

Analysis of Groundwater Environmental Protection Measures under the Background of Ecological Civilization

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Keywords: Ecological civilization, Groundwater environment, Environmental pollution

Abstract: Groundwater is an important part of the ecological water environment and the key to maintaining the ecological environment. If groundwater is polluted, it will damage the ecosystem and affect people's quality of life. Regarding the environmental protection of groundwater, relevant departments and institutions have introduced a series of measures. The overall prevention and control work is relatively lagging behind, the lack of relevant systems, and the imperfect prevention and control system. Problems emerge one after another, and the overall prevention and control effect is poor. Therefore, in view of the existing problems and governance basis, we should coordinate relevant supporting measures, optimize relevant supporting equipment, improve the water quality monitoring network, do a good job in active evaluation, formulate scientific management plans, optimize the governance effect, and finally realize the harmonious development of man and nature.

1. Introduction

In my country's freshwater resources, groundwater accounts for about 29% of the proportion, and the daily drinking water of more than 1.5 billion people in the world comes from groundwater. About 61% of the cities in our country use groundwater resources as drinking water, especially the cities in North China and Northwest China are highly dependent on groundwater. Groundwater has the characteristics of relatively stable and relatively high-quality water quality, which is conducive to maintaining the stability of the ecological environment. Although groundwater is not easy to be polluted, it is not easy to exchange with other water sources. Once pollution occurs, it is difficult to use normally, and the difficulty of governance will increase significantly. If the treatment methods adopted are not reasonable, it will have the opposite effect, which requires relevant departments to conduct comprehensive research and detailed analysis, and take effective measures to strengthen water pollution control.

2. An Overview of the Groundwater Environment

2.1 Basic Characteristics of Groundwater Pollution

2.1.1 Strong Concealment

Different from surface water pollution, groundwater pollution is more concealed and more difficult to control. Usually, after being polluted, the characteristics of surface water are relatively obvious, such as: smell, color, etc. will change visible to the naked eye, and the relevant quality inspectors can also judge the water quality based on the changes of animals, plants, and microorganisms in the water body^[1]. Groundwater storage is mostly underground, and pollution is caused by human factors. Due to environmental restrictions, it is difficult to directly observe the quality of groundwater. Drinking polluted groundwater for a long time will easily affect human health.

2.1.2 Weak Self-Cleaning Ability

Groundwater has the characteristics of weak mobility, poor permeability, and poor self-purification ability. If groundwater is polluted, it is difficult to recover. It can be seen that, for the prevention and control of groundwater pollution, prevention issues should be considered. Relevant monitoring departments should pay attention to the monitoring of groundwater quality, and should conduct regular monitoring. If the water quality is found to be polluted, it is necessary to determine the source of water pollution, and then take corresponding measures to achieve the purpose of improving water quality. Once the groundwater is polluted, it is difficult to reverse. Therefore, attention should be paid to the protection work in daily use to promote the harmonious development between man and nature.

2.2 Groundwater Pollution Factors

2.2.1 Industrial Pollution

Industrial activities will have an important impact on groundwater pollution. In industrial activities, water resources are used in large quantities, and a large amount of industrial wastewater will also be discharged. If there is no timely treatment, it will be directly discharged into the natural environment. Participating in the groundwater cycle, the harmful substances in it are easily absorbed by animals, plants, and humans, resulting in a series of negative effects, and may even induce a series of diseases, which is not conducive to the stability and harmony of society^[2].

2.2.2 Agricultural Pollution

Agricultural pollution is also an important source of groundwater pollution. The sources of pollution are usually chemical fertilizers and pesticides. These agricultural auxiliary products contain a large amount of heavy metal substances. If used for a long time, they can make the land fertile, but they will also accumulate harmful substances and seep into the groundwater. Agricultural activities require a huge amount of water, and most of them are used for crop irrigation. Due to the pollution and damage to the water environment, the surface water that can meet agricultural production and irrigation is significantly reduced.

2.2.3 Life Pollution

With the continuous advancement of urbanization, the accumulation and discharge of domestic wastes are increasing, and the difficulty of treatment has increased significantly. Judging from the current situation, my country lacks a comprehensive domestic waste pollution control system, the standards for waste treatment are not yet clear, and the treatment level is relatively low. Long-term accumulation and improper treatment of domestic waste and domestic waste water will cause pollution and damage to surface water. If domestic waste water is stored on the surface for a long time, it will gradually infiltrate into the ground, causing irreversible damage to groundwater pollution^[3].

