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Examining mine closure through the lens of industry social practitioners

Report for the Social Aspects of Mine Closure Research Consortium

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This project report is part of a broader initiative, the Social Aspects of Mine Closure Research Consortium. Established in 2019, the consortium is a multi-party, industry-university research collaboration challenging accepted industry norms and practices around mine closure and demanding new approaches placing people at the centre of closure. Industry partners in the consortium include: Anglo American, BHP, MMG, Newcrest, Newmont, OceanaGold and Rio Tinto.

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Cover image

OCE looking north. CSRM Photos, 7 October 2003.

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[1] QS World University Rankings and Performance Ranking of Scientific Papers for World Universities, 2018.

Executive Summary

This study builds on the 2019 SAMCC projects by seeking to understand site-based practitioner perspectives on planning for the social aspects of mine closure. Pockets of innovative practice exist at individual sites, but many of the lessons learned remain hidden – both within companies, and to a broader audience.

The contribution of social practitioners to corporate mine closure processes are not readily visible, yet they are critical to effective planning, management, and outcomes. Insights from the 'on the ground' practitioners are valuable for understanding the extent to increased consideration of social performance in policy have translated into practice.

The aims of this study are to understand practitioner perspectives on:

- key issues and approaches to managing the social aspects of mine closure
- participatory planning and multi-stakeholder engagement
- social domain input into, and influence on, closure planning and implementation within the corporation
- post-mining social performance
- gaps in knowledge and implementation challenges.

General observations about mine closure planning

The findings of this research capture a snapshot of the rapidly evolving practice domain of mine closure, via the lens of social practitioners. In interpreting the data, it is important to begin with some general principles and underlying concepts. As noted above, these viewpoints represent the understanding of mining company employees, and may be contested by other parties.

Mine closure is a process, not a point in time – involving both active and more passive periods

All participants referred to mine closure as a process that takes place over an extended period of time, not a one-off event.

Positive social performance outcomes are a long-term project

Participants overwhelmingly agreed that the best preparation for the social aspects of mine closure was the application of a consistent, fully-resourced and proactive social performance management framework.

Mine closure plans are a work-in-progress – that is they develop in detail over the life of a mine

Mine closure plans generally develop over the life of a mine, starting out with general objectives and conceptual plan. Over time, these plans iterate and become increasingly detailed. Many companies/regulators require the closure studies follow the same staged process as for mine development studies (i.e. concept, preliminary scoping/order of magnitude, pre-feasibility, feasibility or similar).

Relies on relationships and collaboration inside and outside of the organisation is essential

Developing and executing a mine closure plan is a collaborative project. The mining company might be the lead organiser, but collaboration with other parties is essential. Even within a mining company, cross-discipline collaboration is essential for an optimal closure plan.

Key issues and approaches to managing the social aspects of mine closure

Goals

Determining the goals of a closure process from a social performance perspective assists in planning and strategy development while also providing a benchmark for measuring success. As with the rest of the closure planning process, the goals should evolve with the iteration of mine plans to incorporate new information. Goals would be supplemented by objectives, plans and activities to support their realisation.

Most common (social performance) goals:

- Meeting regulatory requirements
- Fulfilling commitments to communities
- Reducing risks to business
- Leaving a positive legacy.

Talking about closure

A common theme in the interviews was the difficulty of approaching the topic of closure with communities – during engagement specifically about closure, or an aspect of engagement over the life of the operation. Participants raised a range of challenges to talking about closure.

Participants provided a number of suggested strategies to manage these challenges:

- Engage on uncertainties
- Focus on the life of the mine
- Engage early anyway
- Talk about the difficult topics
- Internal engagement.

Practice capacity

There are several factors which participants identified as key to understanding and effectively managing the social aspects of closure within the scope of functional responsibilities and by influencing the closure process on issues relevant to local communities. These include:

- Social performance governance and management systems
- Implementation
- Structural arrangements
- Knowledge building and analysis
- Impact on decision-making
- Embedding decisions in plans and budgets.

Indigenous Peoples

For mines operating on Indigenous land, the Indigenous land owners are the most critical external participants in closure planning. Increasingly, mine closure regulation requires Traditional Knowledge or Indigenous values to be incorporated in closure plans. Indigenous Peoples, as collective rights holders, should be engaged as such rather than grouped in with other stakeholders.

Specific attention was drawn to:

- Connection to land
- Traditional knowledge complementing western science
- Post-mining land uses
- Cultural impacts
- Indigenous employees.

