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Water Pollution Treatment Technology and Recycling in Environmental Protection

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Abstract

At present, China's social economy is developing rapidly, but at the same time, there are also some problems of ecological environment pollution, among which water pollution is the most prominent, which fully reflects the necessity and urgency of water pollution control and recycling. In view of this, the article first expounds the status quo and existing problems of water pollution treatment in China's environmental protection, and then specifically introduces the water pollution treatment technology and the principles of sewage recycling. The ecological environment develops harmoniously and stably.

Keywords

Water Pollution Governance; Water Treatment Technology; Sewage Recycling.

1. Introduction

Environmental biotechnology, also known as environmental bioengineering, is an emerging product that combines biotechnology, environmental governance, and environmental protection. The focus of environmental biotechnology is to achieve effective purification of the environment through relatively reasonable biological activities, and even convert the polluted parts into resources that people can directly use to achieve the goal of sustainable development. Relying on its own advantages, this technology has been applied to environmental pollution control work, and has become a marginal subject in the development of biotechnology to a specific stage in the past two decades, covering biotechnology, ecology, engineering, environmental science, etc. [1].

2. Current Situation and Major Existing Problems of Water Pollution Control

2.1. Current Situation Analysis of Water Pollution Control

In the context of rapid economic development and continuous urbanization, it also brings many challenges to urban water pollution control. With the advancement of science and technology, many large-scale sewage treatment plants have introduced new concepts, new technologies and new equipment, realizing the innovation of sewage treatment technology, and obtaining good treatment effects, which greatly improves the urban environment. However, from the overall situation, the foundation of sewage treatment is still relatively weak, and there are still problems such as imbalance and imbalance of equipment application, which affect the effectiveness of sewage treatment to a certain extent. In addition, sewage treatment itself is a highly professional and technically demanding job. In the work, it is necessary to adopt a variety of technical methods in combination with the actual situation, so as to improve the efficiency and effect of sewage treatment, and minimize the impact of sewage on the urban environment. influence.

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2.2. Main Problems in Water Pollution Treatment

From the point of specific conditions, the water pollution during the processing of mainly the following several aspects of problems:

(1) The sewage treatment equipment is not updated in time. Sewage treatment equipment is the most basic condition for water pollution treatment, and its performance will directly affect the effect of sewage treatment. Therefore, it is necessary to ensure that sewage treatment equipment has good performance. However, from the actual situation, some sewage treatment plants have not been able to update their sewage treatment equipment in a timely manner due to the limitations of funds and management, so that there are problems such as backwardness and damage of equipment, which not only affects the smooth progress of sewage treatment work, but also affects the improvement of sewage treatment efficiency.

(2) The technical level of water pollution treatment is relatively low. At present, the level of water pollution treatment technology in my country is still relatively low, especially in some small and medium-sized cities. It is mainly affected by economic conditions, geographical environment and other factors. The construction level of water pollution treatment industry in some small and medium-sized cities is not yet. High, so that the level of sewage treatment technology is not high.

(3) The utilization rate of reclaimed water is generally low. In the work of water pollution treatment, the regeneration and utilization of water resources is also an important link, and the water resources should be recycled on the basis of sewage treatment, so as to truly realize the protection of the water environment. However, from the actual situation, the current utilization of water resources in my country is still at a relatively low level. On the one hand, because of the low level of water pollution treatment technology, the treated water can only be used in part of the industrial production. On the other hand, because many cities have not established a complete and efficient recycled water circulation pipe network, even if the treated water source meets the use standard, it cannot be supplied in time [2].

(4) The public has doubts about the safety of reclaimed water. Due to the lack of publicity about the scientific knowledge of recycled sewage reuse, some people have a narrow understanding of recycled water. Many people think that there are some harmful substances in the recycled water after processing. Therefore, there are doubts about the safety of recycled water, and they cannot fully recognize the recycled water. value, which affects the recycling and reuse of sewage to a certain extent.

3. Water Pollution Treatment Technology and Principles of Sewage Recycling

3.1. Water Pollution Treatment Technology

Currently in environmental protection, the technical methods commonly used in water pollution treatment mainly include the following:

(1) Activated sludge technology.

