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USING OFF-SITE CONSTRUCTION AS AN INTEGRAL COMPONENT OF MINING AND MINERAL PROCESSING SITE CLOSURE REHABILITATION PLANNING

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Abstract: Operators and owners must employ sustainable rehabilitation practices when closing mine and mineral processing sites. Mine closure planning (MCP) must address regulatory and environmental obligations, and satisfy stakeholder expectations, regarding site rehabilitated conditions when operations cease. While MCP is fundamental to mining life-cycles, inadequate efforts have led to failed rehabilitation and community conflicts over post-processing land use. Increased application of off-site construction (OSC) methods, from initial mine planning and design stages onwards, can improve these outcomes. Improved planning of decommissioning practices reduces long-term degradation, supports safer cleaner environments, and offers value-adding solutions to surrounding communities. Drawing on themes extracted during semi-structured interviews with purposively sampled mining industry practitioners, experienced in surface mine closure planning and rehabilitation in Western Australia, closure recommendations and options, from development stages onwards are presented. Key matters relate to regulatory guidance and governance; technical and environmental factors; and broader community considerations and accountability. Future MCP should expand OSC utilisation to increase efficient and effective removal/re-use of mineral processing and supporting non-process infrastructure to improve environmental, social, and economic rehabilitation of the affected region. A conceptual framework is presented to promote continuous improvement in MCP considerations throughout a mine's life-cycle, together with specific OSC options. Beyond the traditional transportation, construction and operations criteria, OSC-based designs offer improved decommissioning, reuse, re-application, re-location, and new ownership phase possibilities. Increased application of OSC techniques can lead to better ecosystem recovery positions, ongoing land use and employment opportunities, and thus better local community acceptance, post mining cessation.

Keywords: Governance; Life-cycle analysis; Risk; Sustainability; Value-adding

1 INTRODUCTION – NEED FOR BETTER MINE CLOSURE PLANNING

Closure of mines and mineral processing plants is a regular occurrence. Over a 25-year period, approximately 800 mines closed in Australia, 60% of which were in Western Australia (WA) (Laurence 2006). Although closure is a fundamental stage in the mining life-cycle, mine closure planning is often a complex and poorly understood process. In parallel, there are increased legislated obligations and community expectations regarding how effected lands (mine, mineral processing infrastructure, and associated non-process infrastructure sites) are to be returned to a purportedly successful rehabilitated state. Mine closure is not just a technical or environmental challenge, its social implications are often felt by communities long after operations cease (Bainton and Holcombe 2018). Communities and stakeholders expect to be increasingly part of these decision processes. In addition to direct land implications, globally, there is demand for more recycling and re-use of existing structures and materials (Yates 2026). This context highlights increasing pressure on the mining, engineering, and construction sectors to deliver closure outcomes that are environmentally stable, socially responsible, and economically viable.

In recognition of ongoing regulatory and expectation changes, a research program is underway to explore and identify best-practices for surface mine site closure and rehabilitation in WA, which has a large mining and resource industry based economy (the iron ore sector dominates by revenue and affected area). Most of that industry involves remote mines, process plants, and workforce camps. This research program is looking at how mining companies seek to improve means of addressing their legislated mine closure obligations and responsibilities. A key focus of the broader study is how mining companies, and their supporting consultants, are continually improving their approach to mine closure plans (MCP) from early stages of mine planning and design to achieve better rehabilitation outcomes.

Off-site construction (OSC) involves the fabrication and delivery to site of completed components (size and nature varying with requirements). This paper reports on how the OSC industry, through judicious component design, can become integrated into mining companies' MCP thus enhancing rehabilitation achievements. A framework guide is presented to improve consideration of OSC methods, for process and non-process infrastructure, from early design stages to facilitate socially, environmentally, and financially rewarding mine/mineral processing site closure and rehabilitation. While being WA based, the findings and framework offer opportunities in broader markets experiencing similar governance controls.

2 REVIEW OF RELEVANT LITERATURE

2.1 Mine site rehabilitation regulations and expectations

WA's regulations mandate that MCP be submitted at the initial mining project approval stage. While inconsistently applied in practice, this approach provides a level of forward-looking guidance for completion criteria, and, in turn, mine rehabilitation/reuse opportunities (Kragt and Manero 2021). Manero et al. (2020) aided the process by proposing a 6-step framework designed to improve the clarity and measurability of completion criteria. Their framework included: selection of post-mining land use; defining closure objectives; use of reference sites; measurable attributes and completion targets; and performance evaluation through monitoring and auditing. Beyond its visual contribution, vegetation recovery is a critical aspect of mine closure and rehabilitation, given its ecological role in stabilising soil, enhancing biodiversity and preventing long-term environmental degradation (Zine et al. 2024). Re-establishment also facilitates reinstatement of surface water pathways and helps reduce groundwater contamination impact (McCullough 2024). Consequently, removal of process and non-process infrastructure at completion should not denigrate in-progress revegetation activities.