Post-production and Relinquishment

Social performance in the post-production and relinquishment period should also be considered in closure plans and budgets. Practitioners working in this space reported a significant drop in attention and resources after production, even though this is a known period of high social and business risk. Issues and approaches to consider include:

- Perpetual management
- Reframing legacies as assets
- Liability transfer.

Adapting to context

During the interviews, practitioners emphasised the importance of shaping the closure plan to local/regional conditions. While the underlying process and tools might be general, closure plans must be specific to each operation.

Conclusion

Overall, practitioners were positive about the trend in social performance being integrated into mine closure planning, and improvements in the quality of mine planning.

Concerns still remain about implementation falling behind aspirations. Challenges in securing the resources and expertise for consistent and thorough social performance management persist. Several practitioners were engaged in remedial work to bring the social knowledge base and relationships up to standard. This means that valuable time has been lost, and outcomes have potentially been limited.

Broad-based understanding (i.e. within the management/operation) of social performance is variable. Social input is still overlooked in planning and risk management, putting practitioners in a reactive rather than proactive mode of work.

Increasing recognition of Indigenous Peoples' rights, and the importance of incorporating their knowledge and values into closure planning, is filtering into regulatory requirements and corporate policies. In practice, this work is at an emerging phase. Practitioners and Indigenous peoples are working this out together, and the results should be visible in the near future.

Increased interest in managing closed operations as valuable assets appears to be a positive outcome, although variable in its direct benefit to local communities. There are few examples of this approach in practice. Whether these efforts can be harnessed for community benefit remains to be seen, although some companies are making this a priority.

Contents

1. Introduction

This report presents the results of a study of practitioner perspectives on the social aspects of mine closure. This research has been conducted under the auspices of the CSRM Social Aspects of Mine Closure Consortium (SAMCC).[2]

This study builds on the 2019 SAMCC projects which examined participatory methods for mine closure, innovative practices and mine closure regulation by seeking to understand site-based practitioner perspectives. These studies gave insights into the general industry approach to closure from a management and regulatory perspective. In contrast, this study takes a bottom-up approach, looking at dynamics at play for practitioners on the ground. Pockets of innovative and strategic practice exist at individual sites[3], but many of the lessons learned remain hidden – both within companies and to a broader audience.

The insights provided by this study:

1. Illuminate an area of practice that is often invisible and bring attention to its importance to companies, regulators and communities.
2. Identify practice limitations, opportunities and key lessons for practitioners and closure managers.
3. Provide insights to inform future research/engagement projects of the SAMCC.

2. Context

The contribution of social practitioners to corporate mine closure processes are not readily visible, yet they are critical to effective planning, management, and outcomes. In recent years there has been increasing attention on mine closure practices from civil society, governments, communities and investors. As regulatory frameworks, voluntary guidance and societal expectations have modernised, corporate responsibilities have extended beyond the geological, chemical and environmental to encompass social concerns. Insights from the 'on the ground' practitioners are valuable for understanding the extent to which these policy changes have translated into practice.

This study aims to understand practitioner perspectives on:

- key issues and approaches to managing the social aspects of mine closure
- participatory planning and multi-stakeholder engagement
- social domain input into, and influence on, closure planning and implementation within the corporation
- post-mining social performance
- gaps in knowledge and implementation challenges.

The social aspects of mine closure are a multi-stakeholder issue that is increasingly reflected in mining regulations. Industry social performance practitioners are often responsible for organising and engaging with different stakeholders, both outside the company and with other corporate functions. An emerging literature exists about how competing or complementary interests are managed in mining operations, but little of it focuses explicitly on the closure phase. This study will investigate how

[2] See https://www.mineclosure.net/

[3] Terminology note – asset/site/operation/mine are used interchangeably; social performance tends to refer to company-wide impacts on the social context, whereas community relations/communities work/social practice tend to refer to the functional team within a company/operation. There is some overlap in these terms.

local-level practice identifies and engages local issues, values and objectives throughout the closure process for a range of beneficial outcomes (see Table 1). The study discusses how these are incorporated in site-wide closure plans and implementation pathways. Informal processes will also be relevant.

By interviewing practitioners involved in closure processes at individual sites and from across the globe, this report presents diverse practitioner perspectives including experiences and informed views of what works and what doesn't, supportive pre-conditions, pitfalls and areas for improvement. These insights will bring the barriers and opportunities of closure to life and contribute to improved understanding about closure processes and socially responsible outcomes.

