

Healing the scars of mining through sustainable rehabilitation

Recent studies on the promised land rehabilitation and environmental remediation of previously used mining sites have uncovered some major discrepancies between good intentions or PR efforts, and the actual delivery on promises that directly affect the communities in the vicinity.

“South Africa’s history regarding mine closures is definitely a troubled one. If one considers the topography of Johannesburg and its surrounding areas, for example, the remains of gold mining operations can be seen at the many mine dumps which make up part of the city skyline.

“Most mining operations are viable for around 30 years, depending on what is being mined, but the environmental and social impacts can be felt for much longer than that,” says Fikile Mashinini, managing director of land rehabilitation and environmental remediation specialists, Ncamiso Mining.

The company provides a broad range of services in healing mine dump sites that benefit both the mining operations and communities.



Tshego Motsoenyane, Ncamiso’s COO, agrees and contends that the massive environmental and financial costs of failed land reclamation efforts have been a burden carried by the government and society. “Specifically, the communities living in or near these affected areas continue to struggle with adverse effects on their health and well-being caused by various factors associated with mine legacy pollution as well as their safety on unstable land.”

There are five crucial factors to be considered when it comes to mining and post mine closure planning in relation to site rehabilitation and if any mining operation truly reflected on each factor, they would embrace the responsibility and value of such projects to all parties involved. The five factors are:

Land rehabilitation

Many mining operations fail to recognise the significance of the damage that mining does to the stability of the land and to the future viable use of the land. Mining houses should plan post mine closure and recognise their responsibility to reduce all possibility of subsidence to ensure stable ground for the community.

Rehabilitating the land can take many forms, such as: simply removing all waste and contamination and stabilising the ground to build recreational parks or even to make the ground viable for the development of low-cost housing. Furthermore, land can be rehabilitated to add to the economic stability of the community by creating hydroponic fish farms, for example.

When forethought and energy is properly put into place to consider the post mine closure possibilities, real value can be added to the communities concerned. In the case of the current mine dumps, there is the added bonus and high possibility of an additional revenue stream that can be brought about as a result of rehabilitation of land for residential development. “I would say that this is the ultimate goal for any project – to transform a disused site into something that would ultimately benefit the community,” says Motsoenyane.

“Mining operations need to recognise the benefit of working hand-in-hand with local government in bettering the lives of South Africans while creating something tangible for the citizens living nearby from a previously unviable and likely polluted piece of land. While gold recovery is an important revenue stream and a by-product of socially responsible efforts, it is not as important as environmental remediation, especially on a piece of land that is guaranteed to benefit our fellow countrymen.”

Community engagement

Land rehabilitation projects can help cement dedication to corporate social investment (CSI) by providing jobs to those in the immediate communities. Mashinini explains that community members can be employed as reef pickers and clearers to help land rehabilitation efforts and that business opportunities for SMMEs in these communities are a frequent by product of these projects.

“This gives any operation the chance to empower community members. They can provide numerous crucial services including the supply of security services, mobile toilets, or even water tanks needed for a project.”

According to a recent study, the negative impact of mining-related activities on the quality of life of surrounding communities has been extensively documented and is often quite severe. When a mine or shaft closes, communities are often left with polluted air, water and soil not to mention the danger of unstable ground if the shaft and ground underneath has not been stabilised. “Unfortunately, consultation with the community on rehabilitation is often neglected or characterised by limited information sharing with the community,” says Motsoenyane.

“We believe that those living in the immediate vicinity of these sites are the most important stakeholders and so we always approach a land rehabilitation project by asking ourselves what we could leave behind that would be most beneficial to them.

This could be the construction of a sports field, housing or simply ensuring that all pollutants are eradicated. Measures like these, as well as job creation, can always result in positive and authentic PR for a mining operation and must be strongly considered.”

Reduction of state liability

Environmental remediation reduces the state's liability for a number of reasons. For example, the reduction in the quantity of waste rock that needs to be rehabilitated and reprocessed.

“The joint projects between Ncamiso and our clients help both parties to build and strengthen the relationships between the mine and non-mine stakeholders – this has the added benefit of greatly reducing state-owned liability,” states Motsoenyane.

This is due to the fact that land rehabilitation projects are typically endorsed by the department of mineral resources, who perform a watchdog role when it comes to environmental remediation of previously mined land.

Eradicating illegal miners

One of the main concerns on sites, once mining operations pack up and move out, is that illegal miners move in. This is not only a major safety hazard but poses a threat to community members as well – all of which the mining company is ultimately held responsible for.

Consideration and planning to efficiently clear the land of any minable material and rehabilitating the land eradicates the dangers associated with illegal mining activity.

“When land rehabilitation projects are in progress, Illegal miners are completely removed from these sites firstly by increased security on site and by the fact that with environmental remediation completed, it is no longer a viable site for them,” explains Mashinini.

Extra gold recovery

As part of the overall land rehabilitation projects that Ncamiso takes on, they help to increase revenue through the recovery of gold that would alternatively be sterilised and crushed for building aggregate.

Mining houses should not underestimate the additional gold yield in mining dumps and in opencast mining of previously-mined land.

“The environmental efforts that lead to job creation and mining houses being recognised for their dedication in uplifting communities and helping macro scaled businesses post mine closure, has the added benefit and knock on effect in the increase in wealth from gold sales for South Africa as a whole.” says Motsoenyane.

In fact, many mining operations would be surprised to discover just how much additional gold can be recovered from these sites. Earlier this year, work on two projects saw Ncamiso recovering a combined total of just over 600kg of gold.

“We believe that at the core of all mining business operations should be the aim to contribute to the sustainable growth and upliftment of the communities they work in,” says Mashinini.