

## **Assessment of nitrate contamination in groundwater of a shallow aquifer in Kathmandu, Nepal**

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**Abstract** Nitrate is commonly used as an environmental indicator to trace the impact of anthropogenic activities on groundwater. Hence, a survey was made of the nitrate concentrations in the groundwater of a shallow aquifer in Kathmandu valley from 90 wells, including shallow tube wells, dug wells and stone spouts (locally called dhunge dharas). The aims of this study are to describe the current status and trends of the nitrate contamination in different sources of shallow groundwater systems and to provide a sound, scientific understanding of the natural and anthropogenic factors affecting the nitrate contamination. The study indicates 16% of the sampled wells exceeded World Health Organization (WHO) guidelines of 10 mg/L of nitrate-nitrogen; however, another 33% wells have impacted levels of nitrate, i.e. between 2 and 10 mg/L. Although, nitrate contamination is widespread in shallow groundwater systems of Kathmandu, its concentration depends on depth of water table, well types and land use.

**Key words** nitrate contamination; anthropogenic; environmental indicator; Kathmandu, Nepal