HUMAN AND ENVIRONMENTAL CONTAMINATION IN THE IRON QUADRANGLE, BRAZIL

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Arsenic exposure is a potential health risk to local populations around gold mining areas in southeastern Brazil. In April 1998, 126 schoolchildren, aged 9.8 ± 1.12 years in two Minas Gerais mi-ning districts had their spontaneous urine sampled. Toxicologically low Cd (0.04–0.35 µg L-1, mean 0.13 µg L-1), partly elevated Hg (0.1–16.5 µg L-1, mean 1.1 µg L-1), and generally elevated to high As concentrations (2.2–106 µg L-1, mean 25.7 µg L-1) were found. 20% of the total sample population showed elevated As concentrations where adverse health effects cannot be excluded on a long-term basis.To assess the potential sources particularly of As, a parallel study of surface waters, sediments, soils, and tailing materials was conducted. While Cd and Hg values were low in all these media, As concentrations in water (0.4–350 µg L-1; mean 30.5 µg L-1), in soils (200–860 mg kg-1), sediments (22–3200 mg kg-1, mean 350 mg kg-1), and tailings (300–21000 mg kg-1; mean 10500 mg kg-1) reveal high concentrations which may lead to an explanation for As pathways in the investigated areas. In August 1999 spontaneous urine from 270 schoolchildren and adults was sampled to further explore the developed hypothesis. At the same time, drinking water and road dusts were collected. The obtained results shall be presented during the conference.