sustainable development of the village. In addition, the P village party branch also assists large pig farmers in environmental protection transformation, through the laying of pipelines to collect and process excreta, and use it for fertile farmland, to achieve effective utilization of resources and circular development.

In terms of garbage classification, P village has taken a number of specific measures to ensure the effective implementation of the classification work. In the village, kitchen waste and other garbage cans were set up at the entrance of the villagers ' homes to facilitate the preliminary classification of the villagers. At the same time, the village is equipped with garbage classification instructors, using intelligent garbage collection vehicles for door-to-door collection, and guiding villagers to correctly classify during the collection process. In order to encourage villagers to actively participate in garbage classification, the village has implemented a point reward system, which records points by scanning the two-dimensional code on the trash can, and points can be exchanged for household goods and convenience services.

### ***3.2.2 Toilet renovation and rural sewage treatment***

Under the background of implementing the strategy of rural revitalization, the improvement of rural health facilities is the core element to improve the quality of rural living environment. The party branch of P village attached great importance to this and regarded toilet renovation as a key link in the process. The party branch is deeply aware that the traditional dry toilets are not only in poor health, but also may become a hotbed of disease transmission, posing a potential threat to the health and safety of villagers. Therefore, the Party branch of P village decided to actively promote the toilet renovation project, in order to achieve the goal of households having flush toilets, so as to comprehensively improve the health standards of the village.

Further, the Party Branch of P Village has established a set of perfect sewage collection and treatment mechanism, and regularly dispatched sewage trucks to transport the sewage in the sewage collection tank to the township-level domestic sewage treatment plant for centralized treatment. This measure not only effectively solves the problems of villagers in sewage disposal, but also significantly improves the overall level of rural sewage treatment, and provides a solid guarantee for the sustainable development of the village.

In the practice of toilet renovation, the Party branch of P village emphasizes the subjectivity of villagers, encourages them to actively participate in the renovation work, and puts forward their own opinions and suggestions. This villagers-centered work concept not only enhances the villagers' sense of participation and satisfaction, but also promotes the harmony and stability of the village.

### ***3.2.3 Street widening and facilities construction***

In order to comprehensively improve the rural image and living environment of P village, the village has implemented a comprehensive infrastructure renovation and environmental beautification project. The project first widened the main street to six meters. At the same time, street trees were planted along both sides of the street, which not only played a role in beautification, but also had the functions of shading and air purification.

On this basis, the village further implemented the hardening, lighting and greening projects, and significantly improved the quality of the rural ecological environment through the unified planting of green seedlings.

The renovation project of the whole village is carried out in accordance with the standards of the national 3A-level tourist attractions, aiming to create a beautiful and livable farm, including the laying of colored bricks in the main streets, the new installation of street lamps, and the planting of flowers and grass in the open space. Through these comprehensive renovation and beautification projects, P village has achieved remarkable results in improving the overall appearance and living environment of the village.

### ***3.2.4 Rural civilization construction***

In the practice of civilized rural construction in P village, remarkable results have been achieved. By consolidating the party's leadership, strengthening the leading role of grass-roots party organizations, and enhancing the construction of villagers' autonomous organizations, the village has effectively abandoned backward customs and established a new civilized fashion. In order to regulate and guide the villagers' behavior patterns, P village formulated P village rules and regulations, and established autonomous institutions such as the Red and White Council, thus comprehensively improving the level of civilization of the village and creating a harmonious, civilized and enterprising rural cultural atmosphere.

In order to enrich the spiritual and cultural life of the villagers, P Village has effectively utilized public cultural facilities such as the rural stage and actively organized a number of cultural activities, including the Farmers' Harvest Festival. These activities not only enhance the collective cohesion and sense of belonging of the villagers, improve their cultural literacy and quality of life, but also promote the inheritance and development of rural culture and inject new cultural vitality into rural revitalization.

In addition, through the implementation of the monthly evaluation mechanism of the points system, P village has further strengthened the villagers' subjective consciousness and promoted the development of rural governance in the direction of democratization and scientification. At the same time, the village also actively held advanced typical selection activities. By setting examples and models, it gave full play to the demonstration and leading role of advanced models, and inspired the enthusiasm and enthusiasm of the majority of villagers to actively participate in the construction of

civilized rural customs. These measures have jointly promoted the remarkable achievements of P village in the construction of civilized rural style.

#### 4. Analysis of the Effect of Human Settlement Environment Improvement in P Village

This study adopted the methodology of questionnaire survey and conducted a systematic random sampling survey of P village. During the implementation of the survey, the researchers consciously selected villagers with a residence period of 3 years or more as the research object, in order to ensure that the data collected by the provider has a more profound understanding and understanding of the actual situation of the village. During the research process, a total of 349 questionnaires were distributed. After rigorous screening and collation, 302 valid questionnaires that met the research requirements were finally obtained. This data collection process has laid a solid data foundation for subsequent quantitative analysis and in-depth research. In addition, this study also uses SPSS statistical software to scientifically analyze the reliability and validity of the collected data to ensure the reliability and validity of the research results.

