



Brief Analysis of Urban Sewage Treatment Technology and Its Practical Application in Environmental Engineering

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Abstract

With the continuous progress of China's economy, China's various industries are also in the rapid development and progress, at the same time, the impact on China's environment is also huge, especially under the current social and industrial chaos layout, want to improve the development speed of China's economy, it is necessary to manage the urban environment. And now the emergence of large areas of sewage wastewater, automobile exhaust and other exhaust gas caused the current serious damage to the ecological environment, a variety of natural disasters to occur constantly, which also let people appreciate the necessity of protecting the environment. In environmental engineering, the management of sewage and wastewater discharge is also the most important part of it. The sewage and wastewater in cities mainly come from the sewage produced in factories and that produced in daily life. In the era of scientific and technological progress, the treatment technology of sewage wastewater is also developing and improving. This paper mainly analyzes the application of traditional wastewater treatment technology and modern sewage treatment technology in environmental engineering according to the production causes of urban sewage and wastewater, so as to explore the way to improve the application efficiency of urban sewage treatment technology in environmental engineering.

Keywords

Environmental engineering; Urban sewage; Sewage treatment technology and application

Introduction

Environmental engineering mainly focuses on research related to environmental pollution. The main function of environmental engineering is to reduce the impact of water pollution on humans by improving and controlling the sources of different types of sewage. Different sources of sewage require different methods of sewage treatment, and the natural environment in different places is also different. We can divide pollution into water resource pollution, air impurity pollution, and soil garbage pollution.

1. Main sources and types of urban sewage

1.1 Sewage from daily life

Domestic sewage is also a major component of urban sewage, especially in China where the population is increasing. There are many organic pollutants in this sewage. If no measures are taken to process this wastewater, it will have a

huge impact on the urban environment, with the soil being the most harmed. The elements of these organic substances are different, so when treating wastewater, it can be processed according to its chemical properties, such as density. However, the degradability of these organic substances is different, which also determines the difficulty of processing [1].

1.2 Industrial wastewater

Because the development and land area of each city are different, the development speed of its industry is also different, so the proportion of industrial wastewater in urban sewage is also different, so wastewater treatment must also be adapted to local conditions. At present, my country already has certain policies to manage pollution sources, but because the substances in industrial wastewater are very complex, there may be corresponding highly toxic and harmful substances, and it can also produce wastewater that is not easy to decompose under different environmental conditions. Therefore, the management of industrial wastewater is very necessary in urban sewage treatment, and relevant government departments can also choose the most appropriate urban wastewater management method according to national conditions to avoid a certain impact on the lives of urban residents.

1.3 Urban runoff sewage

Urban sewage not only includes domestic sewage and industrial sewage, but also includes some pollution generated by the flow of rivers in the city. There are some uncertainties in the degree of this type of pollution, which requires local researchers to personally compare and study, identify different pollutants, and develop different processing and treatment methods. Whether it is domestic sewage, industrial sewage, or river sewage, it will have a huge impact on the environment. Therefore, in the work of environmental protection, it is necessary to carry out different modes of treatment schemes for this sewage, so as to process and treat the harmful elements in the sewage and reduce the impact on the environment and humans. With the development of the times, urban sewage treatment technology has also developed to a certain extent. In order to ensure that environmental engineering can play a role in real life, it is necessary to continue to study related processing technologies [2].

2. Conventional urban sewage treatment technologies in environmental engineering

2.1 Activated sludge treatment technology

In environmental engineering, there is an old sewage treatment technology called activated sludge treatment technology. When using activated sludge treatment technology, workers pour wastewater into sludge, put the mixture into a pool, stir it in some way, and then classify it according to the physical principles of different elements. Some organic matter will also react chemically with the activated sludge. After the reaction is completed, pure water is produced, and the activated sludge can be reused in this process [3].

2.2 Chemical wastewater treatment technology

For urban sewage, the wastewater produced by chemical industry has different chemical standards, such as its melting and boiling points, pH and material reactions. Therefore, in the technology of urban sewage treatment and chemical wastewater, ancient workers used different methods and different chemical standards to process and classify. For example, in a river, when there is a problem of chemical wastewater treatment not meeting the standards, relevant personnel will use specific chemical reagents to react with different chemical properties, so as to reduce the level of damage to the natural environment in a shorter time.

