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ANALYSES OF SOUTH AFRICAN MINING PROJECTS: TECHNICAL VARIANCES AND IMPACT OF THESE ON PROJECT SUCCESS.

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ABSTRACT

Mining projects are known for having a poor success rate. The purpose of this study is to assess the impact of technical shortcomings on the value of mining projects and define success in mining projects, using an empirical equation. This study was focused on South African mining projects, due to the uncertainty of how successful South African mining projects are.

A total of 11 projects were reviewed. Six from the platinum, three from the gold and two projects from the coal industry were selected due to the importance of these commodities in the South African economy. Actual technical and cost parameters were analysed and compared against the initially planned values. Financial comparisons were carried out in similar money terms. An impact of the planned NPV by actual performance was also analysed. This was only undertaken for projects whose DCF was published in the public domain.

Most of the projects reviewed in this study did not reach the planned production, exceeded operating costs and/or capital expenditure. Technical factors contributing to this, included change in design during development, additional water handling, ageing infrastructure, lack of mining flexibility, and geological difficulties being the most common factor. The most common non-technical factors included community and labour unrest.

Following the approach developed by Khosravi and Afshari (2011) in the construction industry, an empirical equation was formulated based on success criteria identified by McCarthy (2014), which were rated by mining professionals, in a survey, according to their sensitivity to the success or failure of mining projects. Capital cost overrun was rated the most sensitive criterion to project failure, while schedule overrun was deemed to be the least sensitive to project success by mining professionals.

Only five projects, out of the 11 selected for this study, were assessed using this equation, due to insufficient data on other projects in the public domain. The results of this assessment enabled the projects to be ranked according to their relative success. The results of this assessment demonstrated that a project can still be in operation although it is performing far below its original design criteria.