

# **A History of Mine Wastes Rehabilitation Techniques in South Africa: A Multi-Disciplinary Survey of Rehabilitation Techniques and the Non-Scientific Drivers for Their Implementation, 1950s – 1991**

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This paper sets out the evolution of the South African mining industry's efforts to develop scientifically sound and replicable methods of gold mine waste rehabilitation between the 1930s and 1991, when mine waste rehabilitation was formally legislated in South Africa.

Based upon research for a PhD<sup>i</sup> this paper covers the scientific factors that drove the evolution of mine waste rehabilitation techniques, but also sets out political, social and financial factors that influenced how, if at all, this was turned into practice in the field. Drawing on the personal records of participants and the Chamber of Mines of South Africa Archive, it also considers the role of personalities and the organisational constraints within which they operated in implementing these techniques.

Following decades of ad hoc experimentation, the mining companies, in the 1950s, sought to head off tighter legislation by combining their efforts into an industry initiative known as the Chamber of Mines Vegetation Unit. Well resourced, the Unit conducted large-scale experiments to develop a seemingly successful methodology. By 1964/5, this methodology was deemed mature and the focus shifted to its application across all South African mine wastes. After that, the Unit's ability to advance the methodology scientifically collapsed as the focus shifted to demonstrating large-scale in-field application. Structurally divorced from academic research, the retirement of the Unit's dynamic manager left it on 'auto-pilot', unable to challenge alternative rehabilitation approaches<sup>ii</sup> proposed by outsiders who subsequently seduced the industry with the promise of cheaper, un-scientific methods.

After wasting six years on promises, the industry's rehabilitation capacity collapsed at a time (early 1980s) when nascent environmental concerns were gaining importance in social and political spheres. This opened the previously monopolistic mine waste rehabilitation field up to commercial competitors. After failing to regain pre-eminence scientifically and commercially, the Unit was privatised in the early 1990s. As this privatisation coincided with the broader opening up of South Africa's society and economy after the unbanning of the ANC, there would never again be an entity (commercial or otherwise) that would dominate the rehabilitation sector as the Chamber's Vegetation Unit had done in the South African industry.

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