Mine closure is commonly treated as a technical or environmental challenge, yet its social implications are equally significant and can affect individuals and communities long after operations cease (Bainton and Holcombe 2018). Chugh et al. (2023) argue that MCP decisions must be acceptable to local and regional stakeholders. Their early involvement creates better opportunities for post-mining rehabilitation/reuse of the land and associated infrastructure (Measham et al. 2024). For example, former sites have been successfully repurposed by reusing elevated landforms, and supporting structural materials, to install solar arrays, thus reducing additional land clearing (Murphy et al. 2019). Current closure planning practices, within government and industry, do not readily support or encourage repurposing as a beneficial outcome beyond the more traditional land management focus of remediation, restoration, reclamation, and rehabilitation (Pagouni et al. 2024).

Economic impacts of mine closure, particularly on regional communities heavily reliant on mining operations, can be profound. Cessation can destabilise local economies, removing direct employment (Edwards and Maritz 2019) and secondary income streams dependant upon mining related demand. Absence of alternative employment opportunities and/or financial support can trigger a chain reaction of job losses (Ackermann et al. 2018). However, Keenan and Holcombe (2021) emphasise that after mining activity cessation, regional renewal opportunities can be created by repurposing sites for conservation, recreation, education and light industry. Mineral processing plant and supporting non-processing infrastructure (including roads, power lines and camp accommodation) can be repurposed to support strategic economic revitalisation opportunities in agriculture, tourism, or renewable energy projects (Measham et al. 2024, Pagouni et al. 2024). To be viable, net present value (NPV) costs and benefits of re-using the associated infrastructure materials (Akkawat et al. 2025) must be appropriately considered when developing community conscious MCP and costings. Despite these MCP advancements, a key limitation remains that supporting details and examples can be confined to inaccessible and/or confidential reports, thus restricting practical uptake and critical review (Manero et al. 2021).

2.2 Need For Better Reuse Governance

Given 60% of the UK's waste comes from the construction, demolition and excavation sectors (Yates 2026) - all components in the mining industry – wherever practicable, engineers must resist demolition as the first action and embed retention and reuse as fundamental considerations. The Engineers Reuse Collective advocates six steps in the reuse hierarchy - from 'retain' involving least waste to 'repurpose' involving the most waste, while still preferable to demolition (Yates 2026). Increasing OSC components on projects offers improved waste minimisation possibilities – a step to addressing PAS 2080's requirements for managing carbon in infrastructure projects (British Standards Institution 2023). While considering future needs in design stages, Moynihan (2024) advocates not providing redundancy for future (re)uses at the outset, given they may never be needed. Instead, design should include a strategy for subsequent efficient strengthening should extra capacity be required later.

Appropriate material selection, including delivery and subsequent removal from site, should be included in life cycle costing analysis (LCCA). Therefore, quantifying environmental benefits of rehabilitation and reuse of infrastructure, via LCCA, must be based on appropriate functional units throughout all stages of the broader systems' life cycle (Castellanos et al. 2025). The challenge with processes developed to improve governance (internal and external) of meaningful, and auditable, outcomes is that objectives are achieved without being overburdened with reporting obligations (Urquhart and Whyte 2020).

3 RESEARCH METHODOLOGY

3.1 Semi-structured Interviews

This study is part of a wider research project into how the Australian resource sector is addressing current legislative, regulatory, and community, expectations of mine/mineral processing site closure and rehabilitation outcomes. For this component, a series of semi-structured interviews was undertaken with seven industry experts directly involved in closure planning, rehabilitation and post-mining land use on surface mining operations in WA. Interviews sought insights, based on practical knowledge shaped by on-the-ground experience, and lessons learnt to gain valuable recommendations on opportunities for shaping more effective, adaptive, and context sensitive, MCP strategies. Participants' demographics are summarised in Table 1. All were engineers or scientists routinely involved in the closure/rehabilitation of mining and/or mineral processing facilities. Four participants' most recent positions were with major Australian mining companies operating in Western Australia. The other three participants worked for large engineering/environmental companies consulting to major Australian miners on mine closure considerations. One participant holds a PhD, two have Masters degrees and the balance Bachelor degrees. In keeping with the WA resource sector dominance, six of the seven have experience in iron ore mines. While small in number, the purposive sample involved individuals especially knowledgeable or experienced (Palinkas et al. 2015) in surface mine closure and rehabilitation activities. The sample did not include regulators, communities, or other external stakeholders.

