

Mining Projects in South Africa: Aspiration Levels Versus Fairness when Negotiating Time Extension

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requirements for the degree of Master of Business Administration**

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ABSTRACT

The relationship between mining companies and mining contractors is presently viewed as an adversarial relationship. During mining construction projects there are often underlying reasons for break-downs in client-contractor relationship as, for example, in the event of the client not awarding an extension of time. At this stage, the counter parties engage in re-negotiation of the completion date. The perceived wisdom is that the contractor has little bargaining power against the mining house.

The purpose of this research is to establish the main reasons for the breakdown of the contractor, client relationship and to determine the positioning of the two counter parties on the Pareto curve.

Using a small data sample of experts and also making use of qualitative research, semi-structured interviews were used to test the perceptions and opinions of these experts in order to assess and to understand the bargaining power position of the counter parties at the end of the project.

The key findings were, that contractors profit from both constructive acceleration and extension of time. The general perception of the contractor's poor bargaining position is often incorrect. It is also evident that close control on the project contract is extremely important and that the success of the project is ultimately closely related to the maturity of the contractor-client relationship, also, that quick action and reaction on scope variances are extremely important.

DECLARATION

I, Roelof J. Deysel, declare that this research report is my own work except as indicated in the references and acknowledgements. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration in the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in this or any other university.

Roelof Jacobus Deysel

Signed at Johannesburg

On the 24th day of April 2013

DEDICATION

To my beautiful wife, Jeanine

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I wish to express my sincere gratitude to:

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1. CHAPTER 1: INTRODUCTION

1.1. Purpose of the study

The purpose of this research is to examine disputes between the mine owner and contractor regarding “extension of time requests” for mining construction projects. This report will establish the reasons why, in spite of well-established project principles at their disposal, a break-down often occurs in the relationship between the client and the contractor while negotiating “extension of time” or “constructive acceleration and this can lead to a deterioration in the client’s perception of fairness.

1.2. Context of the study

Due to the mining industry’s exposure to economic sensitivities, capital projects and the management thereof, enjoy much emphasis and priority in any mining house’s business. The completion time of mining projects is critical, because revenue can only be generated once such an infrastructure has been fully completed. Revenue from the mined minerals is driven by the quality of the ore body and is thus intrinsically linked to commodity prices which in turn are driven by supply and demand.

The contractor conducting the project is usually expected to provide expertise in certain specialised services. The contractor’s revenue is, in most cases, based on a margin over and above the cost of such a project. Once the contractor is appointed, based on the competitive tender, they should theoretically obtain their planned profit from the project.

Phillis and Gumede state that “Despite all advances in the field of project management, a good number of projects are invariably delivered with compromised basic deliverables of time, budget (cost), and content (which

includes quality)” (Phillis & Gumede, 2011, p. 793). Failure to complete projects in time could be caused by both the owner and contractor. For this reason, claims for variations or penalties are stipulated in the agreed upon contracts after tender adjudication.

There are a range of contract types, which are based on the project delivery system (McMullan, 2011). These contracts could include the standardised FIDIC books along with other model contracts, which are generally used in the South African project environment. But even with the best contract in place, there remains a common problem and that is to establish a fair and equitable cost target. Any change due to “design failure, buyer priorities, goals, or other factors beyond the contractor’s control will require a renegotiation of incentive provisions and cost targets” (Bajari & Tadelis, 2001, p. 390). As a consequence of this constant renegotiation, the working relationship between the owner and the contractor become strained.

Courts have recognized that contractors are entitled to compensation for changes in design and to adaptations to specifications (Bajari & Tadelis, 2001). This creates the scenario where the contractor becomes more “commercially astute” in other words, places undue emphasis on his rights in terms of compliance. On the other side of the coin, the client expects the deliverables to be carried out to his expectations, because he is paying and thus should get what he wants. Often, however, clients resort to bullying contractors into submission when attempting to maintain budget and increase the scope of the contract.

