

Research Based on Ecological Environment Protection in the Development and Utilization of Water Resources

Ma Bo*

Qingyang Ecological Environment Monitoring Center of Gansu Province, Qingyang 745000, China.

Email: 191728547@qq.com

*corresponding author

Keywords: Water Resources; Exploit & Use; Ecosystem; Safeguard

Abstract: Water is an important resource for maintaining life in nature and a basic resource for maintaining ecosystems, so it plays an important role in protecting the ecological environment. The development and utilization of water resources will have an impact on the use of water in the region. The construction method will directly affect the level of ecological protection, which is of great significance for promoting the sustainable development of the region. Therefore, in the development of water resources, we must consider how to achieve the protection of the ecosystem and properly handle the relationship between the ecological environment and resource development.

1. Introduction

In the context of rapid social development, the dependence on resources is stronger. As the demand for production and domestic water continues to increase, many places have increased their efforts to develop and utilize water resources. Although helping to alleviate water shortages, the ecosystem is deteriorating. The ecological environment is difficult to recover in the short term, and the development environment will be greatly affected. Therefore, it is necessary to put forward corresponding protection measures in combination with the damaging effects of water resources development and utilization on the ecological environment.

2. Reciprocity between Water Resources Development and Utilization As Well As Ecological Environment Protection

2.1 Showing Mutual Promotion

If the region has sufficient water resources and no external influence, the ecological environment will be in a relatively stable state. The surface water will evaporate under the effect of temperature increase, and the water vapor will increase. The water vapor will condense when it encounters cold air, and eventually form water. Condensation to a certain procedure will produce precipitation under the action of gravity, and the reduction should be supplemented by surface runoff. Due

to the water cycle, the water resources in the area are in a relatively balanced state, which can meet the industrial production, agricultural irrigation and domestic water use. This shows that water resources and the ecological environment have a mutually reinforcing relationship. The ecological environment has a significant dependence on water resources. The scientific and rational development and utilization of water resources must not only consider economic benefits, but also take into account ecological benefits, and pay attention to the protection of the ecological environment.

2.2 Interaction

Water scarcity is insufficient, surface runoff is affected, the water cycle is weakened, water resources will continue to decrease, and human production and domestic water use will be affected. If we do not pay attention to protecting the ecological environment in the development of water resources, it will lead to soil erosion, plant species will decrease, and the original ecological balance will be affected. For example, the construction of dams in lakes or rivers destroys the original ecological and climatic conditions, especially due to the effects of water and soil sedimentation, which seriously affects the ecology of waters. The dam construction causes the original fluidity of the water body to change, and it is difficult for water to reside in the original soil. As the place where the water resides has changed, the survival of animals and plants has changed in the environment.

3. Impact of Water Resources Development and Utilization on Ecological Environment

3.1 Hydrological Changes

There is a correlation between the utilization effect of water resources and hydrological conditions, especially the change in the state of surface water, and the unreasonable development and use of human water resources. If there is excessive exploitation, environmental problems will be caused. In the natural environment, resource providers and users form a stable supply chain. Water resources provide material conditions for local production and living. The ecosystem is in equilibrium. Judging from the current development and utilization of water resources, water conservancy technology is developing rapidly, and the scale of water conservancy projects is constantly expanding, making it easier to obtain upstream water resources in the river basin. Due to the increase of water diversion, the water resources elements in the ecological environment have changed, the hydrological conditions have been affected, and the development and utilization of water resources has caused hydrological changes.

3.2 Ecological Environment and Water Resources Development and Utilization Are Not Synchronized

The development and utilization of water resources has created conditions for regional economic development, but at the same time the ecological environment

has been affected in many ways. At present, the ecological environment lags behind the development and utilization of water resources, and there is no comprehensive analysis of environmental costs in the development and utilization of water resources. For example, in arid areas, due to the large amount of surface evaporation, the increase of reservoirs will aggravate the total evaporation on the water surface, and the normal water supply in the non-rainy season is affected. The completion of the reservoir will reduce the recharge of groundwater and affect the stability of the original water circulation system. In addition, newly-built water conservancy projects have changed the ecological environment in river areas, and artificial channels have changed the flow and flow of natural rivers. Although the irrigation area is guaranteed and the water utilization rate is improved, the response time of the ecological environment is lagging, especially the surface water level. The decline can have multiple effects.