Interview questions were broken into three components: participant demographics; closed Likert style questions regarding perceptions of current regulation and compliance, integration of MCP and rehabilitation, social and collaborative actions; and, open-ended questions. Open-ended questions were designed to develop a report with participants and thus elicit open discussion on their dealings with broader aspects of mine closure, demobilisation and rehabilitation planning, and the governance of same. Questions on approaches, and techniques used, to facilitate rehabilitation actions were generalised so as not to bias participants' responses towards any specific methods or viewpoints (recognising challenges within current legislation and its application by regulators). Questions included: social and community considerations in and influences on MCP; lessons learnt that could improve practices; setting and meeting completion criteria for mine closure; indicators of success; and, examples of typical community impacts from mine site closure.

Table 1: Interviewee participant demographics

Participant	Years' experience*	Mining sector experience includes	Role
P1	40+	bauxite, iron ore	Principal civil engineer
P2	40+	gold, lithium	Mining engineer
P3	15+	coal, iron ore, lead, uranium	Principal scientist
P4	23+	coal, gold, iron ore, uranium	Senior closure lead
P5	20+	copper, gold, iron ore, nickel	Director
P6	2+	iron ore	Rehabilitation/closure adviser
P7	4+	iron ore	Rehabilitation/closure superintendent

*in mining and/or mine closure activities.

3.2 Thematic Analysis

Non-verbatim interview transcripts were returned to the relevant participant for checking/editing as may have been necessary (given the confidential nature of discussion responses) before transcripts were analysed. Thematic analysis of transcripts, using NVivo, enabled coding of focus/response areas into specific themes and sub-themes. These themes were integrated to form a preliminary conceptual framework on rehabilitation processes and subsequently highlight issues/opportunities for OSC within mines, process plants and non-process infrastructure.

4 RESULTS AND DISCUSSION

4.1 Responding to Legislation and Regulation

It is beyond the scope of this paper to report on miners' and participants' views related to MCP as a means of addressing regulatory guidelines and governance of rehabilitation requirements. However, several themes arising from the Likert rating questions are briefly reported. While MCP are mandatory under WA legislation, and these serve a meaningful guideline towards good practice, four participants agreed or strongly agreed that MCP implementation and application was not always straight forward. Regulatory expectations are not always easy to satisfy in practice (one participant disagreed with, and three others remained neutral in regards the statement "regulatory guidelines are clear and practical"). Affected communities and other external stakeholders may feel their needs/wants were not adequately addressed.

Four of the participants agreed (two disagreed) that MCP where typically introduced early in a mining project's life-cycle, through they stated these were often prepared to satisfy approval conditions rather than drive ongoing planning of closure outcomes. Notwithstanding that MCP should begin at mine/mineral processing design stages, there remains room for improvement to achieve more consistent execution of progressive site rehabilitation and closure planning during operational stages. Six participants agreed (one remaining neutral) that while social and community factors are considered in closure planning, design and operational decisions, there remains an opportunity for more holistic approaches that consider and incorporate community perspectives, rather focusing solely on company priorities, in closure planning. Part of these considerations is how communities may wish to utilise decommissioned infrastructure assets in a post-mine environment.

4.2 Key Themes in Rehabilitation Actions

All participants raised the three broad themes of regulatory guidance and governance; strategic mine closure planning; and, technical and environmental considerations, as well as several other emerging themes. Within those themes were various sub-themes, many beyond this paper's scope. Relevant sub-themes, not grouped under the three broad themes, are summarised in Table 2.

Table 2: Summary of applicable sub-themes

Sub-theme	Participants
Inclusive stakeholder engagement	100%
Design quality	86%
Safe, stable and self-sustaining landforms	86%
Case for progressive rehabilitation	71%
Ecological recovery	71%
Material management	71%
Poor understanding of completion criteria	57%
Socio-economic transition and post-mining land uses	57%
Site relinquishment	45%

All participants highlighted the critical importance of a dynamic MCP process (integrating stakeholder engagement, progressive rehabilitation, material management, financial planning, and post mining land uses) as an ongoing process begun early and continually adapted alongside the mine's life-cycle. Participants' comments in relation to these sub-themes are summarised below.

