Risk Assessment and Analysis of Geological Disaster of Hydraulic Engineering Environmen

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Abstract:

The formation of hydraulic engineering environmental geohazards is mostly caused by human factors, rough investigation, illegal operation, and improper countermeasures can trigger or even magnify the hazardous degree and scope of geohazards. Timely, scientific and accurate assessment of the risk of hydraulic engineering environmental geohazards is an important means to prevent disasters and reduce losses. However, the risk assessment needs to refer to a variety of information, and in many cases, it rely on the work experience of the assessors, so the actual work is carried out in a mixed situation, resulting in a huge disaster hidden danger. It is necessary to sort out the recent assessment work, sum up the experience and analyze the interests in order to point out the direction for future work.

Keywords:

Hydraulic Engineering Environment; Geological Disasters; Risk Assessment

I. The importance of hydraulic engineering environmental geological hazard assessment

Engineering construction involves a wide range of fields, it is not an independent project, but involves the whole body, but also because of the more complex geological structure, to the survey work has also brought some difficulties and risks. Therefore, it is necessary to do a good job of geological hazard assessment of hydraulic engineering environment, have a full understanding of geological conditions and serious assessment, and formulate solutions in line with their characteristics according to the geological conditions of different regions and also provide an effective guarantee for the smooth development of geological survey of hydraulic environment and ensures the efficiency and quality of geological development. As a basic project, the vigorous development of project construction not only alleviates the pressure of water shortage in agriculture and industry in some areas to a great extent, so that the problem of insufficient water supply can be effectively solved, but also can timely send water to arid areas through cross-regional water resource dispatch, and prevent flood disasters, thus strengthening the communication between the two places. We will further promote the economic development of the two regions and achieve common prosperity. In the long run, if we want to make the construction and development of the project more smoothly, we must lay a good foundation, do a good job in the risk assessment of hydraulic environmental geological disasters, and use the scientific development method to survey and evaluate the geological disasters. Adopt feasible and reasonable method to solve the problems effectively, so that the project construction can achieve sustainable development.

II. Problems in the risk assessment process of hydraulic engineering environmental geological disasters

1. There is no deep understanding of the risk of hydraulic engineering environmental geological disasters

Geological disasters of hydraulic engineering environment are far away from the lives of most people, and many workers and managers have not seen the danger of geological disasters of hydraulic engineering environment, nor have a deep understanding of the danger of hydraulic engineering environment geological disasters, and think that those dangers are

exaggerated and will not bring great damage to people's production and life. In this case, the staff does not pay attention to the relevant geological disaster risk assessment work of hydraulic engineering environment, and is very perfunctory in the work, not to carefully inspect each area, which is easy to miss, so that the hidden dangers existing in some areas cannot be found in time, and the final survey report is seriously deviated from the actual situation, lacking scientific and rigorous. The evaluation results are also different from the actual hydrogeological characteristics of the hydraulic engineering environment, and the subsequent coping and treatment work is difficult to carry out smoothly.

2. The research scope of the assessment of the risk of geologic hazards in the hydraulic engineering environment is relatively small

At present, when China carries out the risk assessment of hydraulic engineering environmental geological disasters, the risk assessment and prevention of geological disasters are often only aimed at very obvious hidden danger areas. Many areas have not been effectively assessed, and the hidden danger can not be found, let alone effectively solved and prevented, resulting in many loopholes in the risk assessment of hydraulic environmental geological disasters. It is not perfect enough. At the same time, geological disasters in hydraulic engineering environment are usually not instantaneous, but have a process of accumulation and change, and there are many factors leading to the occurrence of geological disasters, which are also very complicated. In this case, if the research is still limited to a small scope, it is impossible to obtain scientific and rigorous assessment results, let alone smooth follow-up work. Therefore, it is necessary to continuously expand the scope of research on the risk assessment of hydraulic engineering environmental geological disasters, to start from the whole, to arrange multiple groups of staff to work in different areas, to ensure that each area can be surveyed, and there will be no omissions, so as to obtain comprehensive data information, also to rationally arrange the follow-up work.

