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Arsenic contamination of groundwater resources in the Amazon Basin: An emerging health concern?

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Many People in the Amazon region depend on groundwater as a source of drinking water to avoid problems of contaminated surface water and fluctuating river levels. However, a recent study showed that parts of the Amazon groundwater resources are contaminated with geogenic arsenic (de Meyer et al., 2017). This raises the urgent need to identify hotspots of arsenic contamination occurrence throughout the Amazon Basin. Here, we present results from field studies covering large parts of the Peruvian and Brazilian Amazon region, including remote areas. Some 250 groundwater samples were collected and analyzed for major and trace element chemistry. We linked the chemical analyses to environmental factors such as geology, river geomorphology and soil coverage to get insights on the distribution and origin of reducing aquifer conditions and associated arsenic (and manganese) contamination. Moreover, we assessed the direct or indirect consumption of contaminated groundwater in the communities as well as the presence of drinking water alternatives for the local population. Our unique dataset provides the first estimation of the dimension of the arsenic contaminated groundwater problem in the Amazon region.

de Meyer C.M.C, Rodríguez J.M., Carpio E.A., García P.A., Stengel C., Berg M. (2017). Arsenic, manganese and aluminum contamination in groundwater resources of Western Amazonia (Peru). Sci. Total Environ. 607-608: 1437-1450.