<u>Inclusive stakeholder engagement</u>: Early and inclusive direct involvement of stakeholders, particularly traditional owners and local communities, in genuine collaboration on technical matters influencing final landform and rehabilitation is fundamental to achieving successful outcomes. Mining companies *"should play a facilitative role by bringing all relevant stakeholders to the table in developing closure concepts from beginning to execution"* (P1).

<u>Design quality</u>: Well-conceived designs, supported by sound material management and site knowledge, are essential to creating post-mining landforms that blend with the surrounding environment. Participants cautioned that technological precision must be applied carefully as nature rarely exhibits geometric uniformity. Rehabilitation layouts and materials must respond to a project's unique setting and post-mining community needs (may involve infrastructure relocation and/or loading changes). Relevant reuse redundancy provisions need to be considered in OSC components.

<u>Safe, stable and self-sustaining landforms</u>: True rehabilitation success lies in creating safe, stable, and self-sustaining landforms needing minimal long-term intervention and that are safe for future users. Methods of removing non-post-mine infrastructure must be at least as sympathetic as initial installation methods. In contrast to Castellanos et al.'s (2025) model, decommissioning is not necessarily as simple as 'reversal of installation' especially in remote WA locations.

<u>Case for progressive rehabilitation</u>: Solutions must enable progressive rehabilitation actions rather than deferring all works until end-of-mine-life. Though for some mine types and commodities, progressive rehabilitation is not always feasible due to operational sequential constraints. However, it is *"essential to avoid the accumulation of long-term liabilities"* (P2). NPV tools can distort closure cost assessments by discounting future liabilities, making them appear less significant than they are - "*there is real tension within mining companies between current expenditure and future expenditure*" (P4), which may result in delayed or insufficient rehabilitation activities.

<u>Ecological recovery</u>: Rehabilitation success depends on achieving ecological recovery - a challenging and visual aspect of closure. Good rehabilitation involves vegetation cover, return of native wildlife and the restoration of underlying ecosystems processes such as hydrology and water chemistry. Human's capacity to fully replicate natural systems remains limited, especially in remote parts of WA where *"people overestimate our ability to grow vegetation … often the reason stuff grows is more by luck than good practice"* (P4). The goal should be to incorporate a self-sustaining ecosystem that is compatible with its modified setting.

Material management: Effective material management is a key lesson learnt in closure planning. Poorly planned access/haulage routes and distances (infrastructure as well as mined material) can result in inefficiencies and future complications in the rehabilitation process (P2, P4). An example is the need to avoid loss, damage and/or deterioration of topsoil material, in limited in supply and difficult to replace later in WA (P5, P6).

Poor understanding of completion criteria: These may include community-related values, vegetation, or surface stability, and was recognised as one of the least understood aspects of mine closure regulation, from a practical perspective, and *"not necessarily grounded in engineering design"* (P4).

Socio-economic transition and post-mining land uses: Mining inevitably creates a temporary (regional) economy. Closures often bring significant social and economic disruption to surrounding communities. Loss of employment and local economic activity is the most immediate and visual impact of closure - *"when mines shut, towns shut"* (P3). MCP must anticipate and support socioeconomic transitions rather than treating such issues as afterthoughts. Early planning for post-mining land use can help reduce long-term regional decline and deliver more sustainable outcomes for local communities and their industries. Repurposing mining infrastructure for reuse in new opportunities (including tourism, renewable energy projects, and other new industries) must be considered alongside land restoration for pastoral activities and returning land to traditional owners to continue cultural practices.