Study findings are also expected to contribute to our understanding of how to prepare for closure, and how to integrate stakeholder and community perspectives in planning. Preparations will take on different significance for different types of mining operations. For example, the social issues for a remote site will be different from an operation where there is an established community nearby. The impacts and significance for Indigenous Peoples may require specific attention. Practitioner perspectives on the capacity of mining companies and other stakeholders to prioritise Indigenous aspirations and incorporate Indigenous knowledge are specifically covered in this study.

Table 1 ICMM Integrated Mine Closure Good Practice Guide

Benefits of integrating stakeholder involvement and community consultation in closure planning[4]

The benefits of integration can include the following:

- *Closure decisions will be better supported by stakeholders.*
- *Assets are designed and operated with closure as a key input variable.*
- *Better understanding of closure risks and knowledge gaps throughout the business.*
- *Value generation by realising opportunities through the operational phase.*
- *Liabilities progressively reduced or prevented, where practicable.*
- *Costs reduced through operational synergies.*
- *Increased efficiency through reduction in double handling of materials.*
- *Minimise the risk of regulatory non-compliance.*
- *Adequate financial provisioning for closure is allocated.*
- *Reduce risk of an extended period of care and maintenance at the end of the mine life due to inadequate closure planning.*
- *Better understanding of closure liabilities to inform change of ownership decisions.*
- *Improve accuracy of closure cost estimates.*
- *Recognise and adequately plan for post-mine land use opportunities.*

[4] ICMM 2019 Integrated Mine Closure Good Practice Guide, 2nd Edition, https://www.icmm.com/website/publications/pdfs/closure/190107_good_practice_guide_web.pdf, p13

2.1 Methods

The methods for this study included:

1. Semi-structured, confidential, one-on-one, teleconference interviews with industry practitioners responsible for the social aspects of mine closure planning and implementation.
2. Thematic analysis of responses.

The purpose of the discussions was to seek practitioner experiences and opinions about their own practice. The objective was not to evaluate performance of individuals, operations, or companies, but focus on the 'lived experience' of practitioners, identifying common challenges, varied approaches, and the relevance of contextual differences.

Ethics approval was granted by The University of Queensland's Engineering, Architecture and Information Technology Low & Negligible Risk Sub-Committee (Approval number: 2020001402).

2.1.1 Participants

Nineteen practitioners participated in this study. In order to encourage honest and potentially critical responses, the interviews were conducted on a confidential basis and under the condition that no quotes would be attributed to individuals, operations or companies.

A general description of the group is possible, with details that do not identify individuals (Table 2).

Table 2 Characteristics of study participants

Characteristic	Distribution
Gender	13 female, 6 male
Companies	Anglo American, BHP, MMG, Newcrest, Newmont, OceanaGold, Rio Tinto
Countries (of operations discussed)	Australia, Canada, Chile, New Zealand, South Africa, USA
Life of mine stage	Project development to post-production/passive closure
Life of mine length	10 years to 100+ years
Time to closure	Already closed to 100+ years

The participants came from a range of backgrounds, with more than half having backgrounds in social science disciplines, for example, sociology, anthropology, community development, planning and community services. The remainder came from environmental, physical science, engineering or geology backgrounds. Two participants had qualifications in both social and engineering disciplines. Experience in mining ranged from approximately 18 months to over 25 years.

All participants worked directly for mining companies. Most worked at a particular operation. Six participants had a 'corporate' role overseeing or providing advice to multiple sites.

Participants working in the 'operational' space were roughly split into three types of roles:

- Leading social closure studies and planning

- Leading environmental and social closure studies and planning
- Leading social performance/community relations practice at one operation or more operations (sometimes in conjunction with an associated role in communications, Indigenous relations, local business development, government relations, or external relations).

2.2 Limitations

This study provides a useful, though limited perspective on the challenge of mine closure. This is a perspective that is not already available in public documentation. The sample of participants was limited by time and budgetary constraints, however there was a large degree of consensus on the topics discussed in this report. Contrasting views are also included.

Interviews were one hour in length, which also limited the amount of data gathered. This study did not review documents, or undertake any triangulation of data with other parties in the process, so it only presents the practitioner viewpoint of their own work. The insights gained in this research provide instructive suggestions about gaps in knowledge and practice that would benefit from research incorporating multiple perspectives.

2.3 Report Structure

Following this introductory section, the report presents the results of the interviews with social practitioners:

- Section 3 covers general observations about mine closure planning.
- Section 4 discusses key issues and approaches to managing the social aspects of mine closure.
- Section 5 identifies some potential future trends for social practice in mine closure, and some ideas for follow up research.

