

Viewpoint

Zama-Zama mining in the Durban Deep/Roodepoort area of Johannesburg, South Africa: An invasive or alternative livelihood?

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ABSTRACT

In the Durban Deep/Roodepoort area (Johannesburg), near to the site of the first gold discoveries in the 1880s, Zama-Zama (illegal) miners are widespread. Their presence poses serious challenges to the government and the gold mining industry. Over the past decade, such unregulated mining has resulted in many deaths, attributable to falls of ground, exposure to emissions of noxious carbon monoxide and methane, fire, and attacks from rival gangs of Zama-Zama miners. A growing gold cartel and illegal trade has instilled a sense of urgency in the government to manage and control Zama-Zama mining in South Africa.

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1. Introduction: a history of gold mining on the Rand

The city of Johannesburg was founded on gold. The great rush of 1886 was stimulated by the discovery of gold by Mr George Harrison on Langlaagte Farm (McCarthy, 2006), not too far from the current centre of the city. The earliest discoveries were made by the Streuben Brothers in Roodepoort in the 1880s (Robb, 2008). Within five years a small city had begun to formalise, initially as an informal tent-hut settlement which, by 1890, had grown into a well laid-out semi-permanent entity. Within a decade, Johannesburg's mining industry had grown from a panning (artisanal) and bonanza findings economy to the world's largest producer of gold. Commercial extraction and artisanal mining from multiple gold-bearing conglomerate reefs were worked side-by-side across large sections of the Witwatersrand basin. All operators were compelled to pay a royalty to the state or persons to whom the reservation of precious stones and minerals was vested under Section 33, the Precious Stones and Minerals Mining Act 19 of 1883 (Van Der Schyff, 2012). In the process, multiple goldfields were created, including the East Rand, Central Rand (i.e., central to the city) and West Rand goldfields, as well as goldfields near the settlements of Evander, Carltonville, Klerksdorp and Welkom (Fig. 1).

Because of its substantial endowment, the Witwatersrand basin became the largest gold province on Earth, at one point accounting for 40% of global production (Robb, 2008). From 1900 to 1951, commercial gold production increased because of the mining industry being able to secure a ready source of cheap migrant labour, a favourable investment climate, and (what seemed to be) an inexhaustible resource of gold. From the mid-1950s to 1970, gold output climbed even further as the mines became corporatized. By 1970, South Africa was producing over 1000 t of gold, or 67% of the world's total gold production (Anonymous, 2006).

However, since achieving peak production at this time, mine output rapidly declined causing South Africa to lose its position as the world's leading gold producer. By 2013, it had declined to fifth in the world behind China, Australia, USA and Russia (Scott, 2013). The reasons for the decline included the increasing cost of mining at depth (the deepest operating mine is 4 km below surface), declining gold grades, rising operating and labour costs, a focus on increasing shareholder profit and increasing risk. In response to depleting gold reserves, large-scale mines reduced their workforces isolating some mine dependent communities and damaging their economic capability. Unprofitable shafts and underground workings were decommissioned, and in some cases, abandoned outright. Shafts, access portals, ventilation shafts, slimes dams, waste dumps and tailings dumps were not rehabilitated. During the period 1990–2010 mine workings and decommissioned mine infrastructure were identified as a risk because of rising acid mining drainage (McCarthy, 2011), mine collapse and