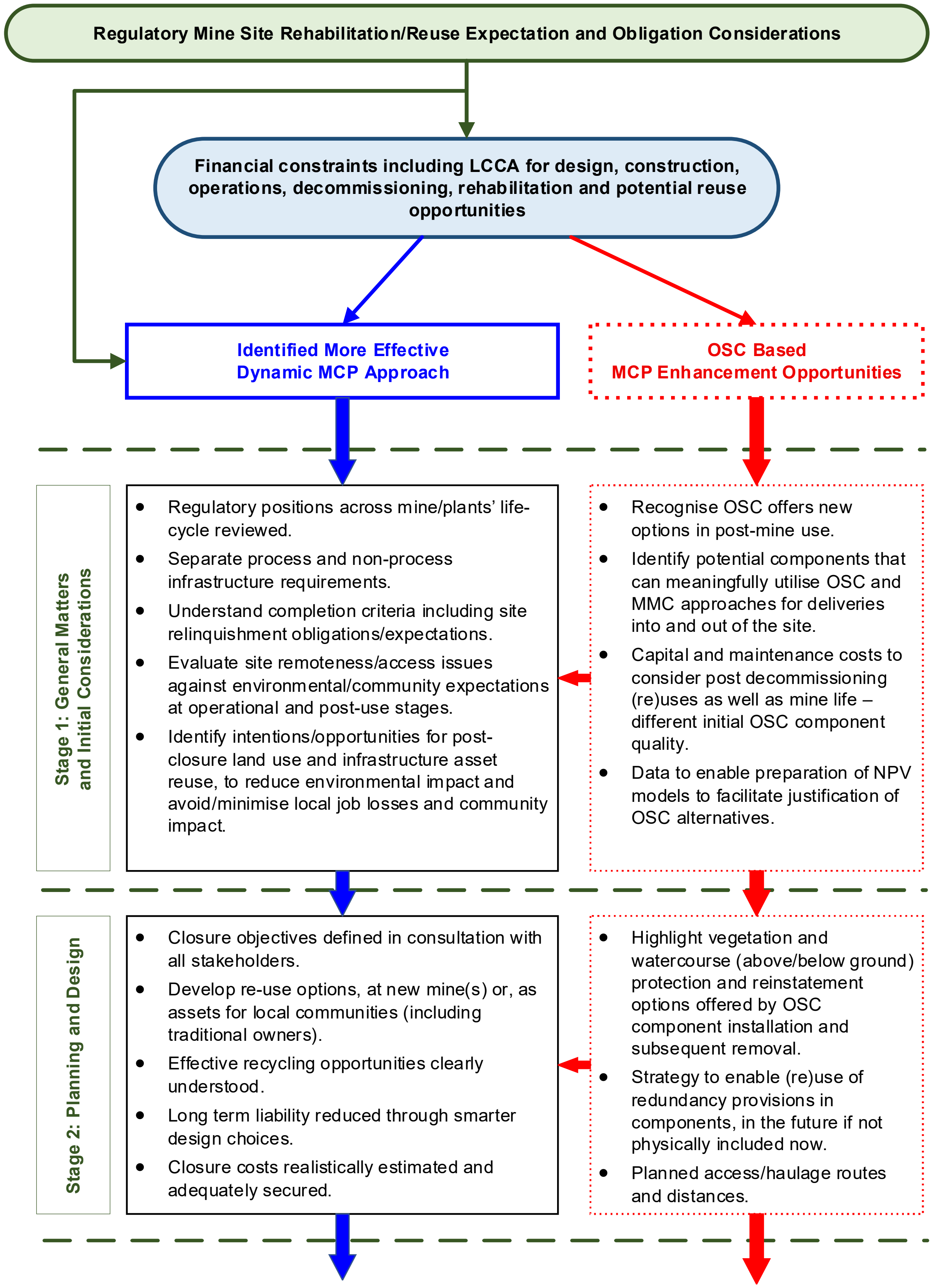
Site relinquishment: Uncertainty exists regarding the interpretation and consistency of regulatory guidance. Site relinquishment was viewed as one of the least defined stages of mine closure planning and regulation in WA, identifying a policy gap between closure completion and long-term governance.

Future MCP approaches must recognise needs will change, *"as social expectations evolve faster than written standards"* (P3), creating further opportunities as well as constraints. Participants recognised that mining companies must take the initiative and demonstrate best-practice independently. As a minimum this involves early and continuous planning, inclusive stakeholder engagement, and effective resource management. Design and erection methods must consider impacts during decommissioning and dismantling. Sizes and locations of plant (for example cranes and low-loaders) can impact benching and ground conditions. Technical design quality and adoption of modern methods of construction (MMC) to enable retention of safe and self-sustaining landforms, and actions to facilitate ecological recovery, were recognised as essential for long-term success.

5 PROPOSED FRAMEWORK

Using the above sub-themes, and informed by the literature review, a conceptual life-cycle-of-mine framework to guide improved MCP focus on rehabilitation processes was developed to promote continuous improvement in mine closure practices. The framework highlights how mining companies and their designers can give greater consideration to facility reuse/recycling enhancements. Included within the presented framework is guidance on where the OSC industry might promote itself to the mining sector. These extend, beyond traditional installation considerations of efficiency, into subsequent decommissioning reuse/repurposing of assets, to enhance a miner's process and non-process infrastructure rehabilitation outcomes, thus suggesting potential business opportunities as well as environmental solutions.