3. Findings

The findings of this research capture a snapshot of the rapidly evolving practice domain of mine closure, via the lens of practitioners working in the social performance domain for mining companies. In interpreting the data, it is important to begin with some general principles and underlying concepts. As noted above, these viewpoints represent the understanding of mining company employees, and may be contested by other parties.

3.1 Mine closure is a process, not a point in time

- All participants referred to mine closure as a process that takes place over an extended period of time, not a one-off event.
- Participants made a distinction between:
    - active closure: including activities such as stockpile processing, decommissioning, earthworks, pit stabilisation, capping/covering tailings, intensive rehabilitation and remediation
    - passive closure: mostly focussing on maintenance and monitoring.
- 'Relinquishment' of land would mark the end of a mine closure process, although participants noted that this was not possible for all mines. Some mines would need to manage portions of the mine footprint in perpetuity. This was particularly the case for physically or chemically unstable or harmful areas.

3.2 Positive social performance outcomes are a long-term project

- Participants overwhelmingly agreed that the best preparation for the social aspects of mine closure was the application of a consistent, fully-resourced and proactive social performance management framework.
- Doing the day-to-day work of the social performance discipline in a timely manner enables closure planning. The systems, tools and competencies of the discipline provide the best basis for meeting closure goals and achieving positive outcomes for communities. The fundamentals of social performance for closure are largely similar to operational social performance. These include a strong knowledge base[5], combined with strategic planning, timely execution and adaptive management.
- Strategic planning during operations must make use of the knowledge base. Development projects intending to have lasting benefits must be designed with an eye to closure. Factors such as the projected capacity of the community and its institutions, plus the limitations of the physical and economic context will influence what is possible when the mining company is no longer active.
- Achieving social performance objectives relating to community, individual or economic capacity development are long term projects that cannot be left to the years approaching project closure.
- Ambitious post-mining projects (such as transfer of assets to community or local/Indigenous government control, engagement of local businesses in rehabilitation and monitoring, community-led repurposing projects) can only occur where capacity exists or has been appropriately built. This needs to be a strategic focus for as long as possible.

3.3 Mine closure plans are a work-in-progress

- Mine closure plans generally develop over the life of a mine, starting out with general objectives and conceptual plan. Over time, these plans iterate and become increasingly detailed. Many companies/regulators require the closure studies follow the same staged process as for mine development studies (i.e. concept, preliminary scoping/order of magnitude, pre-feasibility, feasibility or similar).
- Regulatory requirements often provide the minimum standard of plan detail, scope, and requirements for periodic updates. Updates are also generally required before approval will be given for any major changes to the mine plan.
- Coverage of social aspects is highly variable, though increasingly required. Lack of social coverage tended to mean that incorporating social knowledge (or undertaking participatory processes) was an afterthought. This would result in few opportunities for communities to influence major decisions, and that the social practitioners were required to present options as a 'done deal'. Decisions that could be influenced would be 'tinkering around the edges', or not related to the physical or environmental aspects of the mine.
- Many participants noted that the regulatory closure studies and plans were not sufficient for social performance purposes. They also reported that updating the mine plan was often a compliance activity which did not involve substantive discussions within the operation. There were several instances where comprehensive planning was pushed back (in time and priority), and mine plans were found to be inadequate when closure was imminent.

[5] via detailed baseline socio-economic studies, impact analysis, monitoring and evaluation, and specialist studies where required.

3.4 Relies on relationships

- Developing and executing a mine closure plan is a collaborative project. The mining company might be the lead organiser, but collaboration with other parties is essential. Even within a mining company, cross-discipline collaboration is essential for an optimal closure plan.
- Aside from sharing knowledge from different viewpoints, participants in a closure planning process will need to develop trust, shared understanding, open communication and commitment to the process. Robust relationships will be able to navigate difficult topics, and better handle the iterative and uncertain nature of closure planning.
- Neglecting thorough engagement is perceived to be a major source of risk; it raises the potential for conflict or costs to arise due to making decisions without all available information.
- Relationships are critical across several arenas:
    - Internal to the company: relationships across disciplinary or functional silos are needed to integrate different types of information so that options can be properly evaluated.
    - External governance institutions:
        - Regulators: relationships with regulators are critical as they will be the ones who evaluate closure plans and execution.
        - Local/regional governments and planning institutions: relationships with governance and planning institutions are critical as they will need to adapt their own plans to respond to mine closure (e.g. is outmigration likely? What impact will this have on population-based service provision?). Their input to closure plans will help to shape closure plans, and areas for potential collaboration to assist with smoothing the impact of mine closure.
        - Indigenous rights holders: Indigenous Peoples have internationally protected rights that are distinct from local communities in many cases. Indigenous Peoples should be engaged as 'rights holders', rather than 'stakeholders'. This distinction is important for forging strong, respectful and appropriate relationships.
    - Local communities/people in the mine's area of influence: generally, maintaining these relationships is the main responsibility of the Communities Team. The variety of different community stakeholders should have been identified and engaged early in the mine development. Engagement about closure should be integrated into regular planning, until specific input on closure is needed.