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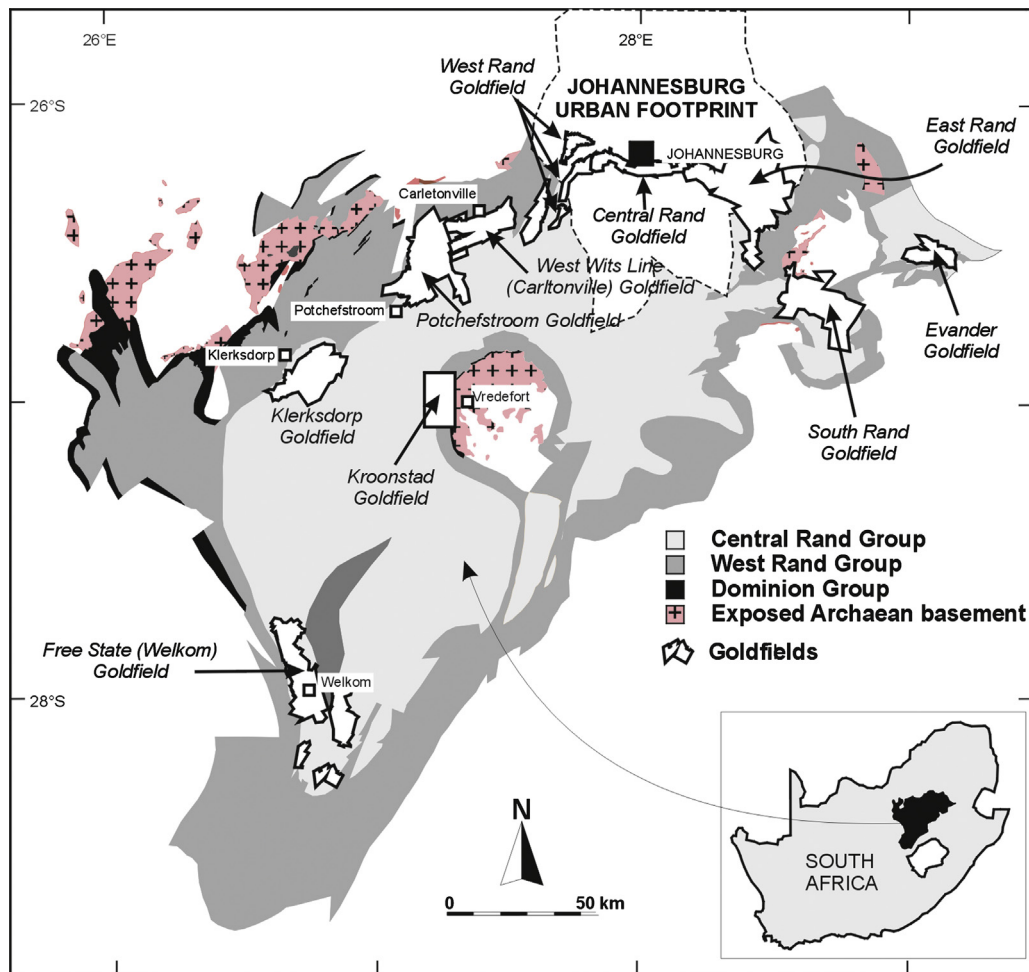


Fig. 1. Schematic map of the Witwatersrand basin (modified after Dankert and Hein, 2010) indicating the position of the goldfield relative to the 2014 urban centre of Johannesburg. The discovery of free gold by Mr George Harrison on Langlaagte Farm was at a site not far from the current centre of the city and spawned the rush of 1886.

collapse-induced mine seismicity (Riemer and Durrheim, 2011). But as will be explained, these also provided an opportunity for easy access by illegal miners (Mabuza, 2012) wanting to make money to sustain livelihoods.

2. Zama-Zama miners and the law

Zama-Zama is the local South African name for ‘artisanal’ gold miners, similar to Ghana’s *galamsey*, but with the connotation of illegality rather than legislative right to access. They operate outside of the existing South African mining laws, including those related to surface-owners rights, prospecting and mining rights, permitting, direct payment of royalties to the state, trespassing on to permitted land, occupational health and safety, environmental impacts and other reforms incorporated in the Minerals Petroleum Resource Development Act of 2002 (MPRDA, 2002).

The Minerals Petroleum Resource Development Act is a recent piece of legislation that aims to facilitate equitable distribution and exploitation of the country’s mineral resources (Van Der Schyff, 2012). It is stated in its *Preamble* that the “Resources belong to the people of the nation under the custodianship of the state”. The state claims sole right to administer the national mineral resources of the Republic of South Africa for the good of its citizens. But similar to the Minerals Act 50 of 1991 and all laws that preceded it, the Minerals Petroleum Resource Development Act does not speak to artisanal and small-scale mining (*sensu stricto*). In fact, it loosely defines micro, small and medium-scale mining and subjects it to

regulations designed for the commercial (mining) sector. These regulations demand contractual agreements and cooperation between legitimate stakeholders at all levels, with local communities and other interested and affected parties, and with a focus at redressing the historic inequities inherited from the Apartheid era. In this context, Zama-Zama miners fall outside of the existing legislative framework as legitimate stakeholders, and as the name implies, are classified as illegal.

Not only in state law are the Zama-Zama illegal, but they can also be considered so under customary law, although this is an area of research which is not well understood. What is clear is that unlike traditional community-based artisanal and small-scale operators, Zama-Zama miners work outside of customary structures: they do not share their wealth with the community or give a share of earnings to the local chief, who acts as the custodian of the people. For the most part, Zama-Zama miners are disconnected from the community.

