

# Financial concepts for mine closure: information document

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## Abstract

*The International Council on Mining and Metals (ICMM) is an international organisation that brings together 27 mining and metal companies and over 30 regional and commodities associations to strengthen environmental and social performance and enhance mining's contribution to society.*

*The ICMM Closure Working Group, made up of closure specialists from ICMM company members, developed an information document on the financial concepts for mine closure for use by ICMM members and the wider industry to communicate and enhance the understanding of key financial concepts as they relate to mine closure. Several types of cost estimates are used to characterise the financial aspects of closure. As understanding of these approaches vary, consistent communication and engagement within companies and with external stakeholders is challenging and limits the industry's ability to benchmark performance. It is important for mining companies to make clear distinctions between the different types of cost estimates as they serve different purposes.*

*While much of the underlying source information for each of these estimates should be based on the most recent version of the mine closure plan, the numerical values are typically different as each responds to different user needs and will be prepared under different sets of frameworks. Understanding the differences and points in common for these types of estimates is key to the efficient use of information and to providing useful estimates. The document defines and contextualises the key concepts related to closure costing, accounting and reporting requirements, and the purpose of each. The document is intended to provide general conceptual guidance across a wide range of factual circumstances.*

**Keywords:** *closure costing, financial provision*

## 1 Introduction

The International Council on Mining and Metals (ICMM) brings together 27 mining and metal companies and over 30 regional and commodities associations to strengthen environmental and social performance and enhance mining's contribution to society. Member companies commit to implementing 10 defining principles that serve as a best practice framework on sustainable development for the mining and metals industry. The vision of ICMM is for mining and metals to be a respected industry that is trusted to operate responsibly and contribute to sustainable development.

A key measure of the mining and metals industry's ability to contribute meaningfully to sustainable development is its long-term environmental performance. This requires timely and comprehensive planning for closure and beyond. An important component of this planning is consideration of how the implementation of closure activities will be funded (International Council on Mining and Metals [ICMM] 2005).

The ICMM's sixth sustainable development principle is to 'seek continual improvement of our environmental performance' and includes a commitment to the design and planning of all operations so that adequate resources are available to meet mine closure requirements (ICMM 2005). Making financial provision to address environmental and social aspects of mine closure help provide a guarantee to governments and communities that these resources will be available.

Mining companies, regulators, and investors share a common interest in ensuring the costs of implementing mine closure are accurately identified and clearly communicated. Several types of cost estimates are used to characterise the financial aspects of closure. As understanding of these approaches vary, consistent communication and engagement within companies, and with external stakeholders, is challenging and limits the industry's ability to benchmark performance. It is important for mining companies to make clear distinctions between the different types of cost estimates as they serve different purposes.

While much of the underlying source information for each of these estimates should be based on the most recent version of the mine closure plan, the numerical values are typically different as each respond to different user needs and will be prepared under different sets of frameworks. Understanding the differences and points in common for these types of estimates is key to the efficient use of information and to providing useful estimates.

The ICMM Closure Working Group, which is made up of mine closure practitioners from some of the leading global mining companies, identified the need for a simple information document that outlines the differences between the various types of closure cost estimates. This led to the development of the Financial Concepts for Mine Closure document (ICMM 2019), which was published in February 2019. The document defines and contextualises the key concepts related to closure costing, accounting and reporting requirements, the purpose of each and, where possible, their relationship to each other.

The document aims to enhance understanding of the various types of closure cost estimates as they relate to mine closure, enabling consistent understanding and communication across the industry, between industry disciplines and with external stakeholders.

This paper provides a brief overview of the development of the Financial Concepts for Mine Closure document and a summary of its contents.

## 2 Development

The document was developed over an eight-month period by the ICMM Closure Working Group. A meeting of the working group was undertaken in May 2018 to provide an opportunity to discuss the content and to agree on the key elements/components for each of the specific closure cost types to be included in the document.

A draft document was developed and reviewed by the Closure Working Group and by company representatives from their finance teams. The updated draft underwent further refinements and was finalised and approved by ICMM's Principles Liaison Committee (made up of member company representatives that oversee the strategic direction of ICMM), and officially published on the ICMM website in February 2019.