The framework summarises the study's findings into a broad life-cycle-based checklist issues designed to encourage more integrated closure thinking across all project stages. It's five step approach follows a similar pattern to Castellanos et al.'s (2025) process of inventory analysis style. Here the five stages are: (1) General Matters and Initial Considerations; (2) Planning and Design; (3) Construction and Commissioning; (4) Operation and Production; and (5) Decommissioning and Post-Closure. These stages are bounded by (a) regulatory and additional rehabilitation/reuse considerations; and (b) financial constraints including LCCA for construction, operations, decommissioning and rehabilitation reuse, thus feeding into an enhanced, effective, dynamic MCP. This framework (see Figure 1) reinforces that mine closure is not simply an end-of-life activity, but a continuous process requiring foresight, collaboration, and accountability from all parties involved.



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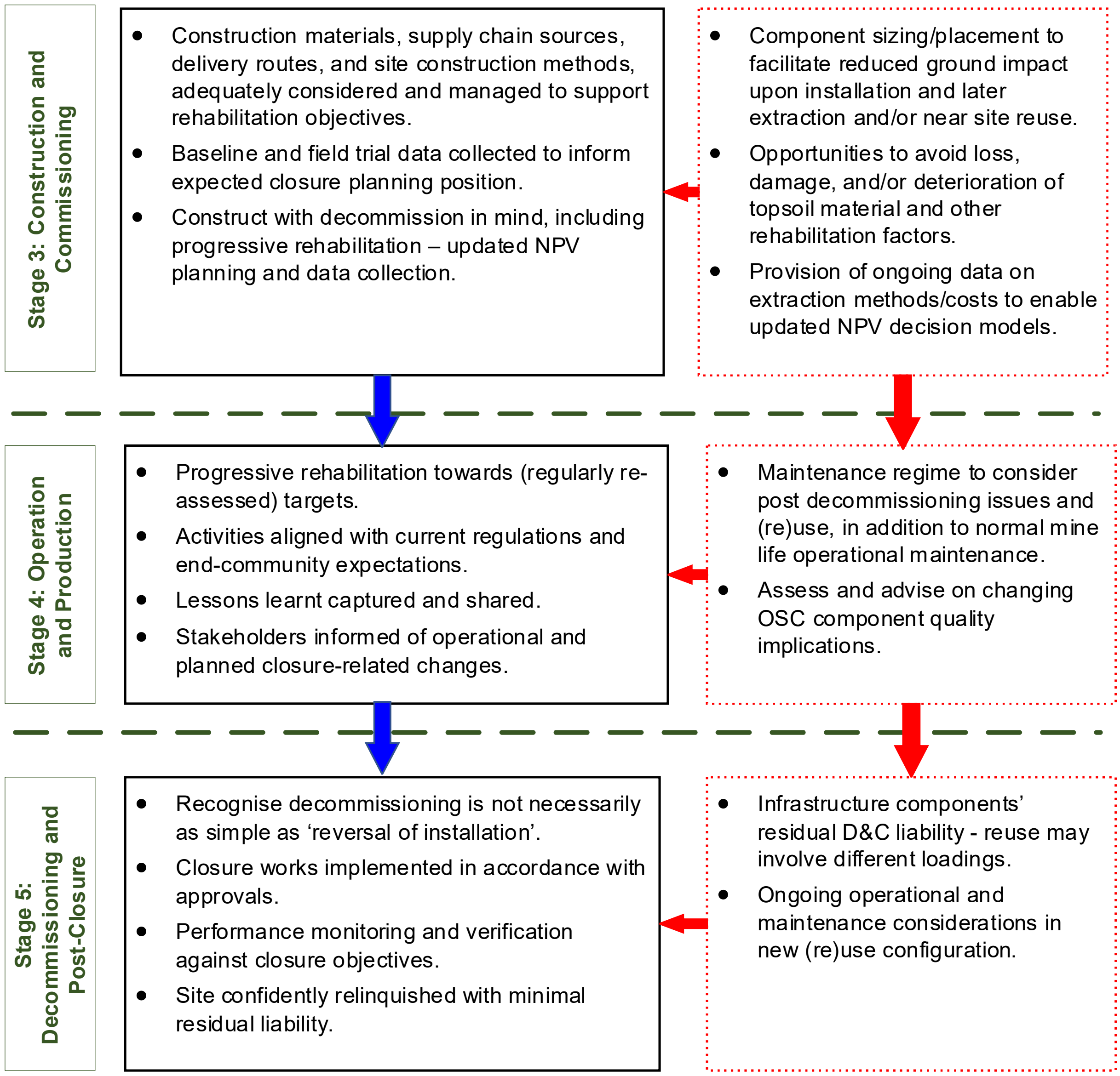

