

Present Situation and Countermeasures of Rural Domestic Sewage Treatment in Anhui Province

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Abstract

In recent years, the process of Rural Revitalization has been gradually promoted, and rural domestic sewage treatment has become the only way to promote rural revitalization. Anhui Province, as a major agricultural and rural province in China, its current situation of water resources and water pollution in rural areas is still severe. This paper selects the rural areas of 16 cities in Anhui Province as the research object, explores the existing problems at this stage, and puts forward suggestions from the government, enterprises and individuals, so as to play a role in the treatment and improvement of rural domestic sewage throughout the country and promote the experience of Anhui.

Keywords

Rural Domestic Sewage; Utilization Status; Countermeasure.

1. Introduction

In the 21st century, the times are speeding up, science and technology are progressing, and the world is taking off. China has also entered a new era of win-win ideas in pursuit of economic and ecological benefits. Economic development has led to the increasing scarcity of energy. Water is the source of life and the foundation of all things. The shortage of water resources has a huge impact on human beings. With the proposal of the Rural Revitalization Strategy, people's awareness of resources and ecological protection has become increasingly clear, and rural domestic sewage treatment has become an urgent problem to be solved.

The "13th five year plan" has put forward clear requirements for the sewage treatment rate in rural areas of China. Governments at all levels in Anhui Province have responded positively. In recent years, they have issued sewage treatment policies for many times and carried out the "three revolutions". The domestic sewage treatment in rural areas of Anhui Province has been greatly improved. However, in general, the current situation of domestic sewage treatment in rural areas of 16 cities in the province is quite different [1].

2. Current Situation of Rural Domestic Sewage in Anhui Province

Anhui Province is located in the core area of North China, distributed along the Qinling Huaihe river boundary, and is an important part of the Yangtze Huaihe River area. According to the 2021 Anhui statistical yearbook, as of 2020, Anhui Province has 1239 existing villages and towns (including 968 towns), and the existing rural population is 5376.85, making it a populous province in China.

2.1. Current Situation of Rural Water Resources in Anhui Province

The current situation of rural water resources in Anhui Province there is a serious shortage of water resources in China. The lack of water quality caused by water pollution exacerbates the

shortage of water resources in China [2]. According to the data, the total amount of water resources in Anhui Province was 93.905 billion cubic meters in 2010, and by 2020, the total amount of water resources has increased to 128.041 billion cubic meters. The total amount of water resources had a trough in 2013 and 2019, and a peak in 2016. The total amount of water resources in Anhui Province showed relatively large changes and fluctuations in the past decade.

According to table 1 and table 2 on the overall rural tap water penetration rate in Anhui Province from 2010 to 2020, the total tap water penetration rate in rural areas of Anhui Province in 2020 reached 89.0%, showing a doubling trend compared with 2010 (47.8%), and the tap water penetration rate has a large increase. Among them, the tap water penetration rate in rural areas of Anhui province increased significantly from 2010 to 2017, and the growth rate slowed down after 2017, tending to be stable, but the overall trend is increasing. Among them, Ma'anshan City ranks first with 99.2%, almost achieving the goal of full popularization of tap water in rural areas. Fuyang City ranks second with 98.3%, and the popularity of tap water in Huainan City is only 74.3%. More than a quarter of rural areas have not yet used tap water in a large area. The rural tap water penetration rate of Bengbu, Huainan, Chuzhou and Lu'an has not exceeded 80%, which is far behind that of other provinces in Anhui Province.

Table 1. 2010-2020 rural tap water penetration rate in Anhui Province

| Date | Date Anhui rural tap water Penetration rate (%) | Date | Date Anhui rural tap water Penetration rate(%) |
|------|---|------|--|
| 2010 | 47.8 | 2016 | 78 |
| 2012 | 53.6 | 2017 | 86.9 |
| 2013 | 58.6 | 2018 | 87.6 |
| 2014 | 64.3 | 2019 | 88.5 |
| 2015 | 72 | 2020 | 89 |

2.2. Current Situation of Rural Water Pollution in Anhui Province

In terms of water pollution, according to the data of Anhui statistical yearbook 2021, taking the number of water pollution in rural areas of Anhui Province from 2010 to 2020 as the research object, the relevant data of key time points in Anhui Province from 2010 to 2020 are extracted for analysis.

In 2010, the number of water pollution in Anhui Province (10 times) accounted for one third of all emergencies (30 times). After 2013, the proportion of water pollution in emergencies increased. All emergencies in the province in 2018 were water pollution. It can be seen that water pollution began to become an urgent problem in the process of environmental governance in Anhui Province. In the ten years from 2010 to 2020, the number of water pollution in rural areas of the province generally showed a downward trend, but in 2020, the number of water pollution in the province was 7, showing a large increase over previous years. According to table 2, the relevant data of water pollution times in rural areas of 16 cities in Anhui Province in 2020 can be found that the horizontal comparison of seven water pollution events in rural areas of Anhui Province in 2020 shows that three water pollution events occurred in Hefei, and the rest came from Suzhou, Bengbu, Huainan and Xuancheng. It can be seen that the phenomenon of water pollution in rural areas of Hefei is relatively serious, and the above five cities are the areas with serious sewage in rural areas of Anhui Province.