## 3 Document structure

The document is mainly structured around the basic types of closure cost estimates, as outlined in Figure 1, and provides an overview of the cost types as well as general inclusions, exclusions, and considerations.

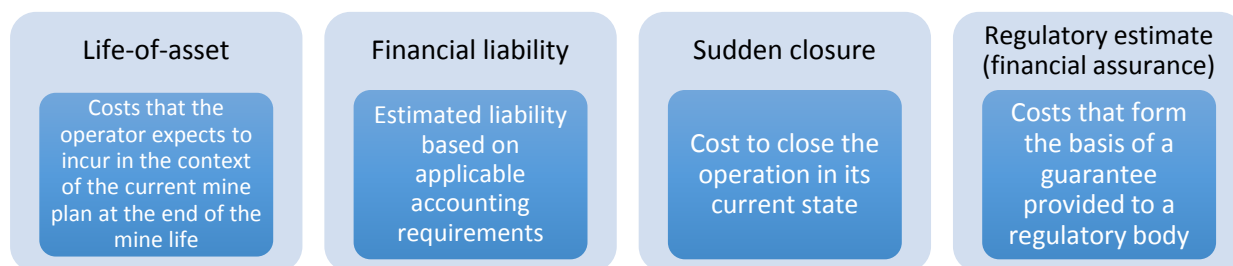


Figure 1 Closure cost estimate types (ICMM 2019)

Each of the closure cost types, as included in the document, are summarised as follows:

### 3.1 Life-of-asset cost estimate

The life-of-asset (LoA) cost estimate responds to the internal planning needs of the mining company. While there are variations in how each company defines these estimates (and the terminology used), the estimates address the full expected closure-related costs that the company will incur to close a mine for a site that operates through its full life and executes its planned mining activities to exhaust the mineral resources.

The LoA closure cost estimate includes the total cost of ownership expected to be incurred to meet all closure obligations including costs associated with all existing facilities and mining features, as well as all those facilities not yet constructed, land disturbances not yet incurred, mining not yet undertaken, and progressive rehabilitation not yet undertaken that has been included within the life-of-mine (LoM) business plan. It also includes monitoring and maintenance costs (e.g. maintenance needs where success criteria are not met, land holding costs, etc.) over the anticipated post-closure period. This cost estimate is used internally within the organisation and carried in a mining company's cash flow model for planning and budgeting of capital and operational expenditures and ideally is fully integrated and presented in the mine business plan.

Other common characteristics of the LoA closure cost estimate are as follows:

- Owner costs (rather than third party costs) are normally used where it is reasonable to assume that the owner would use its staff and equipment for executing the tasks. If the mine owner does not propose to execute the closure works using its staff and equipment, third party costs should be used to estimate the cost.
- Credit for completed progressive closure can be incorporated directly into the estimate.
- The costs are normally calculated in accordance with the operational cost model.
- Salvage value may be considered where appropriate and internal business standards and guidelines permit. As salvage values are subject to wide variations, conservative valuations should be used and should be supported by third party quotes and evaluation.

### 3.2 Financial liability cost estimate

The financial liability closure cost estimate must be developed to comply with accounting obligations and reporting principles, usually the International Finance Reporting Standards, or in the United States the Generally Accepted Accounting Principles. The amount is also known as an asset retirement obligation, closure provision, or reclamation liability. The cost represents the amount that a company would reasonably and rationally pay to settle the obligation (liability) on the reporting date or to transfer to a third party.

The following are key characteristics of a financial liability cost estimate:

- The cost estimate is based on the present value of future costs of the current disturbed footprint that will be incurred over time to retire the asset and meet legal, regulatory, and agreed third party (including stakeholders) commitments, considering the current disturbance. Constructive obligations and exclusions may vary in jurisdictions, but typically the financial liability cost estimate does not include:
  - Closure and rehabilitation costs of future environmental disturbance or facilities yet to be installed/constructed and any personnel severance-related costs.
  - Potential salvage value for equipment and infrastructure.
- The discount rate used for present value calculations is a pre-tax rate(s) that reflects current market assessments of the time value of money and the risks specific to the liability (except for risks reflected in the future cash flow estimates) and will vary depending on company policy.

