Why mine closure should not be considered just an environmental issue

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As mine closure becomes an increasingly salient issue for mining companies around the world, mine closure teams rise in profile and influence in leading mining companies. These teams, and the mine closure practitioners who contribute to them are some of the most multiskilled and multidisciplinary operational units. And yet successful and orderly mine closure and relinquishment remain elusive, challenged by competing regulatory, ambiguity in community post-closure aspirations, disconnects in the incorporation of post closure risks into operational decision making and lack of opportunity to test operational solutions that can mitigate residual risk and optimise post closure opportunity.

These challenges are not environmental. Nor are they the sole responsibility of mining companies. Addressing them requires new ways of thinking about how the operation of a mine impacts on ecosystems, livelihoods and regions long after the mine has gone – and then incorporating this new way of thinking into the decision systems that drive project valuations, operational planning, regulatory determinations, regional planning, community engagement and institutional hierarchy's. The issue of mine closure affects social performance, regional impact, residual risk, mine planning, and future investment.

All too often, closure research and closure practice is fractionated into disciplinary components such as ecological restoration, landform stability, water quality, community consultation. Whilst leading practice in these areas can certainty improve the environmental consequences of mine closure, on their own they are unlikely to bring the prospect of easy relinquishment any closer. They are necessary but not sufficient for mine closure, since mine closure is not an environmental engineering problem. It is a wicked problem and a complex system challenge.

This paper will present the challenge of mine closure through the lens of systems thinking and offer a new way of thinking about the challenges to be addressed to better link mine closure to successful post mining outcomes for all stakeholders. The paper will draw on two years of consultation with industry, Government and community representatives to establish an industry led cooperative research centre in Australia that considers mine closure as an agent of regional development, rather than as the end of the mining value chain.