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Complexities with extractive industries regulation on the African continent: What has 'best practice' legislation delivered in South Africa?

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ABSTRACT

The legal framework for mine closure and rehabilitation of new and former mine sites in South Africa, including legacy abandoned sites, is comprehensive. This paper discusses legislative provisions for mine site rehabilitation and closure in South Africa with reference to established international expectations. Overall, while the South African legislative framework for mine closure and rehabilitation generally conforms with international expectations for best practice, the system is extremely complex and unwieldy. Many individual laws, regulations, and guidelines and their corresponding ministries applicable to mine closure planning and management in South Africa has created a complicated interconnected raft of provisions and expectations. It is an open question whether the most recent amendments (December 2014), have untangled or rather added to the complexities. This historical complexity along with identified governance capacity constraints (financial, technical and experience based) likely explains why implementation of the legislative framework has fallen short of mine closure expectations and mandates. As South Africa is a jurisdiction on the African continent with much experience in mining, there are many lessons that are applicable to emerging countries in the region who wish to attract the benefits of the extractives industries and minimize their potential negative consequences.

1. Introduction

While a comprehensive environmental governance regime has been established in many African nations over the last two decades in conjunction with provisions for mine closure within mining legislation (Morrison-Saunders et al., 2016), it has apparently not permeated effectively into avoiding or managing ineffective or abandoned mine closures. The primary foci of country and legislative reform is on improving governance, attracting investment, and associated opportunities for harnessing resource development (African Union, 2009; United Nations Economic Commission for Africa and African Union, 2011; African Union Commission et al., 2012a; African Union Commission et al., 2012b; African Mineral Skills Initiative, 2013; African Union, 2013). For example, the action plan for implementing African Mining Vision (African Union Commission et al., 2012a) presents discussion in relation to the following selected goals: (1) "To create a mining sector that is knowledge driven and is the engine of an internationally competitive African industrial economy" (p18); (2) "To create a sustainable and well governed mining sector that is inclusive and appreciated by all stakeholders and surrounding communities" (p24); and (3) "To increase the level of investment flows into mining and infrastructure projects to support broad socio-economic development" (p37). The apparent lack of discussion of mine site rehabilitation and closure planning within these vision building initiatives is a notable omission. However, there is a growing awareness of managing environmental resources to promote sustainable mining. Clear international expectations,

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principles and policies for mine closure planning and management have emerged in the last decade or so. These are discussed in Section 3. They set the context for evaluating mine closure policy and legislation. As mineral commodity prices can be volatile, mining companies, governments, and local communities are vulnerable to unexpected/unplanned mine closure. Therefore, legislation should ideally incorporate mine closure measures into business feasibility studies at the design stage that demonstrate adequacy of financial resources to meet closure requirements (International Council on Mining & Metals (ICMM), 2005; Sassoon, 2009; McHenry et al., 2015; Morrison-Saunders et al., 2015, 2016). Within this context, the principal aim of this paper is to understand the complexity of legislative provisions for mine site rehabilitation and closure in a single jurisdiction using South Africa as the case study example. This is done with reference to international expectations for mine closure.

Due to the long history of mining in South Africa there are many current operational mines for which closure needs to be carefully planned, as well as a legacy of already closed and abandoned mines (MMSD, 2002a). Reports of the number of abandoned mine sites, their extent and issues arising vary. Van Wyngaardt (2012) and Sustainable Development Through Mining (2013) reported that there are about 5858 Derelict and Ownerless (D&O) mines in South Africa and similarly the (Auditor General, 2009) estimated the total number of abandoned mines to be roughly 6000. According to the World Wildlife Fund—South Africa the incidence of acid mine drainage, soil contamination, and the high number of D&O mines, as well as dangerous sinkholes and collapsing entry points (particularly in the Witwatersrand gold fields), have effectively brought the consequences of inadequate environmental rehabilitation and closure in the mining sector into sharp focus. It is expected that the estimated cost of rehabilitation of the 6000 abandoned mines is approximately R30 billion, and that roughly 54% of Mpumalanga province is under some form of planned mining action Van Zyl et al., 2012. It is clear from the above that the historical failure of mining companies as well as governments to plan, budget, and implement measures for mine rehabilitation and closure is of enduring concern in South Africa.

