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Overview of environmental radioactivity studies in South Africa and neighboring countries

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High concentrations of radionuclides and toxic elements in abandoned gold mine facilities present a potential health hazard to the people living around these former mining areas and lead to a degradation of the environment. Environmental measurements were performed around the areas designated as gold mines, coal mines, coal power stations, mine dumps and abandoned mines. Soil and water samples were collected and analysed to determine the activity concentrations of 238U, 226Ra, 232Th and 40K. The presentation will cover an overview of the results obtained using a high purity germanium (HPGe) well detector and high purity germanium broad energy (BEGE) detector as well as an inductively coupled plasma mass spectrometer (ICP-MS). A general overview of the activities obtained and the radiological and toxicological risks associated with the pollution will be discussed.

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