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Flood Risk Assessment Combining the Historical Disaster Statistics Method with the Index System Method: A Case Study of Hubei Province, China

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摘要: Flood risk assessment is an important aspect of flood management, and we combine the historical disaster statistics method and the index system method to assess the flood risk in Hubei Province, China. Our methodology includes collecting flood disaster data from 1949 to 2000 to calculate the extent and trend of flood disasters in each geographical unit, and the flood hazard is evaluated based on these aspects. In addition, we also select relevant indicators such as elevation difference, distance to the water body, gross domestic product (GDP), population, and proportion of the construction land to measure flood vulnerability, and the weights for these indicators are determined using the AHP_entropy method. Then, a risk assessment model is developed by integrating the hazard and vulnerability at a high-resolution grid scale of 1 km×1 km. The results show that about 55.6% of the area of Hubei Province falls into the medium-high risk category.

关键词: Flood risk assessment; AHP_entropy method; Flood hazard; Vulnerability