4. Key issues and approaches to managing the social aspects of mine closure

4.1 Goals

Determining the goals of a closure process from a social performance perspective assists in planning and strategy development while also providing a benchmark for measuring success. As with the rest of the closure planning process, the goals should evolve with the iteration of mine plans to incorporate new information. Goals would be supplemented by objectives, plans and activities to support their realisation.

Most common (social performance) goals:

- **Meeting regulatory requirements:** This is generally acknowledged as the most basic requirement of a closure process. In practice, interviewees reported that regulatory requirements

for closure tend to focus on making the physical environment safe and stable. Detailed costings of environmental rehabilitation and remediation costs are common, while social aspects are often absent, or minimal.

- **Fulfilling commitments to communities** (as best possible): Many promises, commitments and plans are made over the life of a mine, and practitioners fulfilling these, or agreeing on a resolution to outstanding issues, are regarded as a critical part of achieving a successful closure from a social perspective. Participants explained that unfulfilled promises were likely to diminish the reputation of the company and could become a point of conflict.
- **Reducing risks to business:** such as disputes and delays, or extra costs.
- **Leaving a positive legacy:** This general goal was explained in different ways by interviewees. For some, a positive legacy involved tallying the contributions from the company to the community over the life of the mine (community investment, employment, business opportunities), to demonstrate the mine's overall benefit to the community. For others the concept was less definite, encompassing a desire for a generally positive reputation of the company.

Other common goals included:

- Relinquishment to landowners or government
- Reduce economic dependency/increase economic diversity
- Mitigating impacts of closure, smoothing/cushioning
- Ensure people have enough time to plan and make decisions
- Ensure governance capacity exists to manage land/funds/ongoing monitoring
- Close the mine as promptly and cost effectively as possible, reduce ongoing liability
- Ensure relevant parties are informed of upcoming changes and have the information they need to make plans
- Maximise opportunities for local businesses/employees
- Develop income generating land uses
- Leaving options open for post-mining land use by Indigenous land owners/local governments
- Ensure ongoing contribution to communities via future fund, alternative income streams

4.2 Talking about closure

A common theme in the interviews was the difficulty of approaching the topic of closure with communities – either during engagement specifically about closure, or as an aspect of engagement over the life of the operation. Participants raised a range of challenges around talking about closure with communities and inside the company.

With communities:

- **Fear:** Talking about closure can be confronting and perhaps upsetting for community members, particularly for those who are dependent on the mine in some way. The closure of the mine will be a difficult time for many people, in a way that is unavoidable. The task of the company is to try to minimise or mitigate the impacts by providing timely information and appropriate support.
- **Uncertainty about timing:** For many mines it can be hard to predict the date of mine closure as it depends on several factors out of the company's complete control (e.g. resources/reserves, commodity prices, corporate strategies, permitting approvals).
- **Repeated expansions/extensions:** Metal mines in particular tend to expand incrementally as further reserves are established. For some mines, this pattern can result in a feeling of 'perpetually being on the brink of closure'. Participants observed that this made engagement on closure plans more challenging. Community members reacted with cynicism or disbelief to genuine engagement efforts, which could lead to practitioners avoiding the topic.

- **Uncertainty about plans:** Plans for closure do (and should) change over the life of a mine as new knowledge about the operation emerges, technologies and standards improve and plans are developed in more detail. This is challenging to communicate to communities. Confusion or disputes and delays are a risk, if communication and engagement are not careful. Again, this can result in avoidance of the topic.

