Assessing social impacts of mine closure

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Abstract:

In Australia, mine closures are looming especially in coal mining regions as energy priorities change. What does that mean for the positive socio-economic impacts of mining championed in social impact assessments for mine approvals? How should the industry and other stakeholders assess cumulative and residual impacts and the likely socio-economic legacy of mining for various transition options and post-mining land uses? A key argument of the pro-coal lobby relates to the negative employment and economic consequences of coal mine closure. Can impact assessment and related processes help smooth the trajectory for towns in transition? This paper considers cases of uranium mines (in Niger and Australia's Northern Territory) and coal mines in Central Queensland. In the towns of Arlit, Jabiru and Clermont, government agencies, mining companies, and a range of local and regional stakeholders are working together in advance of production ceasing to identify and mitigate the social, economic and governance impacts of impending mine closures. The paper portrays impact assessment as one of the decision support processes and tools to build a collective understanding amongst stakeholder groups about the current state and future options for a mining town.

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1   Introduction

In Australia and elsewhere, mine closures are looming as energy priorities change and the transition to renewable energy hastens the inevitable closure of uranium and thermal coal mines. Seventy-five percent of Australian mines close for business reasons before depleting the finite resources they extract (Laurence, 2011). Communities near mines, especially where a town was purpose built to service the mine, face significant socio-economic and governance challenges with mine closure. Where mines have been a major contributor to regional employment and economies, underpinned population numbers and supported available infrastructure and services, there is concern about the sustainability of these centres and the legacy (or long-term impacts) of the mines.

Various aspects of social impact assessment can assist in identifying potential challenges and opportunities for a prosperous post-mining future. Considering SIA approaches and tools for assessing closure impacts and forward planning of an 'after-life' provides lessons for handling social aspects of closure challenges for three case study mining towns:

- Arlit near SOMAÏR and COMINAK uranium mines, Niger, Africa
- Jabiru, near Ranger uranium mine, Northern Territory, Australia
- Clermont, near Blair Athol and Clermont mines, Central Queensland, Australia

2   Case studies of mine-closure affected towns

2.1   Arlit, Niger

Seeking energy independence post-WWII, France embraced the nuclear sector. Aspiring to be both producer and supplier, exploration led to the discovery of significant deposits in Niger in 1958. The SOMAIR and COMINAK mines began production in the 1970s. Niger is now the fourth largest uranium producer in the world.

From a speck in the desert, Arlit has grown into a town of more than 120,000 inhabitants, lying 240km from the regional capital of Agadez, and 1,200km from the national capital, Niamey. The road is poor and air travel unaffordable for the general population. In the desert location, agriculture is limited and much of the local economy and basic service provision revolves around the two mines. They finance the main hospital. Mining accounts for 85% of the turnover of the national electricity provider. The national water utility manages water supply, however, the mining companies made the original capital investment and their continued custom underpins operation (Areva, 2011).

Both mines are preparing for closure in the coming decade. As global demand for uranium wanes, and more prospective deposits emerge in less complex contexts, new projects in the region are largely on hold. However, over 40 years of mining have lulled stakeholders into a sense of

permanence around available services. The prospect of closure has never featured in the country's development planning processes. The Agadez Regional Development Plan 2016-2020 mentions mining only as a potential source of resources (Agadez Regional Council, 2016), despite the planned closure of COMINAK in this period and SOMAIR soon after.

The security crisis in the Sahel is monopolising national and international attention and increasing the vulnerability of populations in Arlit. All stakeholders should urgently take stock of Arlit's dependency on the mine and potential alternatives for development in order to build realistic strategies for the future.

2.2 Jabiru - beyond 2021?

The smaller township of Jabiru (near Energy Resources Australia's Ranger uranium mine) has 1,100 residents. It was built in 1982 as a mining residential and service hub in the Northern Territory's wet tropics. Mining at Ranger stopped in 2012, with the mine due to close in 2021 when ERA's lease expires. The 2018 mine closure plan detailed environmental impacts and rehabilitation strategies in an EIS deemed, in many ways, exemplary. However, it insufficiently addressed social ramifications given the mine's "significant" socio-economic contribution to the town.

