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Study on the Influence of Water Conservancy Project Construction on Ecological Environment and Measures

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Abstract: This article mainly from the impact of water conservancy engineering construction on nature briefly explained, to protect the means of discussion and, at the same time put forward the water conservancy engineering construction on ecological environmental protection measures, the purpose is to hope to maximize the protection of the natural environment, and strive to achieve the harmonious coexistence of nature and human situation.

Keywords: Water conservancy project; Ecological environment; Environmental protection

Introduction

Water conservancy projects are mainly aimed at power generation, flood control, water supply, irrigation, and other comprehensive projects, which have significant social economic benefits, and environmental benefits, but in the construction process will have some adverse effects on the original natural environment and ecological balance, so we should make efforts to strengthen the environmental protection policy of water conservancy projects. Establish the ecological engineering concept of harmony between man and nature, reuse natural resources at the same time, and minimize the impact on the environment. Only in this way can we reduce environmental pollution and ecological damage, and then maintain the health of the river, and realize the harmonious coexistence of nature and man.

1. Adverse effects of water conservancy project construction on nature

1.1 Impact on land environment

During the construction of water conservancy projects, bank collapse earthquakes, and other adverse geological disasters may be triggered. However, large water conservancy projects can induce earthquakes, mainly due to the increase of crustal stress; Water infiltration into faults can increase the degree of lubrication between faults; And increase the pressure of interstitial water in rock layers. After water storage, the water level rises, the shear strength of the soil on the bank slope decreases, and it is easy to collapse landslide and the instability of dangerous rock mass, resulting in the bank slide. Leakage causes changes in the surrounding hydrological conditions. If the reservoir is a sewage reservoir or a tailings reservoir, the leakage is easy to cause pollution in the surrounding area and underground water bodies, and the damage to the ecological environment is very huge.

In addition, due to the reason of the construction environment, leads to the life of the animals and birds in the construction area, and the feeding environment is also constantly deteriorating, which brings them a certain harm. Water storage and flooding of forests, destruction of surface vegetation by engineering construction, division, and encroachment of wildlife habitat by new towns and road systems will all cause changes in the original ecosystem, threaten the survival of a variety of organisms, and exacerbate species extinction.

1.2 Adverse effects of water conservancy projects on the social environment

Water conservancy projects not only bring benefits to the social economy but also cause adverse impacts on the social environment. In terms of human health, many diseases arise, mainly because they are related to the water environment. Secondly, the flood of the reservoir area will also bring adverse effects on cultural relics monuments, and landscapes. At the same time, the construction of water conservancy and hydropower projects also has a certain impact on population migration and land use.

1.3 Adverse effects of water conservancy project construction on the river environment

If water conservancy projects are built on natural rivers, the natural form of rivers will be changed, and then the water depth and sediment content of local rivers will be changed, and finally, the hydrology and sediment in the upper and lower reaches of rivers will be changed. The change in hydrology and sediment is the driving force that affects the change in the river's ecological environment. Then it affects the

water temperature, water quality, geological environment, and local climate of the river. First of all, the construction of water conservancy projects will change the water quality and temperature of natural rivers, especially the construction of reservoirs. Because the reservoir has the characteristics of a wide water surface, large water body, slow water flow, and the water body is affected by solar radiation, the reservoir has a special water temperature structure. When the reservoir is impounding, because the reflectivity of the water surface to the solar radiation is less than the emissivity of the land surface, the heat radiation value of the water surface increases, resulting in the water temperature in front of the dam after impounding the reservoir is higher than the water temperature of the natural river. The higher water temperature will be unfavorable to the reproduction of fish, especially the reproduction of fish downstream, resulting in the delay of the spawning period of fish. Secondly, the construction of water conservancy projects also has a certain impact on the water quality of rivers. The construction of water conservancy projects will lead to a decrease in river water velocity in this region. On the one hand, it reduces the exchange rate of water and gas interface and the migration and diffusion capacity of pollutants, resulting in the decline of the self-purification capacity of water quality. On the other hand, it will also strengthen the sedimentation, resulting in accelerated settlement of heavy metals in water, resulting in serious heavy metal pollution in water quality. Finally, the construction of water conservancy projects will also have an impact on the climate and geology of the region. The construction of water conservancy projects will affect the climate change of the region, especially the construction of the reservoir, which will form a vast water area, resulting in a significant increase in evaporation before the completion of the reservoir, and an increase in water vapor entering the atmosphere, resulting in an increase in precipitation and fog days in the region, changing the original climate. At the same time, the construction of large-scale water conservancy projects may also lead to the formation of geological disasters such as earthquakes.

