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Biosorption for Sustainable Small-Scale Gold Mining in Uganda | BioGold

A partnership between Uganda, South Africa and Austria

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PARTNER INSTITUTIONS:

University for Continuing Education Krems |

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PARTNER COUNTRIES:

Uganda, South Africa and Austria

PROJECT DURATION:

1 March 2024 – 28 February 2027

(36 months)

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Mercury-dependent artisanal and small-scale gold mining (ASGM) supports the livelihoods of millions of people around the world, including in Uganda. However, the activity is a significant source of mercury to the environment. The gold-mercury amalgamation process releases mercury-laden water, while the tailings continuously leach mercury, contaminating aquatic systems and agricultural soils. Burning the amalgam releases mercury into the atmosphere, which returns with precipitation, further contaminating water and agricultural soils. Food crops grown in contaminated soil and water absorb and fix mercury, which accumulates to toxic levels when consumed by humans. Aquatic organisms also bioaccumulate mercury along the food chain, eventually reaching humans in high toxic concentrations. In addition to mercury, other heavy metals associated with gold mining pose serious environmental and human health risks.

This project will develop a simple and efficient biosorbent composite from locally available biomass for the remediation of tailings and contaminated soils to make them fit for agriculture, and for the removal of mercury and associated heavy metals from mine waste to protect fragile aquatic systems. In addition, the project will build the capacity of researchers in partner institutions in mercury management and enhance the capacity of communities to use mercury bioremediation technology to protect people and the environment. Furthermore, the project emphasises the integration of gender, diversity and inclusion in all activities and engagement with the scientific community and the public to increase visibility and uptake. Finally, the project aims to synthesise data to inform policy decisions that promote sustainable practices in artisanal and small-scale gold mining. The project is funded by APPEAR, a programme of the Austrian Development Cooperation.

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