Project changes and variations could have the effect of changing the already agreed upon specifics, which may create a delay in the initial project delivery date. The contractor then tends to apply for an extension of time. The mine owner in turn typically insists that the contractor abides by the completion date. This requires accelerating current activities in order to complete the project on time. If the client agrees to an extension of time, he stands to lose potential revenue, due to the lateness of the project. If the contractor agrees, or, is

forced into constructive acceleration, he needs to utilise more financial resources in order to speed up his current activities, which obviously causes an increase in his costs. Too often, the contractor delays his claims for financial entitlement for fear of losing face or being disqualified from future business.

These factors can lead to conflict between the owner and contractor, even though often in the course of many of the delays that occurred throughout the project, both parties were at fault.

Can the two parties find the “Pareto optimal frontier” (Prietula & Weingart, 2011, p. 86)? This calls into question the contractor’s bargaining power position when negotiating an extension of time and begs the question of how reasonable the client’s request to accelerate the project program actually is. This situation creates structured conflict within the working relationship and may cause breakdown of the transaction.

1.3. Problem statement

1.3.1. Main problem

The purpose of the research is to establish the underlying reasons for breakdowns in client-contractor relationship in the event of the client not awarding extension of time agreements on a mining project and also to better understand the counter parties’ positioning on the Pareto curve during negotiations for an extension of time, particularly when it subsequently becomes evident that the project will not be completed by the contractual completion date.

1.3.2. Sub-problems

The first sub-problem is to identify the underlying causes of a break-down in the client-contractor relationship when approaching the completion of a project.

The second sub-problem is to understand the financial implications and or financial position of both parties during such a dispute.

The third sub-problem is to explore and to comprehend the perceived positions of counterparties on the “Pareto Curve” regarding re-negotiation of project completion dates.

1.4. Significance of the study

The study assists in understanding the contractual condition when, in spite of having clear guidelines, rules and tools to manage projects, disputes often arise around the completion date of a project. Acceleration of projects is a complex scenario and there is often a lack of understanding between contractors, client organisations, consultants and lawyers as to what should, and should not be included in an acceleration claim (Maritz & Schutte, 2006).

The study will offer guidance as to the cause and effect of project closure disputes and the positioning of both parties on the “Pareto Curve”. Indications are, that despite existing standard agreements and laws to guide and minimise disputes, there still exist certain perceptions as to the strength and value of the bargaining position between financial powers versus protection by law.

The financial power is held by the client. The contractor lawfully has the right to claim for any additional cost that was not part of the original contract. However, the mining company tends to feel that it has the stronger bargaining position, because it has the right, as client or consumer, to question any additional claims made by the contractor.

Limited studies have been undertaken on constructive acceleration in mining contracts. With constructive acceleration the emphasis is usually placed on the contractual and financial implications. This study will also hopefully reveal that there is a psychological perception factor to this conundrum as well, where the negotiator’s bargaining power in not allowing an extension of time will be

tested against the substantial benefits of quickly resolving claims during construction, as the project continues.

1.5. Delimitations of the study

Civil and engineering projects follow the same principles in law and project management. The main difference is the effect of revenue generation after the capital project has been completed on IRR and NPV. This is where a difference in the nature and style of contracts between mining and other businesses can be delimited. This research report will focus on the mining industry, with emphasis on mine-infrastructure construction-projects. Furthermore, the research is focused on the closure of projects, rather than the pitfalls during the execution of the project.

The sample that will be evaluated will endeavour to reveal the opinions held on this matter by mining companies, project houses, construction lawyers, contractors and quantity surveying firms.

1.6. Definition of terms

BATNA – Best Alternative to a Negotiated Agreement

Constructive Acceleration – Execution of outstanding contract works within a shorter time than originally planned in order to mitigate the extension of time to which the contractor would have otherwise been entitled. (Maritz & Schutte, 2006).

