

Threats and opportunities for post-closure development in dolomitic gold mining areas of the West Rand and Far West Rand (South Africa) – a hydraulic view

Part 3: Planning and uncertainty – lessons from history

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Abstract

Mining is exposed to geological uncertainty as well as to economic forces beyond its control, such as commodity prices and exchange rates that govern profitability. Predictions of future scenarios in mining areas are thus inherently difficult and unreliable. This uncertainty is exacerbated by the long time periods required for pro-active planning of post-mining developments often spanning several decades. This paper presents examples from a gold mining area in the Far West Rand (South Africa) illustrating the variance between predicted scenarios and reality. The facts are embedded in a historical recount of events crucial for the design and approval of mine-closure plans, as well as post-mining development. It is argued that historical arrangements and data need to be understood and preserved in order to avoid the repetition of (costly) mistakes made in the Far West Rand. Owing to the pivotal role of water in the semi-arid area and the fact that some of the most important groundwater resources of South Africa were impacted on by deep-level mining, this paper in 3 parts adopted a largely hydraulic perspective. The loss of ‘institutional memory’ and local expertise has been identified as the main threat to planning. Part 3 presents an attempt to counteract such loss by providing an account of the events of 5 decades, as witnessed by the first author.

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