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Millions of people could be impacted by mine closures in South Africa – UCT research

Research published in the International journal *Mining* by a University of Cape Town (UCT) academic, Dr Megan Cole, has showed that 48 of South Africa's 230 operating mines could close in the next 10 years.

The research quantified the risks associated with closing down mines across South Africa. Mine closure is a growing concern in mining countries worldwide due to environmental and social impacts. This is particularly true in developing countries like South Africa, where poverty, social deprivation and unemployment are widespread and environmental governance is not strong.

"The majority of these mines are coal mines located in Mpumalanga, where coal reserves are running out and pressure to mitigate climate change is limiting investment; and gold mines in the Free State and Gauteng, which operate at very deep levels in challenging conditions," said Cole from UCT's Future Water Institute.

According to Cole, mining is a cornerstone of South Africa's economy, as the country is the world's leading producer of platinum, chromium and manganese. "Over a quarter of our local municipalities host an operating mine, and over six million people live in mining host communities. The future of mining affects all of us, but mine closure can have significant direct impacts on host communities, local economies and the environment," she said.

Cole said there has been a lack of data and communication regarding mine closure in the country, and her research sought to put information in the hands of those who needed it to make good decisions.

Her risk rating system assessed and mapped the likelihood of mine closure, socio-economic risk and environmental risk for all operating mines in the country. The results highlighted where closure was likely to happen soonest and where social and environmental risks were highest. "This is important for government departments at all levels for planning and prioritisation, for mining companies who may not have considered all of the impacts resulting in mine closure, and for affected workers and communities, who can then engage with the mining companies and government on how to minimise the negative impacts," she said.

The findings also showed that social risks were highest in the most vulnerable communities, particularly rural villages in Limpopo and North West, highlighting the need for a broad response by national and provincial governments that alleviates poverty and supports economic growth. “The environmental risks are highest for coal and gold mining regions, which are also where the best arable land is found, highlighting the importance of rehabilitation in the mine closure process to enable post-closure land use and economic diversification,” said Cole.

Cole added: “Each mine is different, with a unique context and set of environmental, social and governance risks. While the research proposes a national risk rating system and highlights patterns for the country, it also provides a rich dataset that gives detailed information at the mine site and local community level. This can be used case-by-case by various stakeholders who can add their perspectives.”

“It is hoped that the risk ratings will promote deeper discussions on mine closure management and planning amongst a diverse group of stakeholders, empower communities to prepare for closure, and support evidence-based decision-making. It comes at an important time, as the draft National Mine Closure Strategy undergoes public consultation and there is global attention on how South Africa navigates a just energy transition. This research is the first of its kind, and the approach could be used in other mining countries to assess the risks associated with mine closure,” she concluded.

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