2.3 Physical wastewater treatment technology

Physical printing and dyeing wastewater process generally uses physical and mechanical treatment methods to complete the processing wastewater treatment. In this process, the different components contained in the pollutants are not changed, but are only distinguished by different mechanical treatment methods. For example, when a disposable headgear manufacturer in Hebei Province processes wastewater, it will be beneficial to use physical technology to separate the impurities floating in the wastewater and reduce various indicators of the wastewater.

2.4 Bacterial membrane treatment technology

The main working principle of this technology is to make the bacteria in the sewage adhere to the surface of the biofilm, thereby forming an antioxidant effect and effectively degrading the garbage. After passing through the microbial membrane, the waste gas cannot be completely degraded. It needs to reach the impurities inside and generate water and other organic matter after reaction. In fact, the microbial membrane treatment process itself is also a highly efficient deoxygenation biological treatment process. This treatment process can be transformed into the corresponding environmental pool and use appropriate equipment to achieve the purpose of sewage treatment, and appropriate choices have been made according to the national conditions and environment [4].

3. Modern urban sewage treatment technology in environmental engineering

3.1 Constructed wetland wastewater treatment technology

Artificial wetlands are marsh-shaped sites built by humans themselves. They can achieve efficient treatment of urban sewage and sludge. Through the treatment of land, vegetation, and microorganisms, they jointly complete the absorption, interception and microbial decomposition of pollutants. However, in our real life, artificial wetlands can also serve as an organic connection for wastewater treatment. Compared with our usual wastewater treatment technology, artificial wetlands require lower funds for construction, so they can reduce the energy consumption of the sewage treatment process and significantly increase the benefits of wastewater treatment. In a water environment improvement project in a river basin in Shandong Province, the environmental pollutants in wastewater were reduced through the comprehensive use of biotechnology such as submerged plants and water-holding plants [5].

3.2 Biological contact oxidation treatment technology

Upgrading and improving the bacterial membrane sewage treatment technology will result in the biological contact oxidation treatment technology. Its principle is to put the sewage and the biofilm together to produce a reaction so that the wastewater can obtain degradation functions, etc. It requires full stirring and mixing. It is a treatment method between the traditional activated sludge method and the biological filter treatment, and has the advantages of both. It is an intermediate treatment method between the traditional activated sludge method and the ecological filter treatment, which has the advantages of both. It has great adaptability to changes in water load and can effectively improve the purification efficiency in sewage treatment. In a certain garbage hypertonic sieve liquid treatment project in Nanjing, biological contact oxidation technology was mainly used to more conveniently process sewage and wastewater so that the wastewater meets the discharge standards.

3.3 Continuous cycle aeration system

The continuous cycle aeration system can achieve more satisfactory results by mixing the waste with the sludge disposal method during the wastewater aeration process, and can also reduce the presence of impurities in the sewage. Secondly, this system can be recycled and can improve the absorption of wastewater and the basic type of application during repeated use. The sedimentation process of this system can keep all the sedimentation tanks in a high-water absorption state, thus completing the automated management process monitored and operated by computer programming, which also means that there are higher requirements for workers with a specific understanding of system design, configuration and application. However, in the process of using the continuous cycle aeration system, the pretreatment of wastewater is very simple and easy to operate. Just set the interval time of the sedimentation tank to enter the corresponding pretreatment mode. The duration of each process and the operation of the corresponding equipment are pre-prepared and can be adjusted according to the program through computer centralized automatic control.

3.4 RSPR high turbidity wastewater treatment technology

It is a system that combines the traditional primary and tertiary treatment modes of urban sewage in one wastewater treatment plant to work together. It can effectively save time, improve wastewater treatment efficiency, ensure the continuity of wastewater treatment technology application, and avoid adverse effects on the environment.