##### 4.1 Questionnaire design

In order to accurately grasp the real perception and expectation of rural residents on the current living environment, the author carefully designed a questionnaire. The questionnaire aims to conduct quantitative analysis by collecting basic information such as gender, age, and place of residence of respondents, as well as satisfaction data on living conditions, sanitation, air quality, drinking water safety, garbage disposal, sewage treatment, greening, traffic conditions, broadband signal coverage, cultural and sports activities, and work efficiency of grass-roots organizations. This study seeks to show the specific situation of rural residents' satisfaction with the living environment through a comprehensive and objective assessment.

##### 4.2 Reliability analysis

Table 1: Reliability analysis results

	The scale average after deleting the item	The scale variance after deleting terms	Correlation between corrected term and total	Clone Bach Alpha after deletion
Your satisfaction with the area of residence	42.57	122.826	.838	.961
Your satisfaction with the sanitary degree of the toilets in the residence	42.49	120.871	.837	.961
Your satisfaction with the surrounding air quality	42.58	123.451	.829	.961
Your satisfaction with drinking water safety	42.53	122.123	.805	.962
Your satisfaction with the way of garbage disposal, whether the garbage cleaning is timely, whether the classification processing	42.59	123.386	.818	.961
Your satisfaction with the local sewage treatment situation	42.51	121.371	.830	.961
Your satisfaction with the greening of the village	42.58	123.618	.823	.961
Your satisfaction with the distance to the nearest village road from home	42.58	124.095	.755	.963
Your satisfaction with broadband service signal strength	42.56	123.299	.813	.962
Your satisfaction with the construction of cultural and sports activities	42.64	124.341	.813	.962
Your satisfaction with the work of grass-roots organizations	42.57	123.004	.842	.961
Your comprehensive satisfaction with the local living environment	42.59	123.409	.813	.962

According to the data shown in the above table 1, the reliability coefficient is as high as 0.965, which significantly exceeds the threshold of 0.9. It can be inferred that the data in this study have extremely high reliability quality. By further observing the 'deleted alpha coefficient' index, we found that the reliability coefficient did not increase significantly when any item was removed. This phenomenon strongly proves that all items contribute to the overall reliability, and no item is redundant

or should be deleted. Therefore, it can be concluded that all items should be retained without deletion.

### 4.3 Validity analysis

When using the KMO and Bartlett test to evaluate the validity, we mainly focus on the following three aspects, without considering the corresponding relationship between the dimension and the analysis item and the variance interpretation rate and other factors : the first study is the KMO value : if the value exceeds 0.8, it shows that the data is very suitable for information extraction ; if it is between 0.7 and 0.8, it is more suitable ; if it is in the range of 0.6 to 0.7, the information extraction can still be carried out ; however, if it is lower than 0.6, it means that information extraction is more difficult. Secondly, the validity of the validity analysis needs to be verified by Bartlett test, and the corresponding p value needs to be less than 0.05 to meet the test requirements. Finally, it is worth noting that if only two analysis items are included, regardless of the actual situation, the KMO value is fixed at 0.5, which should be considered in such analysis.

Table 2: KMO and Bartlett tests

KMO sampling suitability quantity		.972
Bartlett sphericity test	Approximate chi-square	3924.868
	Degree of freedom	66
	Prominence	.000

KMO and Bartlett tests were used to verify the validity. It can be seen from the above table 2 that the KMO value is 0.972, and the KMO value is greater than 0.8. The research data is very suitable for extracting information.

## 5. Analysis of the Dilemma and Causes of the Improvement of the Living Environment in P Village

### 5.1 The main body of human settlement environment improvement is not clear

As the main body of rural environmental construction, agricultural community members are also the direct beneficiaries of environmental quality improvement, and play a central role in the process of rural environmental improvement. However, due to various constraints, the agricultural workers in the P village area lack accurate understanding of the improvement of the living environment, which leads to their low participation in the improvement activities, which in turn hinders the effective implementation of environmental improvement measures. Through field research, it is found that in the evaluation of job satisfaction of grass-roots autonomous organizations, the proportion of respondents who are satisfied and very satisfied is 74.78 %, which indicates that most of the respondents have a high recognition of the management of grass-roots organizations. However, 14.61 % of respondents still expressed dissatisfaction and very dissatisfaction, which may be due to the imperfect coordination mechanism between villagers and grass-roots organizations.

### 5.2 The improvement and supervision system of human settlements environment is not perfect

Through field research, this study found that P village has not yet established a systematic grid management system in the process of human settlement environment remediation, resulting in the inability to conduct comprehensive and effective supervision of remediation activities. In addition, the village has not yet formed a mature rural living environment monitoring system, and the existing monitoring technology has failed to maximize its potential functions. In the field of environmental law enforcement, there is a lack of clear definition of the behavior that should be punished and its specific criteria, which undoubtedly increases the difficulty of environmental law enforcement agencies in the actual operation process. The root of the problem lies in the lack of capital investment. Environmental monitoring and law enforcement work requires a lot of money to support the acquisition and maintenance of monitoring equipment and the construction of law enforcement teams. Therefore, there are obvious deficiencies in the monitoring and evaluation of rural human settlements in P village.