Activated sludge technology is a commonly used technical method in water pollution treatment in environmental protection, and it belongs to an aerobic biological treatment technology. The treatment principle of this technology is: first put the sewage into the aeration tank for several hours to fully combine the sewage with the air, and then many aerobic microorganisms in the form of flocs will appear. These aerobic microorganisms are activated sludge, which has Strong adsorption, can absorb and swallow the organic matter in the sewage, so it can effectively reduce the organic matter content in the sewage. Relevant studies have shown that activated sludge can adsorb 90% to 95% of organic matter in

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sewage.

(2) Biological membrane treatment technology.

The technology belongs to aerobic biological treatment technology. The continuous reproduction of substances cuts off the diffusion of oxygen in the water into the membrane, thereby making the biofilm anoxic or anaerobic, and finally forming a new biofilm [3] adsorption technology.

Adsorption technology is a commonly used technical method in water pollution treatment, mainly because this treatment technology has the advantages of simple operation, low initial cost investment, and better water treatment effect. The principle of this technology is to use activated carbon and other materials with relatively dense voids on the surface. After the chromaticity of the sewage reaches a certain condition, the adsorption of impurities in the sewage can be realized, to achieve the purpose of purifying the water quality. Ultrafiltration membrane technology. This technology is a more scientific treatment method, mainly through the filter membrane, and then filtration, separation and concentration, due to the action of pressure, some small molecules of solute in the solution can pass through the filter membrane, while macromolecular impurities.

It will be intercepted by the filter membrane, which can effectively improve the quality of sewage treatment, and help to improve the utilization efficiency of water resources.

In addition, due to the strong acid and alkali resistance of ultrafiltration membrane technology, it can also effectively reduce water pollution, so that the treated water source can meet the discharge standard, and the remaining materials and products can also be used for secondary use, fully the overall processing quality has been improved.

(3) Cation anion exchange resin technology.

The advantage of this treatment technology is that the adsorption effect and promotion performance effect are very strong, and the sewage can be treated efficiently. Its principle is to exchange H^+ between metal ions and anions in aqueous solution on resin or phenol group. At this time, the cation of aqueous solution moves to the resin, and the H^+ on the resin combines with OH^- in water to form water, which can effectively play the effect of desalination. However, this treatment technology also has its limitations, which is mainly reflected in the large amount of waste resin and high implementation cost, which needs to be selected in combination with the actual situation [4].

3.2. Principles of Sewage Recycling

Sewage recycling is a manifestation of the deepening of sewage treatment, and it is also an important way to improve the utilization rate of water resources and improve the quality of the ecological environment. Therefore, it is necessary to make full use of effective treatment technology and follow the principle of sewage recycling, so as to realize the recycling of sewage. The principles of wastewater recycling mainly include the following three aspects:

(1) Principles of economy and safety. These two principles should be followed in the process of sewage recycling. Effective technical standards and indicators should be established, and the improvement of basic sewage treatment equipment should be accelerated, and attention should be paid to the quality management of sewage treatment equipment, so that the treated sewage can be used. It can be effectively used in the urban water circulation pipe network, as shown in Figure 1.

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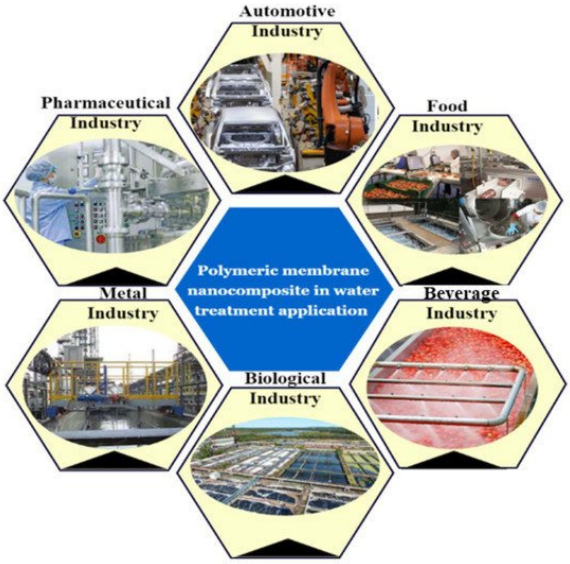

Figure 1. Schematic diagram of water treatment application

(2) The principle of objective reality. In the process of wastewater recycling, relevant departments must formulate an effective management system for wastewater recycling based on the objective actual situation to ensure the smooth development of wastewater recycling [5].