Participants provided a number of suggested strategies to manage these challenges:

- **Engage on uncertainties:** Be open that plans are being developed and options are being evaluated. Emphasise that closure planning is a process and that incorporating community values and aspirations is a key part of that process. Participants felt that the risks raised above could be managed through early and open engagement and ensuring that there are opportunities for feedback throughout the process.
- **Focus on the life of the mine:** Some participants found it more useful to talk about closure planning in the context of planning for the life of the mine, including the specific phases of mine closure (i.e. post-production, stockpile processing, decommissioning, earthworks, rehabilitation and passive closure). Others preferred to talk about the social transition that would occur in the future, or the next phase of land use. They found that these approaches could help to reduce the fear that the company would 'cut and run' overnight, and encouraged people to think about the operation as a series of phases that would require different workforces, or mining as a temporary land use.
- **Engage early anyway**: Even when it's not possible to talk about the mine closure plan in detail, or with certainty about closure timeframes, participants advocated making sure that closure was incorporated in community engagement. Early engagement on planning processes will ensure that community issues are raised early enough to have an impact on decision making. Communities/local/Indigenous governments will have to make decisions about their future too, so this was seen as particularly important for multi-stakeholder or strategic engagement about community or regional planning.
- **Talk about the difficult topics:** Because the impacts of mine closure can be hard to imagine (e.g. what does it mean to manage something in perpetuity?), community members, local and regional institutions will need to be made aware of what is likely to change so that they can evaluate their options and incorporate this information into their plans. Being open about the challenges that will occur will also help to identify social and business risks early, improving the likelihood that some mitigation/minimisation process can be put in place by any of the impacted parties.

Internal engagement:

- Internal engagement about closure also raised its own challenges. Several practitioners observed that sometimes mine management was reluctant to engage with communities about closure. Managers held concerns about causing fear within the community, raising unreasonable expectations, or being challenged on their technical decisions. A couple of participants reported that they had been instructed not to talk about closure too much as there were concerns about retaining and attracting employees to a remote operation. Some internal engagement was met with negativity. Practitioners in closure planning teams were accused of being overly negative or pessimistic, and trying to interfere with operational goals. This can cause low morale and dissatisfaction among employees, and is an indication that corporate values may be lacking.

4.3 Practice capacity

There are several factors which participants identified as key to understanding and effectively managing the social aspects of closure within the scope of functional responsibilities and by influencing the closure process on issues relevant to local communities.

- **Social performance governance and management systems:** Almost all participants noted that their corporate social performance management system – in particular performance standards relating to closure – had been updated recently. While this makes it hard to evaluate their effectiveness, participants were positive about the updates. Most updates focussed on alignment of standards and procedures within the broader social performance policy, with integration, life-of-mine/lifecycle thinking and increased focus on incremental planning being common focal points. These improvements are in line with current trends as evident in industry guidance (e.g. ICMM Closure Guidance).
- **Implementation:** Participants noted that management systems and standards were only effective when implemented. Failure to implement was caused by a range of factors (lack of capacity, resources or time; failure to embed within business plans; lack of coordination and cooperation). In particular, the workload of Communities Teams and lack of resources to expand or bring in specialist advisors resulted in closure planning being pushed back in favour of dealing with immediate issues and work requirements. Several instances of delays in developing closure plans or engagement processes were due to lack of recent socio-economic impact assessments or up-to-date baseline studies.
- **Structural arrangements:** Closure planning requires collaboration of all the disciplines/functions of a mining operation. Some companies chose to set up a different department specifically for closure planning, while others drew on personnel from existing teams. Others used a combination of both. For some sites it was necessary to engage external experts for part or all of the planning process due to lack of internal capacity. All of these structures had pros and cons, although specialist social practitioners with large teams expressed a strong preference for social closure planning to be managed within the existing team structure by adding to Communities Teams. The reason for this was to make the most of the existing knowledge and relationships established by the team, and avoid parallel engagement processes which may cause confusion or consultation fatigue.
- **Knowledge building and analysis:** As noted above, building knowledge about the characteristics of local communities and the impact of the mine were perceived to be part of the social performance management system. Most practitioners were familiar with a range of tools and activities for building their knowledge base (including baseline studies, social/economic impact assessment, sentiment surveys, periodic monitoring), however many sites had gaps in compliance or an inability to access historical data. Preparing for closure is a long process and may involve several practitioners over the life of the operation. Effective systems and processes will enable new practitioners to pick up where their predecessor left off and understand the issues, rather than needing to repeat engagement activities. This is particularly important in tracking community commitments and obligations.
- **Impact on decision-making:** Lack of a comprehensive knowledge base, or inability/failure to properly analyse and respond to data that exists is known to cause poor management decision-making. Where social risks are under/over-estimated or changes in context are not observed, this can lead to ineffective planning and budgeting.
- **Embedding decisions in plans and budgets:** Many practitioners emphasised the importance of integrating and embedding plans and budgets for managing the social aspects of mine closure (e.g. extra studies, dialogue processes) in the regular budgeting process. These should be considered normal project costs, and not an add-on at the end.

