Applying a Control Framework Approach to Improve Early-Stage Mine Planning for Sustainable Operations

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# ABSTRACT

Successful mining operations start with strong early-stage planning. A robust approach to managing environmental impacts, engaging stakeholders, and meeting regulatory requirements is essential. This paper introduces the **Control Framework (CFw)**—a validated, good-practice model that goes beyond traditional risk assessments.

Conventional processes often focus on generating a long list of potential issues, giving these risk scores, and referencing studies or controls that will address them and measuring impacts after they occur. In contrast, the CFw identifies threats early, designs proactive mitigation measures, and prioritises progressive rehabilitation. It bridges the gap between detailed Environmental Impact Statement (EIS) findings and real-world operations, making complex information accessible and actionable.

Practical examples from coal and metalliferous mines in Queensland and New South Wales demonstrate its value. The CFw makes the risk analyses more robust and understandable. An approach which help achieve smoother approval pathways, clear transitions from planning to construction, and effective operational controls. Subject matter experts critically review the framework during an initial Environmental Risk Analysis, ensuring a rigorous and practical outcome.

The Control Framework provides a structured approach to mine planning that integrates strategic decision-making with practical outcomes. By focusing on proactive management of impacts and progressive rehabilitation, it delivers real value for mine owners and operators striving for efficient, compliant, and sustainable operations.