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## **STUDY ON THE INFLUENCE OF MULTI-SOURCE RECHARGE ON GROUNDWATER ENVIRONMENT**

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### **Abstract**

Groundwater recharge is an effective method to solve the groundwater overexploitation. In this study, the method of numerical simulation is used to discuss the environmental change of groundwater in the process of multi-source recharge. The results of multiple water sources including local regenerated water source, wetland water source and South-to-North water source show that the cumulative loss of groundwater resources in Mihuaishun area in 2007 ~ 2016 reaches  $-1.784 \times 10^9 \text{ m}^3$ . The influence of different water sources on the local groundwater environment is different. Nitrate nitrogen concentration of regenerated water source and wetland water source is higher than that of groundwater, and artificial recharge increases the concentration of groundwater in the receiving water area. The nitrate concentration in the water source of South-to-North Water Division is relatively low, which plays a diluting role in the process of groundwater recharge. In addition, the artificial recharge of multiple water sources is also related to local hydrology geological conditions. The influence of multi-source recharge on groundwater quantity and water quality is analyzed comprehensively in this study.

*Key words:* artificial recharge, groundwater environment, multiple water sources, numerical simulation

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