4.4 Participatory and multi-stakeholder engagement

Many of the issues discussed above come to the fore in the participatory and multi-stakeholder engagement activities required to inform, review and support mine closure planning. The solid knowledge base, strong relationships and existing channels for dialogue and communication provide

a foundation that is able to progress a collaborative process as more detailed planning and decision making is required around closure plans.

- **Familiar processes:** Participatory planning and multi-stakeholder dialogue processes[6] that have been in place during project development and operation should always have an eye towards closure. Several participants found that existing groups could transition their focus to closure, while others required the creation of new processes. Multiple threads of engagement would be brought together or kept separate as needs dictated, but the overall message was that experience participating in participatory processes during the life of the mine was the best preparation possible for participating in participatory processes specifically for closure.
- **Representation:** Though prior participation in engagement processes was helpful, practitioners cautioned relying on existing groups and individuals too much. Mine closure may have more reaching effects than the steady state of operations, so additional stakeholders may need to be brought in to the process. Ideally, engagement would not start at closure, but several participants gave examples of this happening. Community groups should also not be considered representative of the community at large, or as having decision-making authority. Paying attention to the knowledge base and using tools such as stakeholder mapping will help ensure that representation is appropriate.
- **Keeping pace with decision making and planning:** One of the most challenging tasks for social practitioners was ensuring that they were prepared and aware of decision making and planning processes. This applied to both corporate closure plans and regional/local/Indigenous government strategic planning. Information would also need to flow both ways in order to coordinate plans. Judging when information from the community could influence decision making was a particular challenge, as mine planners would often prefer to make their technical decision and then take it to the community rather than keeping options open.
- **Design, announce, defend:** Some practitioners observed that while participation of communities in decision making was a stated goal of closure processes, understanding of what this involves could vary. In the social performance domain, participation implies that decisions are not made until consultation and engagement have occurred. It does not imply that control is transferred to the community, or that corporate considerations are not relevant. The tendency, however, for mine planning to precede engagement. Companies often present communities with preferred plans and defend that position. Resulting accommodation of community perspectives can then only be minor adjustments. Risks of this approach include delays in regulatory approvals, negative impacts on corporate reputation and/or a failure to realise opportunities to support social performance goals or community partnerships. A more iterative and participatory approach is preferable.

4.5 Indigenous Peoples

For mines operating on Indigenous land, the Indigenous land owners are the most critical external participants in closure planning. Increasingly, mine closure regulation requires Traditional Knowledge or Indigenous values to be incorporated in closure plans. Indigenous Peoples, as collective rights holders, should be engaged as such rather than grouped in with other stakeholders.

[6] These mechanisms come in various forms and are called a variety of names including: community consultative committees, community reference groups, community forums, multi-stakeholder dialogues, agreement boards, traditional knowledge panels, etc.

- **Connection to land:** Indigenous Peoples' spiritual and cultural connections to land differentiates them from settler communities. Recognising this connection through acknowledging their role as 'guardians of the land' and the cultural significance of the landscape in official closure plans was noted by several participant as a way of demonstrating respect and understanding.
- **Traditional knowledge complements western science:** Practitioners emphasised the importance of not considering Traditional Knowledge[7] as opposing western science. Scientists and technical specialists may bring this assumption to discussions, so it is useful to intentionally reframe the relationship between the two as complementary rather than competing.
- **Post-mining land uses:** One of the most critical topics of engagement with Indigenous land owners is post-mining land use. Careful discussion about land use options, governance processes and management capacity are essential. Importantly, it is critical to ensure that Indigenous Peoples are not encumbered with liabilities arising from mining activities on their land.
- **Cultural impacts:** Attention to the cultural impact of mining on Indigenous Peoples is an emerging area of practice. Plans for 'cultural balance', which address cultural impacts in the same mitigation hierarchy as other risks, are being worked on at the moment and may become commonplace in the future.
- **Indigenous employees:** Indigenous employees from the landowning groups are often employed by the mining company, including in social performance roles. Employees who choose to stay in their communities after the mine closes will have their personal reputation impacted by the actions of the company.

4.6 Post-production and Relinquishment

Social performance in the post-production and relinquishment period should also be considered in closure plans and budgets. Practitioners working in this space reported a significant drop in attention and resources after production, even though this is a known period of high social and business risk.

