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Contamination by Trace Elements in Groundwater of Vietnam

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Abstract:

Although arsenic (As) pollution has been indicated in groundwater of Vietnam, there is no detailed information on pollution by other trace elements in Vietnam. In the present study, concentrations of As and other trace elements were determined in groundwater collected from Gia Lam District and Thanh Tri District, suburban areas of Hanoi, Vietnam in September 2001. Concentrations of As in the groundwater ranged from <0.10 to 330 µg/l. These levels were lower than those in other As-contaminated areas, but about 40 % of these samples exceeded the World Health Organization (WHO) drinking water guideline of 10 µg/l. Interestingly, 76 % and 12 % of groundwater samples had also higher concentrations of manganese (Mn) and barium (Ba) than WHO drinking water guidelines, respectively. To our knowledge, this study indicates for the first time that the people in Red River Delta may be exposed not only to As but also to Mn and Ba from groundwater.

Key words: [trace elements](#), [groundwater](#), [Hanoi](#), [Vietnam](#)

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