

The Effect of Risk in Mine Planning Stage

1st M.Ataee-pour *

*Associate professor, Department of Mining,
Metallurgical and Petroleum Engineering,
Amirkabir University of Technology, Tehran,
Iran Map60@aut.ac.ir*

2nd H.Dehghani

*PhD Student, Department of Mining,
Metallurgical and Petroleum Engineering,
Amirkabir University of Technology, Tehran,
Iran Hesam.dehghan@aut.ac.ir*

ABSTRACT

A new era is coming for the mining industry. An era where mine planners, mining engineers and mine analysts, not only ask themselves the question, ‘What if ...?’ when evaluating their respective mine, but also want to know what is the effect of these ‘What if ...?’ uncertainties on their project evaluation process, as well as the best strategies to follow when facing either an adverse or a favorable condition.

Mining projects are complex businesses that demand a constant assessment of risk. This is because the value of a mine project is typically influenced by several kinds of uncertainties, such as exploration uncertainties (sampling, modeling, grade estimation and etc), economic uncertainties (metal prices, costs and etc) and engineering uncertainties (planning, scheduling, environment issues and etc), among others, which are not known with absolute certainty.

In this paper, above mentioned uncertainties and their roles in the mine planning phase were discussed and in order to eliminate or diminish the risk to the acceptable level, some offers were presented. Finally, it was shown how the ability to deal with uncertainty and risk in mine project evaluation can have a significant impact on the owners’ and stakeholders’ investment decision-making.

Keywords: Mine uncertainty, Risk management, Technical uncertainty, Financial uncertainty, Mine planning and design, Decision making.

INTRODUCTION

A new era is coming for the mining industry. An era where mine planners, mining engineers and mine analysts, not only ask themselves the question, ‘What if ...?’ when evaluating their respective mine, but also want to know what is the effect of these ‘What if ...?’ uncertainties on their project evaluation process, as well as the best strategies to follow when facing either an adverse or a favorable condition.

Using intuition, it is logical to be asking these ‘What if ...?’ questions when evaluating a mine project. The reason for this is that normally a mine project has a long-term operating life and those of us that are involved in mine project evaluation are aware that the future brings uncertainty. It is within this environment that mine analysts have to manage the level of uncertainty of their projects, so they can make decisions based on rational and disciplined thought (Martinez, LA, 2009).

Therefore, evaluation and estimation of a mine project without mentioning the risk/potential for future losses/opportunities, will be generated the invalid results and finally this process will be made that the managers and stockholders of a mine company take the blunder decision based on the invalid information.

Referring to the viewpoint of the Lee (1984) the mining process can be separated to the three main phases such as planning, implementation and production. The main part of the investigation such as prefeasibility and feasibility study will be done at the Planning phase.

The evaluation process will be termed the planning phase of a project. The conclusion of this phase will be the preparation of a feasibility study report. Based upon this, the decision will be made as to whether or not to proceed. The implementation phase consists of two stages i.e. construction and commissioning. The last phase, production, also has two