2.2.4 Mining Activity

Most of the mining activities are underground. Usually, after the mining is completed, there will be obvious pits on the surface. There are also many tunnels underground, and there are many toxic and harmful substances. It is easy to penetrate into the ground, contact with groundwater, and affect the health of residents around the groundwater, posing a threat to the survival of animals and plants. At the same time, the lack of scientific management of resources such as oil will increase the risk of leakage, which will also increase the probability of groundwater contamination, which will negatively affect the circulation, protection, and utilization of groundwater.

3. Status Quo of Groundwater Environmental Protection and Management in the Background of Ecological Civilization

Groundwater accounts for about 1/3 of the global freshwater resources, and the protection of groundwater resources has also become a top priority in environmental protection. Social development has led to excessive exploitation and utilization of groundwater resources, resulting in

further aggravation of groundwater loss. In many areas, ecological problems have also been significantly intensified, such as the intensification of soil desertification and the loss of groundwater leading to the death of a large number of surface vegetation. The lack of rational use of surface water will also increase the risk of groundwater pollution, especially in urban and rural areas, where groundwater pollution is more serious^[4]. According to the current water environment monitoring, in China North Industrial Park, most of the high-emission and high-pollution enterprises are located in suburban and rural areas. Groundwater pollution will not only reduce high-quality water sources, but also expand groundwater gaps, affect the surrounding soil environment, change the basic state of the original hydrodynamics, and even cause problems such as sewage backflow. cause more serious negative effects.

3.1 The Causes of Pollution Are Complex

There are obvious differences in the causes of groundwater pollution in different regions, and the causes of groundwater pollution in the same region may also be different, which will increase the difficulty of groundwater pollution control. In some areas, there are obvious problems in the treatment of sewage diversion and rainwater diversion. For example, in the rainy flood season, sewage and rainwater are mixed and penetrated into the ground, causing groundwater pollution. In recent years, the acceleration of urbanization has led to a sharp increase in the number of urban populations, and the pressure on sewage discharge has increased significantly. During the construction of many urban areas, effective protection measures have not been taken for underground pipelines, which will affect sewage discharge and cause groundwater discharge. pollution problem. Among them, for the treatment of surface garbage, some cities use landfill, incineration, etc., which will cause air pollution; and landfill will cause groundwater pollution.

3.2 Lack of Governance

From the current point of view, China is far behind in the protection of groundwater environment, and the groundwater pollution prevention system and control measures are relatively lacking. Although a large amount of groundwater quality analysis and assessment work has been completed, if only relying on groundwater quality monitoring and assessment, it cannot reflect the effectiveness of prevention. It is necessary to conduct investigation, analysis and assessment nationwide to keep groundwater pollution under control. situation. Moreover, there is a lack of a perfect governance system for groundwater pollution, and it is difficult to monitor changes in the groundwater environment in real time. If the groundwater environment is damaged, it is difficult to make a corresponding early warning in time, and the scope of groundwater pollution will also be expanded^[5].

3.3 Weak Awareness of Prevention

For groundwater environmental governance, some local governments have not paid much attention to this, and have not fundamentally realized the harm of groundwater pollution, which makes it difficult to detect groundwater pollution in many areas in time. Groundwater pollution itself is highly concealed. If it lacks certain attention, it is difficult to deal with it effectively, and groundwater pollution is difficult to reverse, which will seriously affect the safety of water supply and water use^[6]. For a long time, many local governments have only paid attention to the treatment of surface water pollution, and relatively neglected the treatment of groundwater pollution, which is also the root cause of frequent groundwater pollution problems.