(3) Cognitive Principles. This principle requires relevant departments to increase the publicity and popularization of the value of recycled water sources, so that the public can have a comprehensive understanding and understanding of recycled water sources, and can correctly understand the important value of recycled water sources, so that the public can be more Comprehensive and objective use of reclaimed water. For applications in industrial production, for example, high-quality water is required at all stages of the production process in the automotive industry. The automotive industry has become an important sector for improving productivity and producing high-quality vehicles to meet people's needs, as shown in Figure 6.

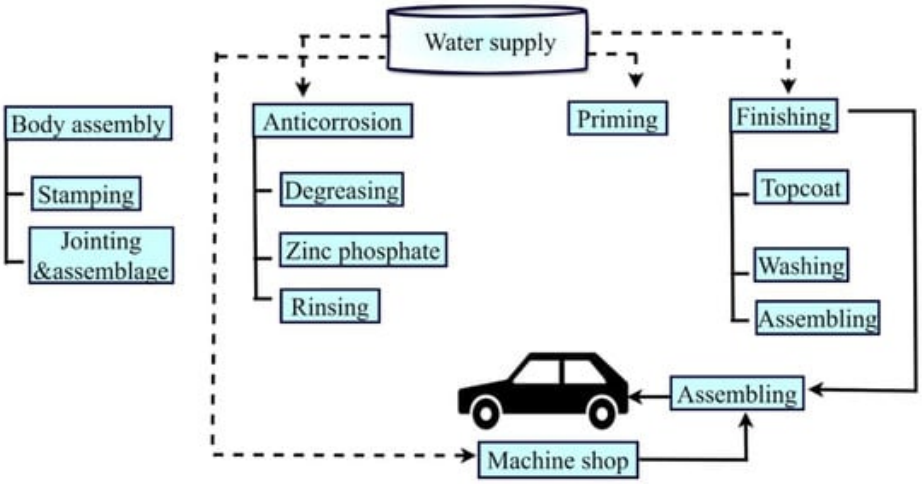

Figure 2. Industrial water sample production (automobile industry).

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4. Suggestions on Strengthening Water Pollution Control

4.1. Provide Sufficient Funds for Water Pollution Control

At this stage, the problem of water environment pollution in my country is relatively prominent, and the task of water treatment is still severe and heavy. In order to ensure that water pollution control can be carried out efficiently, local government departments should increase capital investment in water pollution control. Sufficient funds are to improve water pollution. An important basis for the effect of pollution control. To this end, government departments need to increase capital investment, and at the same time, it is necessary to implement corresponding laws, regulations and policies to provide legal guarantees for the efficient development of sewage treatment work [6].

4.2. Build Perfect Management System of Water Pollution Prevention

In order to effectively improve the effect of water pollution control, it is especially necessary to establish a sound water pollution control management system. Specifically, we can start from these points: further accelerate the construction of urban sewage treatment and recycling projects, improve the construction level, and promote the recycling of recycled water; formulate strict sewage discharge standard systems, and strictly control sewage discharge; regularly carry out environmental protection qualifications for listed companies Investigate work, establish corporate environmental integrity files, strengthen environmental management, create an atmosphere of strict enforcement of the environment, and improve corporate environmental management awareness through an effective reward and punishment system.

4.3. Continuously Optimize Water Pollution Treatment Technology

With the advancement of science and technology, water pollution treatment technology should also be continuously optimized and innovated, actively explore more efficient and more affordable technical methods for sewage treatment, and formulate practical and effective treatment plans to relieve the pressure of urban sewage treatment, Promote my country's sewage treatment and regeneration, and comprehensively improve my country's sewage treatment capacity, thereby improving my country's environmental governance.

4.4. Further Improve the Level of Water Resource Recycling

In order to ensure that the overall ecological environment in my country is effectively improved, it is necessary to further improve the level of water recycling and utilization, and the water pollution control technology and regeneration technology should be organically combined to improve the effect of water environmental protection [7]. Specifically, it is necessary to invest more professional technologies in sewage treatment and regeneration to ensure that the perfect water resources regeneration technology can be fully utilized.

5. Conclusion

In summary, the current situation of water pollution control in my country's environmental protection is relatively severe, and it is necessary to further strengthen the importance of sewage treatment and recycling. In view of the practical problems in sewage treatment, reasonable use of sewage treatment technology should be put into use to improve the effect of sewage treatment. Increase investment in capital, technology, personnel, etc., and continuously optimize the level of sewage treatment technology to achieve water purification while improving the utilization of water resources, thereby improving the quality of ecological and environmental protection.

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