4. Specific policies to strengthen the application of urban sewage treatment technology in environmental engineering

For the current urban sewage treatment technology, the relevant departments must make a specific division of the scope of pollutants, and start from the current status of their hazards, in order to achieve unified management of sewage discharge, treatment and treatment processes, so as to improve its quality. At the same time, it is necessary to further improve the current urban sewage treatment system, and promptly discover existing problems, ensure the smooth flow of underground pipelines, do a good job in environmental testing of urban plants, and strictly regulate pollutant water quality standards to ensure the implementation of relevant regulations. In addition, the relevant departments should also increase the introduction of pollutant treatment equipment and update the existing treatment equipment. In addition to comprehensive considerations from the aspects of economic benefits and management benefits, and strengthening government investment management, it is also necessary to arrange professional wastewater treatment technical staff and strengthen supervision of the project process. It can be mainly divided into the following aspects.

4.1 Update existing sewage treatment equipment

When using urban wastewater treatment technology and equipment, in order to improve the effect of sewage treatment and adapt to the requirements of environmental engineering in the process of urbanization development, relevant researchers need to upgrade and improve the current sewage treatment equipment, learn from foreign technology, and further improve the urban printing and dyeing sewage process, so as to achieve more efficient wastewater treatment, thereby improving the treatment efficiency of urban wastewater. In addition, the new treatment equipment: the internal circulation anaerobic reactor has a larger internal space. This advantage can effectively improve the effect of wastewater treatment. The treated sewage can react at the bottom and further flow into the upper layer for further refined treatment. After complete decomposition, it will be discharged from the drain pipe. It will also generate biogas during the reaction process, which is one of its advantages. It is less dependent on manpower and has a wide range of treatment, which is worth studying.

4.2 Improve the urban sewage treatment system

The current results of environmental engineering and sewage treatment are not completely ideal, especially the centralized treatment of urban domestic sewage, whose benefits and capabilities are in urgent need of further improvement, and the treatment plants of some enterprises are still in the idle stage. Therefore, promoting the industrialization and systematic development of urban wastewater treatment projects will be the current focus, and therefore requires relevant national departments to seriously study the complete urban sewage treatment model. First of all, in order to implement various policies and ensure the efficient operation of sewage treatment plants, relevant units must strengthen relevant legislation and measures to ensure the development of environmental engineering as much as possible. In addition, the relevant leading departments must also clarify the powers and responsibilities between government departments and sewage treatment companies. Government departments must play a necessary regulatory role in this activity, ensure the effective implementation of emission standards and management systems, and promote the operation of sewage treatment technology so that it is in a standardized stage. Furthermore, relevant government departments must strictly supervise the operating procedures of urban wastewater treatment enterprises in order to change the current situation, arrange some sewage treatment departments to realize the contracting of projects, and further improve my country's natural environment.

4.3 Broaden investment channels

In order to ensure the effectiveness of the application of urban sewage treatment technology in environmental engineering, it is necessary to have a long-term and stable investment channel to integrate funds and then disperse them to various departments. Only by ensuring the source of the capital chain can the application and development of technology be effectively promoted. Therefore, the relevant companies should strive for more funds from the central government or local government departments, increase project investment, and understand the current status of the use of existing equipment. They can also start from the particularity of the enterprise, and get support from some

financial institutions and insurance companies. The relevant departments of the local government should also strengthen the promotion of this aspect, so that more companies can participate in it and maintain the balance of sewage treatment.

4.4 Ensure sewage charging system

For the operating environment of the city itself, the main pollution comes from life and industry. At present, in the field of tap water management, it is necessary to formulate urban sewage treatment fee regulations to reduce the burden on environmental engineering. Therefore, relevant units need to increase the implementation of the system in all aspects and strictly protect the operating management environment in accordance with relevant regulations. While enterprises continue to update and improve the sewage treatment mechanism, local government departments will also propose more effective supervision measures based on the actual situation of enterprises and make timely payments to ensure the smooth operation of urban sewage treatment plants.

5. Conclusion

It can be seen that urban wastewater treatment is a major part of environmental engineering. Therefore, relevant technical personnel must understand the origin and type of urban sewage, and have a specific understanding of China's traditional sewage treatment technology and modern urban wastewater treatment technology. They should choose appropriate methods according to the actual treatment conditions, optimize the urban wastewater treatment network, and change the existing treatment facilities, so as to gradually reduce the harm of urban sewage to the environment and ensure the effective operation of environmental engineering.

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