4. Groundwater Environmental Governance Measures under the Background of Ecological Civilization

4.1 Pay Attention to Industrial Water Pollution Control

Industrial water pollution control has always been a key concern of social development. We should actively promote the integration of prevention and control, and cut off the impact of industrial activities on the groundwater environment from the source. The management of industrial

wastewater should be regulated, optimized and upgraded, and the supervision of industrial wastewater treatment should be strengthened, and practical discharge standards should be formulated. In industrial wastewater treatment, industrial heavy metal pollution has the greatest impact. Therefore, it is necessary to do a good job in planning and design of industrial parks to ensure that industrial parks can be far away from urban domestic water areas. May reduce industrially effective substances emissions. To sort out the incineration materials, we can use the identification method of waste type to analyze, and improve the waste treatment method to ensure that the residue after incineration will not retain a large amount of heavy metal substances, so as to avoid pollution to the groundwater environment. Generally, in the incineration of industrial waste, the mass fraction of acidic substances should be strictly controlled. For wastes that are substandard and contain highly toxic, the number of times they enter the incinerator should be controlled. For wastewater discharge, industrial enterprises should establish special discharge pipelines to centrally and uniformly treat sewage, and require the discharged sewage to meet relevant standards. For the sewage and pollutants discharged by the factory, relevant departments should conduct regular inspections on them, regularly analyze the surrounding groundwater quality, avoid pollution problems to the greatest extent, and impose timely penalties for illegal discharge problems.

4.2 Strengthening the Prevention and Control of Agricultural Water Pollution

Agricultural water pollution mainly comes from pesticides, chemical fertilizers, livestock excrement, etc. Therefore, we should start from the pollution source and do a good job in corresponding prevention and control. First, to reduce the pollution of agricultural planting, in agricultural planting, the use of chemical fertilizers and pesticides should be strictly managed, changing farmers' planting concepts, promoting organic fertilizers, and preventing problems related to groundwater pollution to the greatest extent; secondly, we must do a good job in animal husbandry management. Farms should pay attention to the treatment of feces to avoid the problem of groundwater pollution caused by animal feces; finally, attention should be paid to the overall environmental governance in rural areas, make overall planning, and establish special sites for domestic waste treatment and sewage discharge. Strictly follow relevant regulations, deal with pollutants, avoid various environmental pollution problems, and effectively protect the groundwater environment in rural areas.

4.3 Do a Good Job in Domestic Water Pollution Control

my country has a large population, and the discharge of domestic sewage is quite large. It is necessary to investigate the people in the surrounding areas of groundwater resources, and use the investigation results as an important reference index for water pollution control, which has certain reference significance for the subsequent adjustment of water pollution strategies. More attention should be paid to the treatment of domestic sewage and garbage to ensure that it can be discharged after scientific processing, so as to reduce water pollution-related problems as much as possible. Among them, attention should be paid to equipment investment, timely interception of difficult-to-treat sewage, and configuration of special sewage treatment supporting pipe networks to minimize the damage to the groundwater environment caused by domestic sewage. The urban population is large and the population is concentrated, attention should be paid to the improvement of the urban environment, and the water quality of the urban groundwater should be grasped. If problems are found, effective treatment measures should be taken in time to effectively protect the urban groundwater resources. At the same time, it is necessary to strengthen the construction of sewage treatment plants, combine various measures to improve groundwater pollution treatment capacity, strengthen the propaganda of green concepts, correctly guide urban residents to save water through scientific concepts, develop standardized living habits, and strengthen the construction of green economy.

4.4 Pay Attention to Groundwater Environmental Monitoring

In order to effectively ensure the effectiveness of groundwater pollution control, a special groundwater quality monitoring system should be established to ensure that staff can fully

understand the changes in groundwater quality and provide them with useful technical support. At the same time, the specific location of groundwater quality monitoring wells should be determined based on the overall situation of groundwater quality, especially the groundwater near some mining areas, which is easily polluted and needs to be monitored. If there is a problem, it must be timely reflect. Relevant staff can formulate scientific and reasonable control measures according to the feedback parameters to improve the effectiveness of groundwater pollution control.

5. Conclusion

In the groundwater system, the water-containing medium infiltration rate is significantly lower than the surface water flow rate, and the groundwater flow rate is relatively slow. Therefore, there is a clear gap between groundwater and surface water pollution. Once the groundwater is polluted, the treatment cycle is repeated, which is relatively long and the treatment cost is relatively high. Therefore, in the governance of the groundwater environment, the government should do a good job of overall planning and coordination, starting from the overall situation, formulate an effective governance plan, and implement it, improve the urban wastewater treatment capacity, start from the groundwater environmental pollution source, and do a good job It is a groundwater environment monitoring work to achieve effective protection, rational development and scientific utilization of groundwater resources.

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