Figure 1: Life-of-mine MCP framework integrating OSC opportunities for better closure outcomes

The framework depicted in Figure 1 is derived from views expressed by participants employed and/or engaged by the mining industry. It does not directly account for regulators', or other external stakeholders', opinions (recognised by participants as being important – see Table 2), which may involve alternative viewpoints on how well the mining sector performs in regards closure and rehabilitation processes, including MCP, and their outcome success. Their input may offer opportunities for refinements to the main MCP components (left hand side of Figure 1), particularly in regards early local community outcome options and approaches. Given the need for broader participant views, this conceptual framework, and its OSC interaction components, is still to be validated, thus extending its efficacy beyond its qualitative research based construct (Newton 2016). In addition to consulting views of regulators, the proposed MCP framework validation should involve testing in active mining conditions with community interaction during the various development and operational stages, and include time and cost considerations. Separately, research opportunities exist to test the presented framework within the OSC industry.

6 CONCLUSION

Reuse and rehabilitation demands are increasing on mine and mineral processing plants. Consequently, MCP considerations, from the mine design stage onwards, is increasingly important. Effective outcomes require early and continuous integration of closure objectives, supported by: inclusive stakeholder engagement; progressive rehabilitation; investigation of reuse opportunities; sound material management; enhanced construction and decommissioning considerations; and, realistic NPV-based cost estimation, throughout a mine's life-cycle.

This study focused on the views of seven experienced mining industry practitioners directly involved with mine closure and rehabilitation activities in large scale surface mining operator businesses in WA. Six of the seven had experience in the iron ore sector. Their insights were distilled into a conceptual framework that summarises the study's findings into a life-cycle-based checklist designed to encourage more integrated closure thinking across a mining project's development stages – i.e. the full MCP. These changing positions offer increased business opportunities for the OSC industry. OSC can provide a value-adding service to the mining sector as existing processing plant and assets are erected, dismantled, re-used and re-purposed in sustainable and community stakeholder engaging methods.

In recognition of such, the presented framework separately highlights opportunities for the OSC industry's consideration to become more involved in all stages of design, construction, operations, decommissioning, reuse/repurposing activities in the MCP, and thus enhance the mining industry's rehabilitation credentials. Mining and mineral processing site closures are not simply an end-of-life activity, but a continuous process requiring foresight, collaboration, and accountability from all parties involved in both process and non-process infrastructure. While the presented framework, and associated OSC opportunities, are based upon surface mine closure practices and outcomes in WA, they can be adjusted for other applicable regions, mine types, and jurisdictions.

7 REFERENCES

Ackermann, M., Botha, D., and Van der Waldt, G. 2018. Potential socio-economic consequences of mine closure. The Journal for Transdisciplinary Research in Southern Africa, 14. https://doi.org/10.4102/td.v14i1.458.

Akkawat. P., Whyte, A., and Hasan, U. 2025. Offshore Wind Turbine Key Components' Life Cycle Cost Analysis (LCCA): Specification Options in Western Australia. Eng, 6(6): 118. https://doi.org/10.3390/eng6060118.

Bainton, N., and Holcombe, S. 2018. A critical review of the social aspects of mine closure. Resources Policy, 59: 468-478. https://doi.org/10.1016/j.resourpol.2018.08.020.

British Standards Institution. 2023. PAS2080:2023 Carbon management in buildings and infrastructure. BSI. London.

Castellanos. I., Whyte, A., and Urquhart, S. 2025. Life Cycle Assessment of Semi-Submerged Offshore Wind Turbines' Foundation Materials: Concrete versus Steel. Eighth International Conference on the Durability of Concrete Structures, SCE06, Edinburgh, UK, https://docs.lib.purdue.edu/cgi/viewcontent.cgi?article=1756&context=icdcs

Chugh, Y. P., Schladweiler, B. K., and Skilbred, C. 2023. Sustainable and responsible mining through sound mine closure. International Journal of Coal Science and Technology, 10(1). https://doi.org/10.1007/s40789-023-00572-x.