- **Perpetual management:** Some mining leases, or parts of leases, will need to be owned and managed by the mining company indefinitely, often due to environmental and health risks of contamination. Ongoing monitoring of the sites tends to overlook the social aspects.
- **Reframing legacies as assets:** Some practitioners reported that their companies were making significant efforts to increase interest in closed operations by reframing them as 'assets'. This locates closed operations in the class of potentially generating income that offsets closure costs. Practitioners feel that there is potential here to also offset some of the economic impact of mine closure on communities.
- **Liability transfer:** Practitioners recalled several examples of land or infrastructure transfer that had not been successful, with communities unable to manage or maintain the assets and liability reverting to the company years later. In some cases, community plans were not able to be realised because of limitation on the land (e.g. chemical levels on rehabilitated lands or flooded pits, regulatory constraints). These examples reinforce the importance of open engagement, and adequate due diligence in preparing for liability transfer.

[7] For further reference see Mackenzie Valley Environmental Impact Review Board, http://reviewboard.ca/upload/ref_library/MVReviewBoard_Traditional_Knowledge_Guidelines_1247177561.pdf

4.7 Adapting to context

During the interviews, practitioners emphasised the importance of shaping the closure plan to local/regional conditions. While the underlying process and tools might be general, closure plans must be specific to each operation. This report cannot cover all dimensions that may be relevant, but the following table (Table 3) presents some of the key factors discussed by practitioners. In some cases, these issues can be mitigated and should form the basis of long-term community development plans.

Table 3 Adapting to context

Dimensions of community context	Impact on closure	Examples of variables to consider
Community capacity, assets and strengths	Development, implementation and sustainability of post-mining plans Ability to identify and mobilise individual and community assets	Development of community visions/plans Capacity of local institutions Capacity of community members Economic viability/access to finance History of community investment (e.g. philanthropic or development focussed)
Government capacity	Implementation of post-mining plans	Development of community visions/plans Decision making processes Capacity of institutions History of service provision
Level of human development	Type of programming most relevant	Level of basic needs met Realisation of human rights and freedoms
Geographic context	Level of impact on a community/region	Regional/remote Mining region
Population composition	Level of outmigration	Resident workforce/FIFO Multi-generational history Age of workforce/length of residence

Cultural context	Community attitudes to mining Community wellbeing	Indigenous land/colonial history Cultural values of the site Cultural activities/land use
Economic diversity	Impoverishment Potential skills transfer Local business adaptation/viability	Livelihoods Economic diversity Business development support
Proximity to other mines	Level of impact and potential for employees or businesses to redeploy within the region Level of understanding about mine closure	Transferability of workforce Transferability of business services Buffer to economic impact Positive/negative legacy of closed mines Recent/unexpected closures nearby
History of the operation	Level of remediation needed	Early/modern mining process impacts Dependency on the mine Perception of continual expansion
Commodity and mining process	Economic viability of the operation Physical/ environmental extent of impacts	Commodity markets Mine voids Mine waste/tailings storage Mine infrastructure
Land tenure	Potential post-mining land use options	Regulatory requirements for alternative activities Ownership/management/access rights

Environment	Post-mining land use options Livelihoods Rehabilitation/monitoring requirements	Climate, geology, land use, surface water, groundwater, flora/fauna, air quality and archaeology Environmental values of community
Chemical contamination/ physical stability	Community and environmental health and safety Access to land Monitoring and maintenance needs	Water, air, soil quality Ecological impact Hazard levels Livelihood impact
Presence of Artisanal or Small-scale Mining (ASM)	Likelihood of human presence on mine sites Safety and health	Livelihood impact Design of final land forms

5. Conclusion

Overall, practitioners were positive about the trend toward social performance being more effectively integrated into mine closure planning, and improvements in the quality of mine planning.

Concerns still remain over implementation falling behind aspirations. Challenges in securing the resources and expertise for consistent and thorough social performance management persist. Several practitioners were engaged in remedial work to bring the social knowledge base and relationships up to an acceptable standard. This means that valuable time has been lost, and outcomes have potentially been limited.

Broad-based understanding (i.e. within the management/operation) of social performance is variable. Social input is still overlooked in planning and risk management, putting practitioners in a reactive rather than proactive mode of work.

Increasing recognition of Indigenous Peoples' rights, and the importance of incorporating their knowledge and values into closure planning, is filtering into regulatory requirements and corporate policies. In practice, this work is at an emerging phase. Practitioners and Indigenous peoples are working this out together, and the results should be visible in the near future.

Increased interest in managing closed operations as valuable assets appears to be a positive outcome, although variable in its direct benefit to local communities. There are few examples of this approach in practice. Whether these efforts can be harnessed for community benefit remains to be seen, although some companies are making this a priority.

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