Table 2. Number of water pollution in rural areas of 16 cities in Anhui Province in 2020

| Region | Number of emergencies (Times) | SWater pollution times (Times) |
|-----------|-------------------------------|--------------------------------|
| Hefei | 3 | 3 |
| Huaibei | 0 | 0 |
| Haozhou | 2 | 0 |
| Suzhou | 1 | 1 |
| Bengbu | 1 | 1 |
| Fuyang | 0 | 0 |
| Huainan | 1 | 1 |
| Chuzhou | 0 | 0 |
| Luan | 0 | 0 |
| Maanshan | 0 | 0 |
| Wuhu | 1 | 0 |
| Xuancheng | 1 | 1 |
| Tongling | 0 | 0 |
| Chizhou | 0 | 0 |
| Anqing | 0 | 0 |
| Huangshan | 0 | 0 |

3. Existing Problems

Through the survey, it is found that the total amount of water resources in rural areas of Anhui Province has fluctuated greatly in the past decade. Although water pollution has been alleviated in recent years, it has a rising trend in 2022. On the whole, there are many difficulties in domestic sewage in rural areas of Anhui Province.

3.1. Lack of Sewage Utilization and Treatment System and Deterioration of Water Environment

At present, urban residents in China mainly live in centralized buildings, and the economic level and consumption level of urban residents are high. At present, many cities have achieved large-scale centralized sewage treatment plants or pipe network systems for treatment. However, rural areas in Anhui Province are trapped in their loose geographical environment, low concentration of residents, and the living conditions of one house and one household make centralized sewage treatment in rural areas extremely unrealistic. At the same time, the economic conditions in rural areas are generally low, and the public infrastructure design needs to be further improved. Therefore, at present, rural areas lack sewage reuse and treatment systems, and most of their domestic sewage is discharged into natural water bodies without centralized treatment, resulting in the deterioration of the water environment after long-term circulation [3]. At the same time, in order to prevent the occurrence of aquatic biological diseases and control their growth, a large number of fungicides are added, which is harmful to the water ecosystem [4], Make the water area appear sleep eutrophication, water bloom and other phenomena.

3.2. Lack of Suitable Sewage Treatment Mode, Unable to Be Widely Promoted

At present, the national policy favors the vast rural areas, and the Rural Revitalization Strategy is the common wish of the whole people. Rural areas have achieved rapid development in recent years, and have made great improvements in many fields such as economy, culture and ecology, and the gap between urban and rural areas has been further narrowed. However, even so, there is still a large gap between the economic status of rural areas and urban areas, Sewage

treatment systems or devices tried in urban areas are often no longer applicable in rural areas, because the sewage treatment system is centralized, expensive, high maintenance costs, and short cycle, which is inconsistent with the overall economic development status of rural areas. Due to the influence of geographical, demographic, environmental and other factors in different rural areas of 16 cities in Anhui Province, their economic strength is different, Most of the villages with good economic strength choose to copy or imitate the sewage treatment of the city, while the villages with poor economic strength choose not to care for the sewage and directly flow into the natural water body, which will lead to water eutrophication, which is not conducive to ecological development and affect the health of the village population. Therefore, most rural areas in Anhui Province lack suitable sewage treatment mode and cannot be widely promoted.

4. Advise

4.1. Government Side

Personal face-to-face government execution has a huge impact on rural domestic sewage treatment. Government departments should continue to issue supporting policies in line with existing environmental factors, solidly promote the joint efforts of various government departments, constantly study and issue or improve the existing normative guidance, and combine it with the construction of projects such as beautiful villages in rural areas [5]. Put forward standards for domestic sewage discharge standards, recycling conditions, engineering construction, etc. in rural areas of China, constantly clarify the scope of responsibilities of all departments at all levels, strengthen the supervision of regulatory departments, and increase the docking of the scope of responsibilities between departments, so as to ensure the accurate implementation of relevant regulations and the rational use of funds, and form a joint force of departments.

4.2. Enterprise Aspect

When the government departments continue to issue relevant supportive policies and allocate special funds, the enterprise departments should be able to actively respond to the national call, strengthen the research and development of rural sewage treatment technology, innovate and change the traditional sewage treatment mode, develop local sewage treatment systems and technologies according to local conditions, and strengthen the coordination and unity of domestic sewage treatment technology in rural areas and local ecosystems, according to the economic income of local residents Factors such as consumption level, awareness of energy conservation, residential dispersion, etc. develop a sewage treatment system with high adaptability.

4.3. Personal Face-to-face

In terms of residents, energy conservation and emission reduction are closely related to everyone. Individuals should enhance their awareness of resource hardship, ecological crisis and the sense of mission of the times, strive to become advocates and practitioners of protecting and loving water, develop good habits of water use, improve the efficiency and efficiency of water use, actively advocate a conservation and recycling lifestyle in daily life, and improve their awareness of water source protection and sewage recycling, Actively respond to the government's call to promote the coordinated development of water, economy and society, participate in social environmental protection related activities, and establish a new green fashion by moving in step with nature from a little bit of micro events. Let the awareness of environmental protection, energy conservation and emission reduction go deep into our hearts. Personally participate in energy conservation activities and keep the concept of ecological

protection in mind. Fully aware that environmental quality directly affects everyone's quality of life, we should be responsible for the ecological environment in rural areas.

5. Conclusion

To sum up, the development of economy and the improvement of ideological cognition have made more people realize the importance of sewage treatment. In recent years, governments at all levels in Anhui Province have frequently issued documents to promote the integration process of rural domestic sewage treatment in Anhui Province, but on the whole, rural sewage treatment in Anhui Province has a long way to go. Sewage treatment is not a single force, but requires the joint efforts of the government, enterprises and individuals to steadily promote the improvement of rural environment in Anhui Province and build Anhui experience

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