Costs – All expenditure reasonably incurred (or to be incurred) by the contractor, whether on or, off site, including overheads and similar charges, but does not include profit (FIDIC, 1999).

Delays – An event that causes extended duration to complete all, or part of, a project (Maritz & Schutte, 2006).

EPCM – Engineering, Procurement, Contracts and Management

FIDIC – Federation International des Ingenieurs-Conseils (International Federation of Consulting Engineers)(FIDIC, 1999, p. 2).

Float – The time difference between the earliest finish and the latest finish (Maritz & Schutte, 2006).

IRR – Internal Rate of Return

Letter of Tender – The document entitled letter of tender, which is completed by the contractor and includes the signed offer to the mining house for the construction works (FIDIC, 1999).

NEC – New Engineering Contract (Chan, Coffey, & Trigunarsyah, 2010)

NPV – Net Present Value

P & G's – Preliminary and General Costs that are defined as time related, or fixed costs in a contractors' costing structure.

QS – Quantity Surveyor

Site – The place where the permanent works are to be executed and to which plant and materials are to be delivered, and any other places as may be specified in the contract as forming part of the site (FIDIC, 1999).

Tender – Letter of tender and all other documents which the contractor submitted with the Letter (FIDIC, 1999).

Variation – Any change to the works, which is instructed or approved (FIDIC, 1999).

Works – Temporary or permanent works (FIDIC, 1999).

1.7. Assumptions

The following assumptions have been made regarding the study:

- General project theory and law applicable in construction is also applicable to projects in the mining industry
- The respondents will be decision makers in their organisation with sufficient knowledge and experience to clearly articulate answers to the interview questions
- If the respondent feels that certain information is confidential and does not wish to disclose information for confidentiality, they are able to inform the interviewer of their requirements

2. CHAPTER 2: LITERATURE REVIEW

2.1. Introduction

The literature review on the themes highlighted in this study is discussed in this section. The first area relates to typical failures in project management and how a contract compensates for these failures between both parties. The second consideration describes the financial implications of these failures. The third and final consideration is to investigate each party's relative bargaining position (perceived versus real) during negotiations for adjustments to the contract.

2.2. Background discussion

The field of project management has been widely studied. Project management is a discipline where events often go wrong. Research reveals few studies of actual success rates in projects, especially in the context of mining projects. This is probably because each mining contract is singular and unique. Actual statistical figures in IT project failures are quoted through "The Bull Survey" and "The Chaos Report" (CORTEX, 2009).

- The Bull Survey's major findings were:
 - 75% of projects missed deadlines
 - 55% of projects exceeded budget
 - 37% of projects were unable to meet project requirements.
- The Chaos Report was commissioned in 1995 by the Standish Group in the USA and indicated that:
 - 53% of the projects cost over 190% of the original budget

- 31% of projects were cancelled before completion
- Only 16% of projects met their project deliverables

More than 30% of projects are cancelled before completion (Leach, 2004) and after analysing 18 projects in the mining industry, Vallee concludes that 78% of projects had non-delivery problems (Vallee, 1999).

With such a dismal record of project completion, the issue around rights and duties of the both the contractor and client mining house as stated in the agreed contract become of paramount importance. This means that the coordination and management of change is vital (Bajari & Tadelis, 2001). Otherwise, the likelihood is that the project program will inevitably be extended due to these underlying substantive variations on those factors as determined in the contract.

The contractor would typically be inclined to renegotiate the completion date and thus apply for an extension of time. The mining house's refusal to grant an extension of time (whether or not this is due to an explainable or understandable delay) typically results in an effort by the contractor to accelerate construction to complete the project within the contractual completion date (Maritz & Schutte, 2006).

The quality of your Best Alternative to a Negotiated Agreement (BATNA) can be defined as to how close that agreement can be to your most preferred solution when going into negotiations. A party's BATNA is driven by that party's aspiration levels (Wolfe & McGinn, 2005).

