



A guard patrols the abandoned Blyvooruitzicht Gold Mine in 2015.

It's a battle ground between small-scale miners, syndicates and police, writes Mark Olalde



Suspected zama zamas are arrested at George Harrison Park in September.

DAROH Tsikwa leaned on his crutches, a knee injury impairing his movement. Nevertheless, he prepared to descend into an abandoned gold mine in Langlaagte on the border of Johannesburg and Soweto.

An underground fire filled the shafts with toxic smoke, trapping his brother – the father of his young nephew – and his fellow illegal miners in September. Tsikwa did not worry about his own safety, believing sangomas would clear the smoke.

"It's hard. Dead or alive, I will make the sacrifice to go down and get my brother," Tsikwa said, standing in George Harrison Park. The park was the site of the first major gold discovery on the Witwatersrand Basin 130 years ago. Today, it is listed as a heritage site but serves as the entrance to an operation taken over by small-scale miners after a junior mining company called Central Rand Gold failed to rehabilitate the area.

With more than 25% unemployment nationwide, as many as 30 000 people work in the country's informal economy as small-scale miners. Men like Tsikwa are called zama zamas – a title meaning "We try! We try!" in Zulu – and mine the oft-abandoned shafts of the country's shrinking gold industry.

Following mining's boom and bust economics, small-scale gold mining has grown exponentially over the past two decades, and researchers are looking across the continent for potential solutions.

Located mainly around Johannesburg, zama activity has proven to be the most difficult form of small-scale mining to regulate, as it is the only sector featuring rampant gang violence and the involvement of international criminal syndicates.

The SAPS received about 2 200 calls about violence related to illegal mining between the second half of 2011 and the first half of 2014. The police arrested about 800 illegal miners from the beginning of 2016 through mid-September. An estimated 70% of those arrested were illegal immigrants, the majority coming from Zimbabwe, Lesotho and Mozambique.

Zamas say police are not clear from blame, echoing one another's stories of police harassment.

One zama from Mozambique who processed gold in the Zamimpilo informal settlement up Main Reef Rd, from Langlaagte, asked not to be named, fearing police retribution. "If police officers find you with a bag of sand, they only take the bag and they leave you behind," he said in Zulu, adding that other zamas sometimes buy stolen ore from police.

Nikisi Lesufi is the senior executive for environment, health and legacies at the Chamber of Mines, which represents mining houses comprising about 90% of the country's minerals extraction industry. "In terms of our current mining operations, there's an element of infiltration by illegal miners, so there are security and criminality concerns," he said.

International syndicates are widely believed to sponsor zama activity, organising tools and groceries while smuggling the product into international markets. Identifying this link between illegal mining and the legal markets continues to frustrate observers.

Kgotatso Nhlengetwa, a small-scale mining researcher at the University of the Witwatersrand, said zamas use tools that would be nearly impossible to procure without a benefactor: oxygen to burn ore, generators for below-ground operations and mercury for processing.



An abandoned shaft at the Blyvooruitzicht Gold Mine near Carletonville proves attractive for illegal miners.

A MINEFIELD OF HOPE AND VIOLENCE



A small-scale miner displays a piece of gold ore.

Opportunities for all sorts of characters to come into the field.

mining became an epidemic. Illegal mining was valued at more than R7 billion last year, according to the Chamber of Mines.

According to Lesufi, the Chamber had plans to re-mine waste piles across the Witwatersrand and use the money to close old operations. When the price of gold began increasing, small companies that had abandoned their mines suddenly reappeared, claimed their property once again and put a halt to a plan that had the potential to cut off zama operations.

"When the price is marginal, it creates opportunities for innovative thinking in terms of dealing with the issues. But when the price is very high, it creates opportunities for all sorts of characters to come into the field with short term agendas," Lesufi said.

The Department of Mineral Resources is tasked with managing abandoned mines, but it has been unable to do much. Of the roughly 6 000 abandoned sites, only about 20 have been rehabilitated and about 200 shafts sealed, which zamas quickly reopened.

Failing to limit access to abandoned mines, the department's strategy has shifted to increasing sentences for illegal mining from two months to eight years and engaging the African Union to shutter markets. "Once we have dealt with the market, I'm sure we will be closer to ensuring we are successful in dealing with this problem," Minerals Minister Mosebenzi Zwane said at the rescue operation in Langlaagte.

Elsewhere in sub-Saharan Africa, small-scale mining has found ways to somewhat co-exist with large operations. Zimbabwe grants permits for small gold mining operations and a government entity buys the gold the operations produce. However, Zimbabwe still must contend with barons, similar to South Africa's syndicates, as the artificially low gold price offered by the government created a black market.

"We work seven days a week. We have no other job we know."



A child watches a zama zama at work in the Zamimpilo informal settlement on the edge of Johannesburg.



A zama zama pours water through a bucket-turned-sieve onto a "Jameson table" in a Johannesburg informal settlement.

Several Johannesburg-based companies mine gold around the town of Tarkwa, Ghana, where galamsey operators – the Ghanaian name for small-scale miners – have worked for years. Galamsey are given land on the perimeter of mines that would not be economical if mined by the companies, which in turn buy the gold from the galamsey. Similar agreements exist in Tanzania, as well.

However, the gold in South Africa is much deeper, with mines in the West Rand tunnelling as far as 4km below ground.

This forces zamas to rely on legitimate operations, either by sneaking into operational mines or by digging in already-abandoned ones.



As high arrest rates and failed attempts at mine closure have not slowed illegal gold mining, those involved are searching for alternative methods to combat the problem. Proposed solutions range from the co-operatives suggested by Van Wyk, to regu-

lated mining on the periphery of large-scale operations such as what exists in Ghana. "The leftover gold is there. It's not feasible to mine on a large scale," Nhlengetwa said. "No matter how dangerous it may be, (zamas) are actually making it profitable."



Gold ore confiscated at the abandoned Blyvooruitzicht Gold Mine.