- The costs to be included in the estimate are those where environmental disturbance has occurred (an obligation/liability created) or facilities that have been installed/constructed that require decommissioning and rehabilitation.
- Mine owner execution rates or third party rates may be used/required as applicable for closure activities.
- Obligations that will be required after decommissioning should be included, including long-term water management, monitoring and maintenance, etc.
- The cost estimates are typically generated in partnership with a creditable independent third party that provides expertise in mine closure.
- The cost estimates must be acceptable to corporate financial auditors.

The amount considered in the financial reporting will need review at each reporting period to ensure that the value continues to reflect the mining company's obligations. As an element of financial reporting, this cost estimate is typically prepared under the direction of the company's executive management team and is subject to third party auditing.

### 3.3 Sudden closure cost estimate

A sudden closure cost estimate is typically developed and used for internal planning purposes to aid in options analysis and decision-making. The estimated sudden closure cost would reflect all costs for immediately implementing closure, with no exclusions.

Costs that would form a part of the sudden closure cost estimate include closure works, workforce retrenchment costs, management, studies, and care and maintenance costs associated with deferring closure works. The cost estimate would also include post-closure costs such as those for maintenance and monitoring. Not all companies calculate this number and commonly use the financial liability number.

### 3.4 Regulatory cost estimate

In many jurisdictions, the regulator may require some form of financial assurance funds that will be available to complete closure works in the event the mining company goes bankrupt (sudden/unplanned closure) or otherwise abandons the site. The regulator closure cost estimate is used by the regulator to determine the required amount of financial assurance to be covered by a financial assurance mechanism (i.e. bond, bank guarantee or other financial mechanisms, as required by the regulation in place at the time).

There is considerable variation among jurisdictions in how the financial assurance amount is estimated and administered. Typical characteristics include:

- The cost estimate is based on the closure activities presented in a closure plan that has received approval by the regulator.
- Cost estimates usually consider third party costs which is intended to be representative of the cost the government would incur to implement the closure plan if the mine was abandoned.
- The cost estimate may be based on the current disturbance, the maximum disturbance planned within some set time limit, or the currently approved extent of final disturbance.
- The financial mechanism established is generally cancelled and/or reverted back to the mine owner once all closure and rehabilitation works have been completed and have satisfied the regulators agreed closure criteria.
- Cost estimates usually must be updated on a set schedule, or when there are substantial changes to the mining operation.

- There may be a requirement for third party audits or certification of the cost estimates made to establish the financial assurance.
- The cost estimate format may be specified by the regulator (i.e. there may be a standardised spreadsheet or other model used to present the costs).

### 3.5 High-level summary

Table 1 provides a high-level summary of the various closure cost estimate types as explained in Sections 3.1 to 3.4.

Table 1 High-level summary

Closure cost estimate types	Life-of-asset (or life-of-mine) cost estimate	Financial liability cost estimate	Sudden closure cost estimate	Regulator cost estimate (financial assurance)
	Costs that the operator expects to incur in the context of the current mine plan at the end of the mine life	Estimated liability based on applicable accounting requirements	Cost to close the operation in its current state	Costs that form the basis of a guarantee provided to a regulatory body
Closure and rehabilitation earthworks	√	√	√	√
Long-term water management costs	√	X*	X*	X*
Decommissioning, decontamination and demolition	√	√	√	√
Project (owners) management costs	√	√	√	√
Post-closure monitoring and maintenance costs	√	√	√	√
Socio-economic costs	√	X	√	X
Employee retrenchment costs	√	X	√	X
Land holding costs	√	X	√	X
Contingency	√	X	√	X

\*Included in the case of constructive obligation

## 4 Conclusion

The various closure cost estimates including LoA costs for planning and budgeting, financial liability costs for reporting and corporate balance sheet provisioning purposes, sudden closure cost estimates for planning purposes to evaluate business risk response to unforeseen changes, and regulator cost estimates for regulatory reporting on closure and financial assurances have been outlined in detail in the Financial Concepts for Mine Closure document.

It is important for mining companies to make clear distinctions between the different types of cost estimates as they serve different purposes.

The document aims to enhance understanding of the various types of closure cost estimates as they relate to mine closure, enabling consistent understanding and communication across the industry, between industry disciplines, and with external stakeholders.

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## References

- International Council on Mining and Metals 2005, *Financial Assurance for Mine Closure*, London  
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