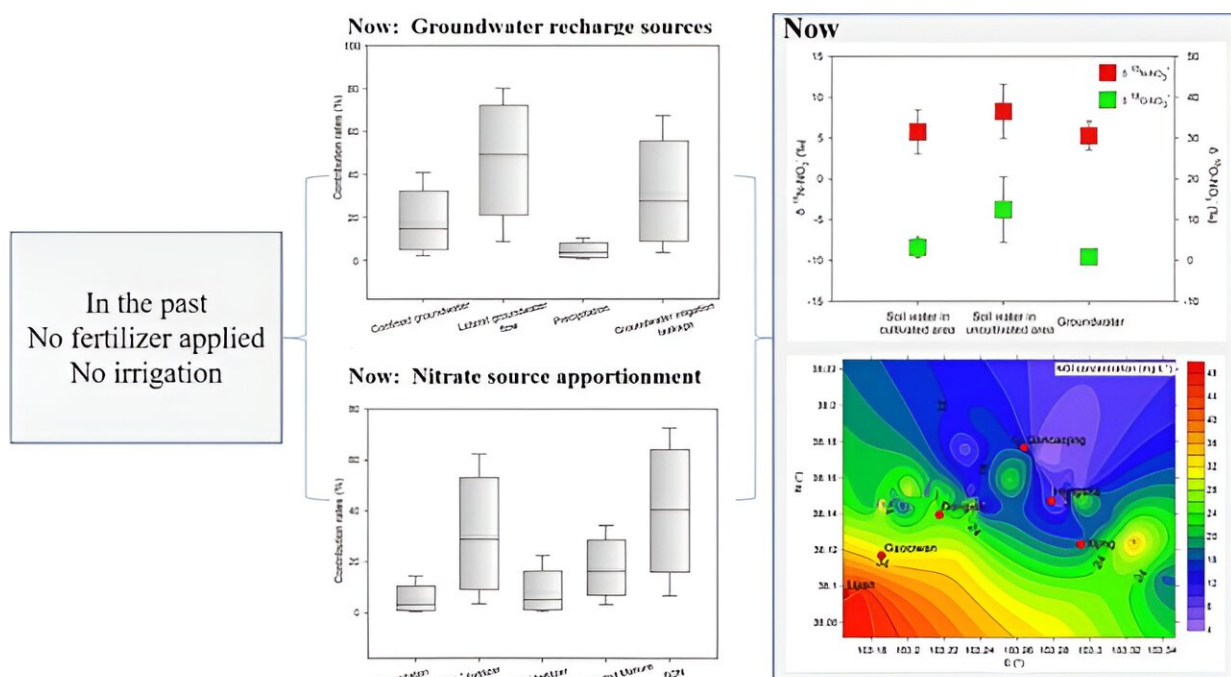


# Effects of recharge process on groundwater nitrate concentration in an oasis of Tengger Desert hinterland

August 30 2023, by Li Yuan



Credit: *Environmental Science and Pollution Research* (2023). DOI: 10.1007/s11356-023-29284-0

A research team led by Qi Shi from the Northwest Institute of Eco-Environment and Resources (NIEER) of the Chinese Academy of Sciences (CAS) has investigated the relationship between groundwater

nitrate concentration and the groundwater recharge process in the oasis of the Tengger Desert hinterland. The study was published in *Environmental Science and Pollution Research* on Aug. 18.

The researchers found that groundwater irrigation leakage is an important source of [groundwater recharge](#) in Dengmaying Basin (DMYB) of the Tengger Desert, with the proportion of recharge reaching 30.3%.

They obtained the distributions of groundwater nitrate concentration in the DMYB in 2006 and 2020. Nitrate levels in groundwater in the DMYB increased from 2006 to 2020, as large-scale farm cropland continued to increase in western regions, and anthropogenic effects on nitrate concentration in groundwater exceed natural effects.

Moreover, the results of source apportionment of groundwater nitrates revealed that  $\text{NH}_4^+$  fertilizer,  $\text{NO}_3^-$  fertilizer, sewage, and manure are the major contributors to groundwater nitrates in the DMYB.

"This study provides a new perspective on groundwater recharge and groundwater nitrate pollution in desert hinterland oases, as well as scientific basis for water environment protection in areas of shortage of water resources," said Qi.

**More information:** Shi Qi et al, Effects of recharge process on groundwater nitrate concentration in an oasis of Tengger Desert hinterland, China, *Environmental Science and Pollution Research* (2023). [DOI: 10.1007/s11356-023-29284-0](https://doi.org/10.1007/s11356-023-29284-0)

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