Remediation of Mining Waste

Process flowsheet development for recovering value and remediating the impacts of gold mining tailings.

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Background

Mining activities have played a crucial role in economies in Sub-Saharan Africa. They have accounted for job creation and contributed to the development of communities. The legacy of mining however is mixed with negative environmental and social impacts arising from mine closure. Abandoned tailings dams are one of these legacies which needs to be addressed.

The broader project aims to develop integrated solutions for remediating the impacts of mine tailings in the short and long term. A **revalue to remediate** strategy is being applied on mine tailings to create benign waste material and provide long term solutions for land reclamation. Economic, social and environmental sustainability indicators are used as a basis for determining the sustainability of the proposed metallurgical solutions.

Research Areas

Alternative lixiviants for leaching of gold

Froth flotation of sulphide minerals

Application of froth flotation to remediation of tailings

Phytomining and Phytoremediation

Use of plant – hyperaccumulators for uptake of heavy metals from soil

Process Simulation and Modelling

Metallurgical plant flowsheet modelling and geochemical modelling

Life cycle assessment and Exergy analysis of process

Assessment of sustainability of process flowsheets, including economics

Positions available in 2021:

Multiple projects are available in the above activities

Projects available at Masters and PhD level

- Masters requirements: BEng or equivalent with 65 % average
- PhD requirements: MEng or equivalent with 65 % average

Funding available depending on student profile

Application:
Please send your CV including detailed academic transcript