By 2026, the site will be completely rehabilitated and incorporated into the surrounding world-heritage-listed Kakadu National Park. The Company's leases require return of the town of Jabiru to its pre-development state, removing housing and critical infrastructure including power and water services. A closure SIA found widespread community support for a future for Jabiru. Likely socio-economic impacts of mine closure identified included displacement of residents, changes to demography, regional economic contraction, the loss of regional health, education, retail services, and critical infrastructure, as well as closure of the Jabiru airport.

Gundjeihmi Aboriginal Corporation of the Mirrarr traditional owners, proposed Aboriginal lease and management of the town beyond 2021 and commissioned a study of future management and governance options. The resulting Master Plan outlines a $446 million vision building on the town's key assets – as the gateway to Kakadu National Park with strong Indigenous heritage. It also recognises constraints including seasonality of tourism. Until there is an agreement and secured funding, ERA has to plan to close the town.

So, the fast-emptying mining town at the heart of world-famous Kakadu Park will either be demolished or, through SIA and cross-sector collaborative planning, transformed into a tourism hub and cultural centre.

2.3 Clermont – one mine closing while another opens

Clermont is a rural town in Central Queensland with approximately 3160 residents. Established in 1862, the town had cattle grazing as the main industry for a century before discovery of coal. RTCA operated the Blair Athol (thermal coal) mine for almost 30 years before its closure in 2012. During this period, the township expanded and prospered from mining with an accompanying diminished

importance of grazing in the local economy. By 2006 the mining industry accounted for almost one-quarter of the town's workforce. Over 15% employment in a single industry indicates dependence and vulnerability.

As the Blair Athol mine approached closure, Rio Tinto's nearby Clermont mine was to open (predicted operations 2010-2027), changing local impacts. Local government and RTCA partnered on a year-long community planning initiative called Clermont Preferred Future (CPF). CPF aimed to ensure the town would adjust to the pending mine closure, and transition to a prosperous and sustainable future by leveraging opportunities from past and planned coal mining, while reducing dependence on the industry.

The CPF strategy 2008 to 2020 is an acclaimed example of Community Economic Development. The strategy is organised around six themes that closely parallel the town's economic, physical, social, natural and human capital with goals and strategies for each theme. The strategy focuses on cooperation and sustainability in spelling out one possible future as a preferred option. As SIA guidelines advocate, CPF moves beyond simply predicting likely future challenges and opportunities. It presents solutions to problems and ways to enhance opportunities. It has adjusted with subsequent developments including the divestment of Blair Athol in 2017 to a junior firm. Four-yearly reviews and evaluations of the outcomes and process of CPF guide improvements.

3 Achieving a positive transition

These three cases illustrate that ensuring positive cumulative impact of decades of mining requires systematic assessment of likely impacts of transitions to post-mining and cross-sector collaborative planning. Net benefits for communities, community self-reliance, economic diversity and resilience constitute a positive legacy when mining ceases rather than a ghost town or socio-economic vacuum harboring potential socio-environmental risks (Bainton & Holcombe, 2018).

Legacy planning requires anticipation of risks, opportunities, assets and aspirations. Like SIA, "mine closure is a process rather than a one-off event" (Owen & Kemp, 2018:4). Suitable adaptive management processes start with understanding community assets and the local context, and planning future options, as explored below.

3.1 Understanding the context, impacts and possibilities

3.1.1 Social impact assessment of closure

As international guidance specifies, identifying, assessing and managing the social impacts of a project (at any stage) is a multi-faceted process that increasingly focuses on enhancing benefits (Table 1) (Vanclay et al, 2015). SIA's grounded, data-based and shared understanding provides a valuable foundation for the closure journey.

