Increasing mineral extraction in a growing number of African countries calls for more creative management of rehabilitation and decommissioning of mine sites and the affected environs. This requires effective and in-built capacity for regulation, policy, and securities mechanisms to address mine rehabilitation and abandonment. Murdoch University has received funding through the Australian Development Research Awards Scheme (ADRAS) to explore these issues and in particular examine if recent legislative and regulatory changes in Australia (Western Australia in particular) has relevance for African country policy makers.

Purpose:

The history of mining is replete with abandoned mining endeavours for a variety of reasons including: ore body depletion, commodity price fluctuations, operating costs variability, ore grade revisions, and government instability, among others. Without adequate advance planning for mine closure, communities and nations are left with significant on-going environmental challenges and mitigation obligations. Additionally, the social impacts of mine closure have a profound effect on communities unable to diversify during the ‘life of mine’ period, leaving them vulnerable and in some cases worse off.

The International Study Group Report on Minerals and Africa’s Development observed that assessing and regulating impacts have not progressed in many African countries. Applying environmental management tools requires skills, technologies, and financial inputs that in a number of countries are inadequate. Furthermore, emerging extractive countries in Africa commonly have bonding legislation, but do not have any enforcement structures or adequate capacity with regard to environmental monitoring or assessment.

The purpose of the project is to address the currently neglected area of mine abandonment and closure in an African context, and is aligned to the goals of the 2011 ‘Action Plan for Implementing the AMV of the AU.

The Project:

The project seeks to address these fundamental concerns by assessing how Western Australia’s (WA) ongoing innovation in this area may benefit other mining regions, with the collaboration of leading experts from a range of selected institutions in Africa and Australia.

Project objectives:

- Determine what regulation, policy and securities systems exist for managing mine closure and minimising risks of enduring harm in South Africa, Nigeria, Mozambique, Ghana, Zambia, Kenya, and Tanzania (selected countries that have both large abandoned mine legacy issues and/or are emerging extractive-intensive countries);
- Determine the current environmental and health risks and costs associated with selected abandoned mines in the mature and emerging extractive-focussed countries;
- Ascertain how reforms and environmental closure standards can attract and retain mining investment, benefiting mining companies, governments, and communities, and improving the interdependent security of all three (as a global mining sector model).
Methodology:

- Undertake selected environmental, health risks, and cost/impact assessments and reporting for selected abandoned mines. Basic method: use Environmental Impact Assessment (EIA) objectives and principles (both for the mine site and the public), which are consistent with the approach considered by the Ministers of the Australian and New Zealand Environment and Conservation Council (ANZECC). The selected cost assessment is underpinned by cost-benefit analysis (CBA) methods to quantify the net cost/benefit of a mine site compared with a specified baseline(s), incorporating directly attributable cash costs incurred with intangible costs identified and at a minimum described.
- Estimate the financial impact (and associated complexities) of an equivalent ‘Mining Rehabilitation Fund Act 2013’ within the context of selected countries, and associated concerns and governance considerations. This will require a parallel focus on local governance structure and capacity to develop, modify, and administer mine site rehabilitation and site closure regulations, policies, and securities mechanisms. Basic methods: financial modelling, interviews, surveys, reviews, and expert advisory sessions will likely be required on a flexible, ‘fit for purpose’ case.
- Undertake reviews, surveys and interviews of appropriate representatives in the large scale mining sector (particularly selected international companies). Assess their perspectives on regulatory, policy, and securities for mine closure and associated management, and how they may generate positive outcomes (in terms of both financial and corporate social responsibility elements, directly and indirectly). Basic methods: literature reviews, interviews, financial model analysis, and surveys.
- Preparation, publication, and dissemination of information, results and assessments, reviews, and analyses. Direct communication through substantial networks of Murdoch University, AM4DC, ATPS, Logic by Nature Environmental, etc., journals and conferences.

Project Outcomes:

- Country specific reports (of selected countries).
- Completed detailed EIAs and CBAs quantifying and qualifying selected abandoned mine sites collated to inform policy makers and the international community.
- Analysis and review of the elements of innovative WA Department of Mines and Petroleum (DMP) legislation (and the preconditions necessary) for appropriate adaptation for selected countries. Also reported financial estimates of the applicability (and associated complexities) of selected local iterations of the WA Mining Rehabilitation Fund Act, and associated considerations.
- A consolidated framework that can be replicated by any country (with a proviso for modifications taking into account specific local conditions or circumstances).

Engagement Opportunities:

- Murdoch University invites contact from governments, industry, and civil society in target countries, in terms of access to relevant legislative information and other data, as well as current initiatives.

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