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Enhancement of Exposure to Naturally Occurring Radioactivity in Relationship with Artisanal Mining Activities in the Democratic Republic of the Congo

This study was carried out to assess the concentration and distribution of naturally occurring radionuclides in soils and sediments collected along Luilu and Dilala Rivers, at the mining district of Kolwezi (Lualaba province) in the Democratic Republic of the Congo. Soil and sediment samples were analyzed by gamma-ray spectrometry. The ^{226}Ra average activity concentrations in soils were 2-6 times higher than the worldwide average value reported by the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR), the average concentration of ^{40}K was lower than the worldwide average, while ^{232}Th was similar to the worldwide average. The sampling sites that displayed the highest concentration values of ^{235}U and ^{226}Ra in both river basins corresponded to sites affected by industrial mining discharges and artisanal mining activities.

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