Edwards, J., and Maritz, A. 2019. Social aspects of mine closure: the elephant in the room. Mine Closure 2019: Proceedings of the 13th International Conference on Mine Closure, Perth, 3-5 September 2019. https://papers.acg.uwa.edu.au/p/1915_25_Edwards/.

Keenan, J., and Holcombe, S. 2021. Mining as a temporary land use: A global stocktake of post-mining transitions and repurposing. The Extractive Industries and Society, 8(3): 100924. https://doi.org/https://doi.org/10.1016/j.exis.2021.100924.

Kragt, M.E., and Manero, A. 2021. Identifying industry practice, barriers, and opportunities for mine rehabilitation completion criteria in Western Australia. Journal of Environmental Management 287: 112258. https://doi.org/https://doi.org/10.1016/j.jenvman.2021.112258.

Laurence, D.C. 2006. Why Do Mines Close? Mine Closure 2006: Proceedings of the First International Seminar on Mine Closure, Perth, 13-15 September. https://papers.acg.uwa.edu.au/p/605_1_Laurence/.
Manero, A., Kragt, M., Standish, R., Miller, B., Jasper, D., Boggs, G., and Young, R. 2020. A framework for developing completion criteria for mine closure and rehabilitation. Journal of Environmental Management, 273: 111078. https://doi.org/10.1016/j.jenvman.2020.111078.
Manero, A., Standish, R., and Young, R. 2021. Mine completion criteria defined by best-practice: A global meta-analysis and Western Australian case studies. Journal of Environmental Management, 282: 111912. https://doi.org/10.1016/j.jenvman.2020.111912.
McCullough, C.D. 2024. Below Water Table Mining, Pit Lake Formation, and Management Considerations for the Pilbara Mining Region of Western Australia. Mining, 4(4): 863-888. https://doi.org/10.3390/mining4040048.
Measham, T., Walker, J., Haslam McKenzie, F., Kirby, J., Williams, C., D'Urso, J., Littleboy, A., Samper, A., Rey, R., Maybee, B., Brereton, D., and Boggs, G. 2024. Beyond closure: A literature review and research agenda for post-mining transitions. Resources Policy, 90. https://doi.org/10.1016/j.resourpol.2024.104859.
Moynihan, M. 2024. Putting the net-zero hierarchy into place | Build efficiently. The Structural Engineer, 102(11): 10-11.
Murphy, D.P., Fromm, J., Bairstow, R., and Meunier, D. 2019. A repurposing framework for alignment of regional development and mine closure. Mine Closure 2019: Proceedings of the 13th International Conference on Mine Closure, Perth, 3-5 September 2019. https://papers.acg.uwa.edu.au/p/1915_64_Murphy/.
Newton, P.E. 2016. Macro- and Micro-Validation: Beyond the 'Five Sources' Framework for Classifying Validation Evidence and Analysis. Practical Assessment, Research & Evaluation 21(1): 12. https://doi.org/10.7275/f75k-1y75
Pagouni, C., Pavloudakis, F., Kapageridis, I., and Yiannakou, A. 2024. Transitional and Post-Mining Land Uses: A Global Review of Regulatory Frameworks, Decision-Making Criteria, and Methods. Land, 13(7). https://doi.org/10.3390/land13071051.
Palinkas, L.A., Horwitz, S.M., Green, C.A., Wisdom, J.P., Duan, N., and Hoagwood, K. 2015. Purposeful Sampling for Qualitative Data Collection and Analysis in Mixed Method Implementation Research. Administration and Policy in Mental Health and Mental Health Services Research 42(5): 533-544. https://doi.org/10.1007/s10488-013-0528-y
Urquhart, S., and Whyte, A. 2020. Implications of Governance Obligations Being Embedded within Construction Contractors' Tendering Procedures. Australian Journal of Civil Engineering, 18(1): 93-105. https://doi.org/10.1080/14488353.2020.1735026.
Yates, A. 2026. The reuse hierarchy: a structural engineer's framework for reusing more (and wasting less). The Structural Engineer, 104(2): 20-27.
Zine, H., Hakkou, R., Papazoglou, E.G., Elmansour, A., Abrar, F., and Benzaazoua, M. 2024. Revegetation and ecosystem reclamation of post-mined land: toward sustainable mining. International Journal of Environmental Science and Technology 21(15):9775-9798. https://doi.org/10.1007/s13762-024-05697-3.