4. Ecological Environmental Protection Measures in the Development and Utilization of Water Resources

4.1 Overall Management of Water Resources Development and Utilization

The over-exploitation of water resources will cause ecological and environmental problems. Therefore, the development and utilization of water resources must be based on comprehensive demonstrations, take into account the regional ecological environment, and combine the base flow with a reasonable solution to the relationship between water resources development and ecological water demand. System and supervision and management system to ensure water quality in the basin. In the protection of ecosystems, the relationship between humans and nature must be strengthened, considering interactions. The behavior of ecosystem protection must guarantee the desired effect. The development and utilization of water resources will have an interference effect on the ecosystem under natural conditions, and will lead to an increase in the uncertainty of the development of the ecosystem. Due to the external disturbance of the ecosystem, there will be continuous changes within the system, and the functionality of the ecosystem will change. In particular, due to the impact of emergencies, the original equilibrium conditions of the ecosystem will change, and the original equilibrium conditions will enter another equilibrium mode after the original equilibrium conditions are changed. If human activities deviate from the natural laws of the ecosystem, the original functionality of the system will change, the system's functionality will be destroyed after it is affected, and the stability of the system will be affected by the outside world. Therefore, the development and utilization of water resources should eliminate the adverse effects of regional management and divisional control under the traditional model, based on the relevant requirements of ecological environment restoration, follow the principle of common development of economic and ecological benefits, and use advanced technology to control The ecological environment is dynamically monitored to achieve sustainable development of the river basin.

4.2 Improvement of Management System

The current monitoring methods and construction methods have not yet fully met the comprehensive needs of integrated river basin management, and an effective water quality and quantity monitoring network has not yet been formed. The water environment supervision lacks a direct basis, and supervision effectiveness is difficult to guarantee. Industrial enterprises along the river lack comprehensive supervision of environmental impacts, and a unified platform is needed for monitoring, early warning and dispatching. The environmental supervision system and mechanism need to be further improved, the overall management level needs to be improved, and supporting policies and regulations are lacking. Therefore, for the guarantee of the ecological environment, we must consider the continuous improvement of the management system, the policy system must consider the continuous guarantee of the ecological environment, there must be incentives, vigorously promote clean production, promote the development of circular economy, and work on pollution reduction must be carried out from the source. It is necessary to establish supporting compensation mechanisms and coordinate the relationship between beneficiaries of resources and providers; it is necessary to have supporting systems such as accountability, accountability, and assessment to improve the management level of the water environment. To further optimize the industrial structure in the region, the economic growth mode should be combined with environmental guarantees, and the implementation of emission reduction measures should be strengthened in accordance with the government's total volume control requirements. Projects that do not comply with industrial policies and cause serious pollution to the water environment must be banned. In order to ensure the environment in the basin, it is necessary to raise the entry threshold for enterprises with pollution sources and further restrict the development of the "three high" industries with high water consumption, high pollution and high energy consumption. Existing enterprises should pay attention to the collection of pollutants, ensure the stable operation of environmental treatment facilities, ensure the treatment effect of production waste and production wastewater, and supervise and implement the responsibility for pollution control in the region.

4.3 Strengthening the Improvement of the Water System

In view of ecological environmental protection, the agricultural planting structure should be adjusted, and crop fertilization should be reasonable to control the pollution of regional water systems caused by agricultural production. It is necessary to give play to the functions of closing hills for forests, returning farmland to forests and grasses, strengthening comprehensive management of small watersheds, expanding the area of forest and grass vegetation, and preventing excessive water and soil loss. Fully implement the construction of slope and farmland water and fertilizer loss control projects, and conduct contour farming for farmland with a slope of 10 ° -25 °. To implement cultivated land organic matter improvement projects, focus on promoting straw return to the field, planting green manure, applying organic manure, and improving soil fertility, increase soil organic matter,

improve soil status, and reduce rural non-point source pollution caused by farmland runoff and soil erosion from the source. The scattered sewage treatment facilities in the river basin should be transformed to improve the processing capacity. We must actively carry out rural environmental governance and pay attention to the promotion and use of clean energy. Carry out a comprehensive rural improvement project focusing on village sewage collection and treatment, garbage collection and removal.

5. Conclusion

Ecological environment is the foundation of social development. For the development and utilization of water resources, we must consider ecological and environmental issues. Aiming at ecological environmental protection, it is necessary to promote agricultural and rural non-point source governance and comprehensive improvement of rural environment in river basin areas, accelerate the construction of urban pollution control systems, implement water ecological restoration and scientific dispatch of water resources, gradually improve river basin monitoring networks, and establish and improve supervision systems and mechanisms. To ensure that the main pollutants are effectively controlled to reduce water pollution caused by human activities and achieve harmonious development between man and nature, ecological environmental protection should focus on effectiveness and create ecological environment conditions for ecological construction and economic development.

References

- [1] Lu Xianpin, Wang Gang, Chen Ning, et al. Hydrological effect of water resources development in the Luohe River Basin and its ecological environment response [J]. Environmental Protection Science (1): 18-21,2018.
- [2] Jiang Haiping, Zhu Yuansheng. Improving water resources protection and aquatic ecological restoration systems to promote the construction of aquatic ecological civilization in the Pearl River Basin [J]. China Water Resources (13): 61-63 ,2017.
- [3] Li Zhimeng, Yu Zhongwen. Ecosystem functions of protected areas and development and utilization of their products: A case study of water resources in Dongjiangyuan area of Jiangxi [J] .Poyang Lake Journal (6): 89-98, 2016.
- [4] Meng Jiangli. Study on Water Resources Utilization and Eco-environment Response in Arid Regions of Northwest China: A Case Study of Xinjiang Baiyang River Basin [J] .Water Resources Protection (2): 38-42, 2018.