Even though the contractor does have the legal right to claim additional time caused by variations, the client mining house will more often than not deny such time-related claims which interrogates the contractor's BATNA (Best Alternative to Negotiate Agreement). It is said that "power is manipulated by varying the quality of each side's alternatives to a negotiated agreement" (Gino & Moore, 2008), in which the contractor's ability to negotiate is questioned.

The fairness of the mining house in expecting the contractor to complete a project according to the contractual agreement, even though the mining house itself was responsible for extending the project programme, also needs to be challenged.

2.3. Rights and duties of parties

The contractor's main obligation is to execute the work that was agreed upon and secondly the contractor has to complete the work substantially within agreed specifics (Maritz & Schutte, 2006). Contractors in South Africa under common law may not make any claims for payment, until the whole project is completed. Most construction contracts in South Africa allow for interim payments, but if the contractor tries to sue the employer for payment before the whole contract is completed, the employer does have the right to raise the exception (in South African law) or the "ready, willing and able" principle (in English law) and this effectively eliminates the contractor's chance of any claim until the whole contract is completed (Maritz & Schutte, 2006). Exception can be explained as "the defence which may be raised where a reciprocal obligation has not been fulfilled" (Loots, 1995, p. 1106). FIDIC created standard contracts in order to minimise any misunderstanding and assist in the working relationship between the employer and the contractor. FIDIC is most commonly used in mining construction projects.

2.3.1. Delays and factors causing delays on construction projects

Maritz and Schutte (2006) posed questionnaires to contractors, consultants and employers to establish what the main causes for delays on construction projects are. Referring to Figure 1, most delays are caused by an increase in the scope of work, followed by late information provided by the employer, variation orders, and finally late delivery of client-provided material, equipment, plant and manpower.