2. Methodology

A core part of our method involved literature reviews focussed on South African mining legislation and associated policy documents past to present. We also draw upon our own collective experience in the sector, and we summarised feedback on the topic from invited professional environmental practitioners from South Africa during a workshop at North-West University in September 2013. The practitioners were asked to reflect upon a single open ended question as follows: 'What (in your opinion and experience) are the key issues or challenges associated with mine closure planning and rehabilitation under the South African arrangements and what are possible solutions?' We present the responses from 15 (of the 29 overall) workshop participants who had direct working experience in the South African mining sector, representing consulting organisations, regulators, and mining company employees. It is from these responses, that we initially identified the challenges facing the legal framework for mine closure at that time. Recognising the slew of legislative amendments that have occurred since the interviews were conducted, in the second part of the note we seek to determine whether these amendments have served to address the legislative challenges as highlighted in relation to mine closure. Throughout the note we weave workshop respondent discussions around key issues and proposed solutions regarding mine closure planning and rehabilitation in South Africa into the discussion of the literature. As stated above, the discussion integrates the current legislative provisions related to mine closure in South Africa, pegged to international practice or expectations. From this basis, we consider the governance and implementation challenges surrounding the legislative framework and the historic legacy around mine closure and abandonment, and whether the current legislative amendments in anyway address these.

3. International mine closure principles

To place our account of the legislative provisions related to mine closure in South Africa in context, we note that international expectations around this issue have been clearly established and codified over the past decade or so. We briefly summarise key mine closure principles in relation to timing, responsibility, aims and intended outcomes, and financial provisioning. Our choice of sources focuses on international policy and guidance documents and/or papers that include reviews of international practice rather than specific jurisdictional documentation. For example, in developing guidance for mine closure planning in Brazil, Sánchez et al. (2014) drew upon a review of international materials. We have included the Western Australian *Guidelines for preparing mine closure plans* (DMP and EPA, 2015) in our selection, which are now in their second iteration following update of the original 2011 document of the same name, since Hall and Hall (2015) consider them to be regarded as best practice nationally within Australia and they provide evidence of their application internationally. They were also included in the international review of Sánchez et al. (2014).

With respect to *timing*, mine closure planning should commence early in the development planning phase and be continuous throughout the mining life cycle and closure phase (e.g. Sweeting and Clark, 2000; MMSD, 2002b; International Finance Corporation, 2007; ICMM, 2008; Sánchez et al., 2014; DMP and EPA, 2015). Early commencement of mine closure planning in the context of mining regulation coincides with other regulatory controls for development planning in, for example, environmental protection legislation. Consequently mine closure planning should be integrated with other assessment and approval processes; such as social or environmental impact assessments where appropriate (e.g. Morrison-Saunders et al., 2016) which have a similar timing profile of pre-development planning through operations to decommissioning. Regular reporting and updating of the mine closure plan should also take place; in Western Australia, for example, mine closure plans are expected to be reviewed and updated at least every three years (DMP and EPA, 2015), with increasing intensity and level of information occurring as end-of-life-of-mine draws nearer and site closure takes place (ICMM, 2008). Reporting and updating of mine-closure plans, including performance monitoring, should continue into the post-mining phases until formal closure is certified and the land is returned into government or community ownership (e.g. Environmental Law Alliance Worldwide, 2010).

The nature of mine closure planning means that many stakeholders are involved and have *responsibility* in the overall process. However, in keeping with the 'polluter pays principle' it is the mining company that bears greatest responsibility for mine closure planning and for most of the management actions that ensue (Sánchez et al., 2014). One such responsibility is ongoing engagement and communication with other stakeholders, especially mining but also other government regulators (e.g. environment, social, health etc) and the affected community (ICMM, 2002c; DMP and EPA, 2015; Hall and Hall, 2015). The government regulators will mainly be responsible for enforcing company compliance with mine closure requirements but will also be responsible for particular actions arising (e.g. provision of infrastructure or services to support the overall community affected by mining activity), thus they play the roles of regulator and guardian alike (Hall and Hall, 2015). A key principle of mine

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