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Understanding shallow groundwater contamination in Bwaise slum, Kampala, Uganda

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Groundwater in unsewered urban areas is heavily contaminated by onsite sanitation activities and is believed to be an important source of nutrients ex-filtrating into streams and thus contributing to eutrophication of Lakes in urban areas. Currently the fate of nutrients and especially phosphorus leached into groundwater in such areas is not well known. In this study, we undertook an extensive investigation of groundwater in Bwaise slum, Kampala Uganda to understand the distribution and fate of sanitation-related nutrients N and P that are leached into groundwater. Transects of monitoring wells were installed in Bwaise slum and downstream of the slum. From these wells, water levels were measured and water quality analyses done to understand the distribution and composition of the nutrients, how they evolve downstream and the possible subsurface processes affecting their fate during transport. These findings are necessary to evaluate the risk of eutrophication posed by unsewered areas in urban cities and to design/implement sanitation systems that will effectively reduce the enrichment of these nutrients in groundwater.

Key words: fate, groundwater, nutrients, processes, slums