Consequently, the approach taken by the government has, therefore, been to enforce regulation and control through strict policing of the Durban Deep area, with sporadic arrests, detention and prosecution. There is no engagement with the Zama-Zama miners whatsoever; the approach is wholly punitive.

3. Activities at the Durban Deep mine

The Durban Deep gold mine in the Central Rand goldfield is situated 19–20 km west of the centre of Johannesburg near the

Matholesville settlement in Roodepoort. It is comprised of an underground working and surface mine dumps. From our study of Zama-Zama activities in the footprint of the Durban Deep mine, it is clear that mining forms an invasive livelihood rather than an alternative livelihood. The Zama-Zama miners gain access to the abandoned underground mine via old access portals and ventilation shafts, reprocess the surface slimes dams, waste dumps or tailings, or pan for gold in small polluted streams that emanate from these. By far, most of the Zama-Zama miners are young African men (though not all) between the ages of 15 and 30. Many are legal or illegal immigrants from Zimbabwe, Mozambique and Lesotho, and have a *taught skill* that they have learnt from other Zama-Zama miners or elders. They are a part of a significant group of people who comprise an organised alternative gold-trade network (SAPA, 2014) and a growing gold cartel that reportedly includes trained professionals. The network is involved in the dealing of gold, trade in mercury, suspected money laundering, reported cases of prostitution, and growing levels of violence. The amount of gold recovered is currently not known.

Zama-Zama groups have defined roles in a value chain and tend to maintain their positions in their networks. The leader in any Zama-Zama group has the most knowledge, experience and expertise. The roles in order of perceived importance include panners (gold panner), crushers (who include women), the *brave ones* who work underground, gold processors (*burners*), gold purifiers and gold buyers. There are further divisions of labour for those who go underground. These include labourers who break rock from old stope faces, those who shovel sand into bags, crushers, and those who process gold in underground *kitchens* where it is smelted. These defined roles are sometimes based along ethnic lines. The language spoken is *tsotsi-taal*, which is a creole mix of Nguni languages, Sesotho and Afrikaans.

The risks facing Zama-Zama miners are numerous, and include: (1) toxic levels of carbon monoxide and explosive methane, (2) rock instabilities in the failing mine infrastructures that are weakened further as old support pillars are undercut or stripped by activity, (3) fire underground, and (4) the often-low levels of mining skill (not in all cases). Outside of the Roodepoort area in the East Rand and Welkom goldfields, there is a reportedly high risk from rival Zama-Zama gangs who battle for working space in a growing tense illegal mining situation, or simply steal gold, with a rising death toll and many more arrests. There are claims that illegal mining at the Durban Deep mine (and elsewhere across the goldfields) poses a significant risk to the local community, but attempts by mining companies, the Department of Mineral Resources and the Council of Geosciences to seal holes and shafts have failed to bring Zama-Zama mine activity to a halt across the Rand and at the Durban Deep mine specifically (SAPA, 2014). Importantly, the quality of the Zama-Zama lifestyle, the living conditions in the Matholesville settlement and the future prospects for the miners are not particularly encouraging.

4. The way forward

It is difficult to imagine an immediate and simple way forward because immigrants (legal and illegal) and/or South

Africans have decided to mine gold illegally in the Durban Deep/Roodepoort area, with all parties staking a claim to mine the national gold resource, but in ways which are not in compliance with customary or state laws. Formalising the sector may fuel illegal immigration, or exacerbate uncontrolled and opportunistic mining with a concomitant increase in the number of deaths, or enhance cartel business opportunism in direct competition with legitimate or customary business strategies. Moreover, it may not be possible to bring regulation to an illegal gold sector whose motives and reasons for existence extend far beyond the Matholesville settlement. The link between unemployment and Zama-Zama miners is one that cannot be ignored, in light of evidence that young men leave the trade completely once a job (although low paying) was found. Nonetheless, it is clear that the current approach in policing the Durban Deep goldfield on horseback, raiding known Zama-Zama groups, or waiting to arrest those who emerge from mine workings, is punitive and sets the tone for battle. For some Zama-Zama miners, it is already better to stay underground (to wait or die) than to suffer arrest; arrest may include the added humiliation of harsh treatment and/or potential deportation. Instead, the way forward for legislators should be to focus on how to bring Zama-Zama mining under the umbrella of customary or state legal frameworks and management.

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