Table 1: Tasks of SIA applied to mine closure

Key phases of SIA	Socio-economic aspects of mine closure
Understand	Understanding the context and trends with respect to community assets and the options for rehabilitation and closure activities
Predict, analyse and assess	Predicting the changes as the planned/possible closure activities interact with the context and the likely extent, direction and intensity of impacts (experiences) of change
Develop and implement strategies	Management strategies and responses to avoid and mitigate potential negative impacts and enhance possible opportunities
Design and implement monitoring programs	Tracking, monitoring and reporting changes and impacts during implementation of plans
Evaluation	Assessing process and outcomes to make adjustments or improvements and manage adaptively

3.1.2 Town Transition Tool – taking stock in resource towns in transition

Ensuring a participatory process to understand impacts requires a starting point. The Town Transition Tool offers a structured yet flexible approach that can adapt to different contexts and brings stakeholders together to begin the process. The starting point is to share understandings of current states of dependency and potential; identifying gaps in knowledge, learning from different perspectives and understanding the priorities and interests of others. It is not a decision-making or planning tool in itself. It is a facilitation tool to take stakeholders through a systematic process to discuss governance structure and the five capitals to build a shared understanding of the situation in all its complexity.

It is this shared understanding that can then form the basis for planning phased transition of assets, responsibilities and functions from a single industry company to government and for identifying alternative opportunities for development and for social and economic stability after mine transition or closure.

In the context of Niger, this seems a particularly pressing priority. The absence of cross-sectoral strategic approaches and lack of acknowledgement and understanding of the situation on the ground impedes realistic planning and action.

3.2 Collaborative planning

3.2.1 Future visioning for towns

Jabiru's master-plan and CPF were exercises that focussed on future opportunities and phased action plans to achieve concrete goals. Rather than tackle problems and deficits likely to accompany the

closure of energy resource mines, their process aligned with SIA principles and involved a cross section of stakeholders working in stages to design a pathway to closure that would have positive community outcomes. Initially they identified good examples – of re-purposing of sites, engagement, monitoring, community infrastructure provision, incubation of innovation and entrepreneurship, and impact mitigation strategies. Pooled knowledge of successes and the community's strengths helped envisage a 'successful after-life' and inform deliberation about the resources, skills, and governance regimes to realise the plan.

3.2.2   Reaching collective views on post-mining land use

Often, the future use of the land that constituted the mining lease influences the economic diversification, population levels, skills base and future of a town. This is the case for Arlit (in a desert), Jabiru (in a world-heritage park) and Clermont (in an established pastoral region). CSRM researched processes for Central Queensland graziers to reach agreement about viable post-mining land uses and ways to facilitate those through rehabilitation and closure. There was agreement about requisites for former mining leases to be safe, stable, non-polluting and utilized for a 'patchwork' of ecological, social and economic functions. Processes that start early, use multi-sector group situations for deliberation and social learning and relate to authentic cases were endorsed.

4   Lessons for managing the social impacts of mine closure

Managing social aspects of mine closure is a constant exercise from the outset of a mining project that requires forward projections and consideration of alternatives. In conditions of uncertainty, predictions are based on understanding and responding to the community and changes brought to it – particularly changes to community assets. A collaborative, multi-disciplinary exercise involving both expert and lay knowledge, and 'owned' by those likely to be impacted is leading practice (IFC, 2007).

However, there is inadequate regulation of this stage of mining since impact assessment is required for approval but a closure plan may not be required and may deal with environmental rehabilitation and decommissioning of the site, not the socio-economic transition. Sample regulatory constraints include the absence of expectations around closure and legacy for Arlit, and inappropriate "restore to original" conditions for Jabiru.

Whether a town of more than 100,000 residents in a remote and geopolitically complex desert location or a town with just 1% of that population surrounded by a world-heritage tropical wetland national park with 65,000 years of cultural history, after decades of mining, the transition to a post-mining future will be a challenge! The Town Transition Tool or collaborative planning exercises may prove welcome aids to applying leading practices of social impact assessment.

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