3. Lack of perfect supervision and management mechanism

In order to assess the risk of geological disasters in hydraulic engineering environment, it is necessary to have a perfect supervision and management mechanism and evaluation mechanism as guidance. However, in the actual situation, due to the lack of scientific and perfect supervision and management mechanism, most of China's hydraulic engineering environmental geological disaster assessment work has not been effectively supervised and managed, even if the relevant supervision and management work is carried out, but there is no perfect system manufacturing, many work can not be implemented at all. The accuracy of geological hazard assessment results of hydraulic engineering environment can not be guaranteed.

4. The comprehensive quality of the staff is low

To carry out the assessment of the risk of hydraulic engineering environment geological hazards, it is often necessary to carry out a large number of field visits, the working environment is poor, the work is more difficult, which makes many high-quality professionals do not want to engage in the relevant hydraulic engineering environment geological hazards hazard assessment work, The problem of manpower shortage often occurs during the assessment, which forces the relevant units to lower the recruitment threshold for staff, and select some inexperienced staff and low comprehensive quality to carry out the risk assessment of hydraulic engineering environment geological disasters. Due to their low comprehensive quality, these staff have poor ability to learn and accept some new equipment and new knowledge, cannot quickly master new knowledge, cannot skillfully operate new equipment, and are prone to various mistakes. Moreover, in the actual work of hydraulic engineering environment geological disaster risk assessment, they are prone to work problems due to personal reasons, which affects the scientificity and accuracy of the final assessment results.

III. Improve the methods of risk assessment of hydraulic engineering environmental geological disasters

1. Improve the hydraulic engineering environment construction site survey

It is the foundation and preparation work to perfect the geological exploration of the hydraulic engineering environment construction site. In order to rationalize and accurately evaluate the result of hydraulic engineering environmental geological

hazard, it is necessary to provide accurate construction site investigation information for its evaluation basis, so as to ensure the safe and smooth progress of hydraulic engineering. To improve the investigation of the construction site, we must first conduct a scientific and complete analysis of the construction requirements of the water conservancy project, and then scientifically and properly manage the construction materials needed in the implementation of the water conservancy project to ensure the reasonable and scientific application of construction technology to the construction materials, ensure the smooth and safe progress of water conservancy construction, and ensure the construction quality.

2. Improve the hydrological environment survey

In addition to improving the construction site exploration, the geological exploration personnel of hydraulic engineering should pay more attention to the hydrological environment exploration. As a part of the geological environment, the hydrological environment will have a direct or indirect impact on the risk assessment of hydraulic engineering environmental geological disasters. Therefore, improving the hydraulic engineering environmental exploration will help reduce the risk of hydraulic engineering environmental geological disasters. To improve the hydraulic engineering environment exploration, we should do the following: (1) Scientific classification based on the evaluation basis of the reference data of hydraulic engineering environmental geological hazards; (2) Take the specific information of underground lava at the construction site as the main reference material, and analyze the possible factors that will affect the hydrogeological disaster; (3) Through the above work, the risk levels of hydraulic engineering environmental geological disasters are classified, and the prevention program of hydrogeological disasters is formulated. Improving the hydrologic environment survey through the above three points will play a certain role in guaranteeing the implementation of the project.

3. Improve geological environment exploration

Geological environment exploration of construction site is an important basis for the risk assessment of hydraulic engineering environmental geological disasters and an important requirement for the implementation of hydraulic engineering projects. In order to improve the geological environment exploration, exploration technicians should first have a general understanding of the current situation of geological environment, and then analyze the damage of construction technology and construction equipment to the ecological environment during the construction process. At the same time, it is necessary to regulate and supervise the construction personnel's and destruction of the ecological environment and incorrect construction operations, so as to reduce the risk of hydraulic engineering environmental geological disasters, protect the ecological environment of the construction site, and ensure the safe and scientific operation of water conservancy projects.

Conclusion

To sum up, the key factor for the smooth construction of engineering construction is to have a scientific and adequate assessment of geological hazard risk and to clearly divide the grade of geological hazard. The use of computer technology and other high-tech means to make a more detailed investigation of the investigation environment, in this in-depth analysis, on the basis of the development of a more scientific and reasonable project construction scheme, to avoid the safety risks caused by improper technical operation, the hydraulic engineering environment geological disasters caused by the minimum loss.

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