### 5.3 Insufficient infrastructure construction

Based on the analysis of the data obtained from the questionnaire survey, it can be found that there is a large room for improvement in the satisfaction of respondents with garbage disposal, sewage

treatment, greening status and broadband signal strength. Specifically, about 15 % to 30 % of the interviewed villagers expressed their dissatisfaction with the current situation, which reflects the urgent need for improvement in infrastructure construction in P village. Perfect infrastructure is the key prerequisite and basic guarantee for improving rural living standards. The reasons for this phenomenon can be summarized as follows:

First of all, the lack of waste treatment facilities and the unreasonable distribution, coupled with the lack of effective waste classification guidance and treatment mechanism, have led to the low efficiency of waste treatment and aggravated the problem of environmental pollution. Secondly, the imperfection of the sewage treatment system poses a potential threat to the health of residents, and the treatment effect of the existing facilities is not ideal due to improper maintenance. Finally, the imbalance of broadband network coverage limits the fluency of information exchange and hinders the development of modern service models such as distance education and e-commerce. Although some progress has been made in rural informatization construction in recent years, some areas of P village still face the problems of weak broadband signal and slow network speed.

## **6. Construction of Rural Living Environment Governance System**

### ***6.1 Improve the collaborative governance mechanism and environmental supervision mechanism of rural human settlements environment***

In the collaborative model of rural human settlements environmental governance, the equal cooperation among the participants is the core principle. This model advocates the transformation from the government's single subject governance to the multi-subject cooperative governance, aiming to stimulate the initiative of each participating subject, promote collaborative action through the establishment of mutual trust relationship, so as to improve the overall governance efficiency. Under this framework, clarifying the boundaries of powers and responsibilities of each subject, rationalizing the functions of environmental governance, and avoiding management confusion are the prerequisites for ensuring the orderly conduct of governance. In addition, with the goal of building a livable and livable village, the leading role of rural planning in construction should be strengthened. To promote the practical village planning of ' multi-planning integration ' in an orderly manner, and to explore the working mechanism of integrating various planning and coordinating various planning [6-7]. It is very important to improve the internal environmental governance system of the community and realize the governance strategy of internal and external balance and flexible response to build an effective communication and coordination mechanism and protect the rights and interests of all parties.

### ***6.2 Play the main role of the villagers to cultivate rural community living environment autonomous organization***

Cultivating the autonomous organization of human settlements in rural communities is a multi-dimensional process, which requires close cooperation and coordination among the government, social organizations and rural residents. As far as the current situation of rural environmental governance in China is concerned, most rural areas still continue the traditional governance model dominated by the government and the market, which inhibits the willingness of farmers to participate in environmental governance to a certain extent, resulting in the sustainability of the governance effect is not strong, and even there are signs of ' rebound ' in some areas. First of all, by strengthening publicity and education and providing professional training, farmers ' awareness of environmental protection and governance capabilities will be enhanced, laying the ideological and skill foundation for the establishment of autonomous organizations. Secondly, formulate and implement supportive policies, including financial support, tax incentives and technical support, to reduce the start-up and operation costs of autonomous organizations. In addition, the establishment of demonstration projects and incentive mechanisms, through recognition and reward advanced, to stimulate more community participation enthusiasm. At the same time, encourage community participation and multi-party cooperation to form a co-governance pattern of government guidance, social support, and farmers. Improve the organizational structure and operation mechanism to ensure the efficiency and transparency of autonomous organizations. Finally, through the supervision and evaluation mechanism, the healthy development of autonomous organizations is guaranteed, so as to effectively improve the effect and level of rural human settlements environmental governance. The implementation of these measures aims to build a systematic rural living environment autonomy system to achieve the goal of continuous improvement of the rural environment and the construction of a beautiful countryside.

### **6.3 Construction of rural human settlements environmental governance credit system**

Strengthen the construction of villagers' integrity, actively carry out the credit evaluation of farmers, and build a rural credit information integration management system. First of all, to ensure that there is a clear system and regulatory basis, government departments should speed up the formulation of 'Interim Measures for Credit Evaluation of Rural Human Settlement Environment Governance' and 'Rural Credit Management System Specification', and include villagers' health credit status in garbage disposal, sewage treatment and other human settlements into personal credit records. Through the rural living environment supervision platform, a comprehensive quality assessment of the rural living environment health integrity is carried out, and the results are regularly announced, so as to encourage farmers to self-manage and supervise each other, thus improving the quality of village civilization and promoting the improvement of rural ecological environment health.

## **7. Summary**

The improvement of rural human settlements in China is facing many challenges, which are mainly manifested in the lack of overall planning, imperfect technical policies, insufficient coordination, weak management institutions and poor regulatory mechanisms. In order to achieve the overall goal of rural human settlement environment improvement, we must pay attention to the dominant position of farmers, scientifically plan the rural human settlement environment, clarify the key points and priorities of the improvement, establish an appropriate technical system, and strengthen the agricultural foundation and environmental protection on the basis of in-depth analysis of practical problems in various places, so as to promote the coordinated development of rural production, life and ecology.

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