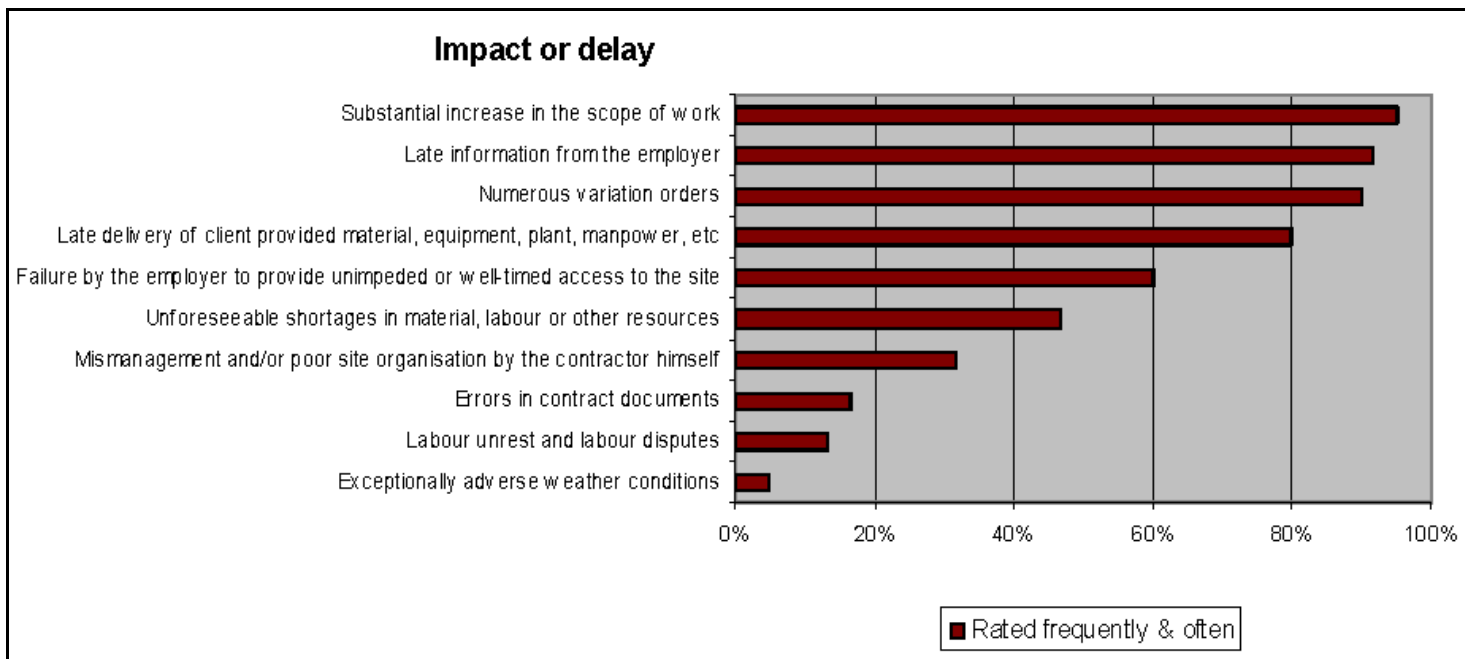


Figure 1: Delays and their impact on construction projects (Maritz & Schutte, 2006)

They furthermore indicated the level of compensation actually paid out for acceleration claims. Figure 2 indicates that 78% of the time, only 50% to 74% of the acceleration claim is paid. At 50% of the time, less than 50% of the claim is paid.

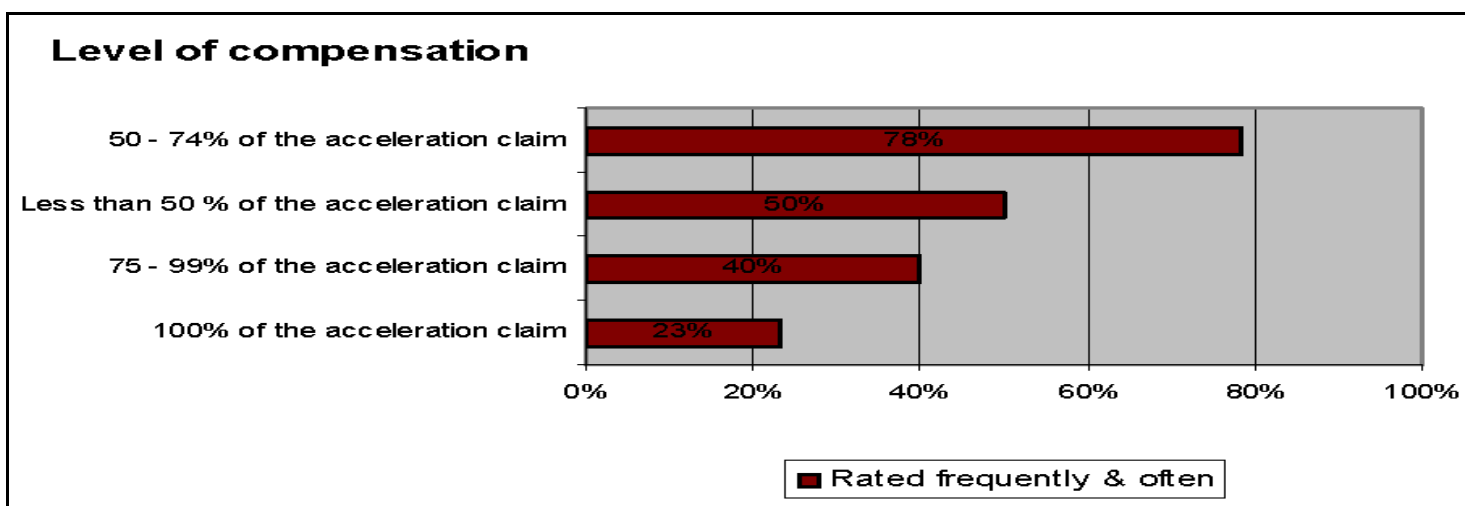


Figure 2: Compensation received by contractors for acceleration claims submitted (Maritz & Schutte, 2006)

This study indicated that even though the mining house or employer is mostly responsible for delays in projects, they also are not willing to pay for acceleration claims made by the contractors.