1.4 The construction of water conservancy projects poses a serious threat to people's health

Many diseases, such as amebic dysentery, typhoid fever, schistosomiasis, and cholera, are indirectly related to the water environment. When water conservancy projects are completed, the land may be turned into wetlands, which are favorable to mosquitoes and thus to the spread of malaria. The construction of water conservancy projects has a huge impact on the ecological environment, we must pay enough attention to it, otherwise, it will bring convenience to people and bring disasters to mankind at the same time. We need to pay attention to environmental issues, to avoid disasters as much as possible.

2. Water conservancy project for the adverse effects of the solution

2.1 Protection of Nature Reserves

The relevant laws and regulations on construction shall be improved, special protection shall be carried out in nature reserves, scenic spots, forest parks, World heritage areas, and other areas in need of protection that are unsuitable for water conservancy projects, and the construction of water conservancy projects and other large-scale projects shall be prohibited. Regional ecological construction and environmental protection should be taken as the key work, and water conservancy projects that seriously damage and affect the ecological environment, national nature reserves, national scenic spots, and world heritage areas should be re-evaluated and examined, and the right to build should not be granted to them, to fundamentally protect the ecological environment.

2.2 Determine appropriate development project construction

In the past, water resource planning followed the cascade development model of the relevant basin, which often pursued a development rate of 100%. Due to the compensation costs of immigration and cultivated land will be higher and higher, so considering social stability and protection of cultivated land resources, the planning should be adapted to local conditions, choose the appropriate development projects, do not blindly develop, so not only labor and money but also cause irreparable damage to the ecological environment. For the migration and inundation of less cultivated land, fewer ecological and environmental problems of the river can be 100% developed; For rivers with a lot of migrants and inundated farmland and big ecological and environmental problems, they can be properly developed.

2.3 Improve the means of water conservancy project construction

Promoting the development of ecological water conservancy construction is the basic direction to improve the ecological environment of the water conservancy project construction area. To some extent, water conservancy projects not only seriously affect and destroy the ecological environment, but also destroy the water resources. Therefore, people based on the current situation of water resources and the principle of ecological engineering, then put forward ecological water conservancy. Its theoretical basis is: that ecological water conservancy not only covers the objectives of water conservancy and the water conservancy industry but also highlights the environmental objectives, which are consistent with the objectives of sustainable development. The ultimate goal is to realize the sustainable use of water resources and meet the coordinated development of the economy, society resources, and environment.

The construction of "ecological water conservancy" is the hot focus of current work and research. In the construction of an "ecological

water conservancy" project, first of all, we should follow the principle of engineering safety, carry out a technical and economic demonstration of the project, ensure the feasibility of the technology and economic rationality, protect the river ecosystem, maintain the singularity of river form, and create conditions for the restoration of biological community diversity; In addition, further deepen the water conservancy reform, do a good job of water conservancy modernization planning, so that each "ecological water conservancy" project can combine the natural attributes of the local river, and seek the best ecological engineering scheme. At the same time, continue to improve the environmental assessment, ecological protection policies, laws, and regulations, for the "ecological water conservancy" construction escort, provide a strong legal basis and institutional guarantee. More importantly, resolutely establish and implement the scientific concept of development, leave the road of harmonious development with nature, and strive to build water conservancy projects into safe and economic, "ecological" and "environmental protection" "ecological water conservancy" projects that live in harmony with nature.

3. Conclusion

In a word, the impact of water conservancy and hydropower projects on the environment is inevitable. Therefore, protecting the ecological environment is the focus of hydropower project construction. It should be noted that while building water conservancy projects, we also need to pay special attention to the coordination and balance between water conservancy projects as a new environmental component and other environmental components. Make it form a harmonious water resources system, to achieve the unity of social benefits, environmental benefits, and economic benefits.

References

- [1] Ku Xingxiang, Su X L. Impact analysis of water conservancy project construction on water ecological environment system [J]. China Rural Water Resources and Hydropower, 2008 (7).
- [2] ZHANG Li. Analysis of the impact of water conservancy projects on river ecology [J]. Yellow River, 2010, 32 (12): 89-90.
- [3] Mo Shadong. Discussion on ecological factors and ecological water conservancy projects in water conservancy projects. 2012, (35): 45-46.]
- [4] Analysis of Environmental Problems and Countermeasures in Hydraulic Engineering [J] Science and Fortune, 2010 (01).
- [5] Meng Huafeng, Applying Ecological Engineering Principles to Solve Environmental Problems in Hydraulic Engineering construction [J] Forum of Association for Science and Technology (Second Half of the month), 2007 (12)