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## **EVALUATION MODEL OF COORDINATED DEVELOPMENT BETWEEN GROUNDWATER RESOURCES AND ENVIRONMENTAL ECONOMY BASED ON GIS: AN INVESTIGATION**

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### **Abstract**

The evaluation model of coordinated development of groundwater resources and environmental economy plays a vital role in studying the relationship and ensuring their effective implementation. However, the current research on this evaluation model still has some limitations. In order to solve these problems, this study introduced geographic information system (GIS) technology into the CD evaluation model of GR and environmental economy. A GIS-based evaluation model was proposed and compared with the traditional evaluation model. The effectiveness of GIS in evaluating CD between GR and environmental economy was verified by comparative experiments. The results show that the accuracy of traditional evaluation model (Model 1) on training samples (sample size was 200) was 60.58%. In contrast, the GIS-based evaluation model (Model 2) achieved a higher accuracy of 81.64% in the training sample. When the sample size was increased to 3200, the evaluation accuracy of Model 1 and Model 2 reached 79.66% and 98.68%, respectively. In the test sample size of 800, the accuracy of Model 1 and Model 2 was 74.34% and 98.35%, respectively. These results highlight the validity and applicability of GIS-based evaluation models in evaluating the ecological balance of natural resources and environmental economy. This model provides valuable theoretical support and reference for researchers in this field.

*Key words:* coordinated development of environment and economy, evaluation model geographic information system, groundwater resources

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