2.3.2. Claims by contractors against employers and their duties

The usual causes, breach or reasons for claims according to construction law (Loots, 1995) are:

- a) Failure to provide unimpeded access to site;
- b) Failure to supply drawings or instructions in a timely manner;
- c) Failure to supply employer-supplied equipment and material in a timely manner and condition;
- d) Employer's non-disclosure of information;
- e) Employer's active interference with the orderly progress of work;
- f) Failure to pay for design changes;
- g) Failure to grant time extensions as provided for by the contract;
- h) Failure to compensate the encountered changes in site conditions;
- i) Suspension of work;
- j) Termination of work;
- k) Ordering work beyond the scope of the contract (Loots, 1995).

The general conditions for a contract agreement as stipulated by FIDIC indicate that the employer's main duty is to give the contractor the right of access to, and possession of, all parts of the site as stated in the tender (FIDIC, 1999).

It is then explained that the employer shall appoint the engineer (in-house or consultant) who shall “carry out the duties assigned to him in the contract” (FIDIC, 1999, p. 10). Except as stated otherwise:

- a) The engineer shall be deemed to act for the employer;
- b) The engineer has no authority to relieve either party of any duties, obligations and responsibility under the contract; and
- c) Any approval, check, certificate, consent, examination, inspection, instruction, notice, proposal, request, test or act by the engineer will not relieve the contractor from his duties.

The obligation of the contractor is then to design (to the extent specified in the contract), execute and complete the works (in accordance with the contract) and with the engineer’s instructions remedy any defects in the works (FIDIC, 1999).

Finally, the standard FIDIC contract stipulates that if a contractor suffers a delay and incurs costs as a result of the failure, the contractor is entitled to an extension of time for such a delay and payment for any such cost plus reasonable profit (FIDIC, 1999).

FIDIC also states that all outstanding work or remedying of defects shall be executed at the risk and cost of the contractor.

If there are any variations, the engineer shall, as soon as he receives the proposal from the contractor, respond with approval or disapproval. The most important aspect though, is that “the contractor shall not delay any work whilst awaiting a response” (FIDIC, 1999, p. 37).

2.3.3. Research Question 1

Why, in spite of an agreed-upon contract and project deliverables, do parties (contractors and mining houses) have regular disputes regarding the completion dates of a project when approaching project completion?

2.4. Financial implication to parties

The financial implications to both the mining house and contractor are relevant in defending the contractor's preference for an extension of time versus constructive acceleration (employer).

The contractor's profit is based on the cost allocated to the project and includes whatever mark-up is added to that. The contractor's understanding of the required work to be done (scope) is thus critical. The contractor's preference in the type of agreement to be negotiated is also directly linked to the level of design, as well as to the associated risks which will result, and which will affect their contractual position. So, for the contractor it is important to submit any claims for variation to the agreed scope timeously in order to ensure that no revenue is lost due to additional cost escalation.

The employer will typically start generating revenue immediately upon completion of the project. Big mining companies usually evaluate projects mostly based on discounted cash flow evaluations (Musingwini, 2011). The time value of money plays an extremely important role in evaluating projects, and is the main reason why mining houses emphasise completion times. There is a real fear of losing potential revenue, because of time delays.

2.4.1. Financial implications and risks to the contractor

The contractor's main defence in taking up a project with a mining house lies within the type of contract to which he agrees. He would like to minimise his risk and target a profit margin equal to his mark-up over costs. Figure 3

indicates the relationship between the types of contract vs. contractor's incentive and employer's risk. It also indicates that the employer's flexibility will increase as the risk increases.

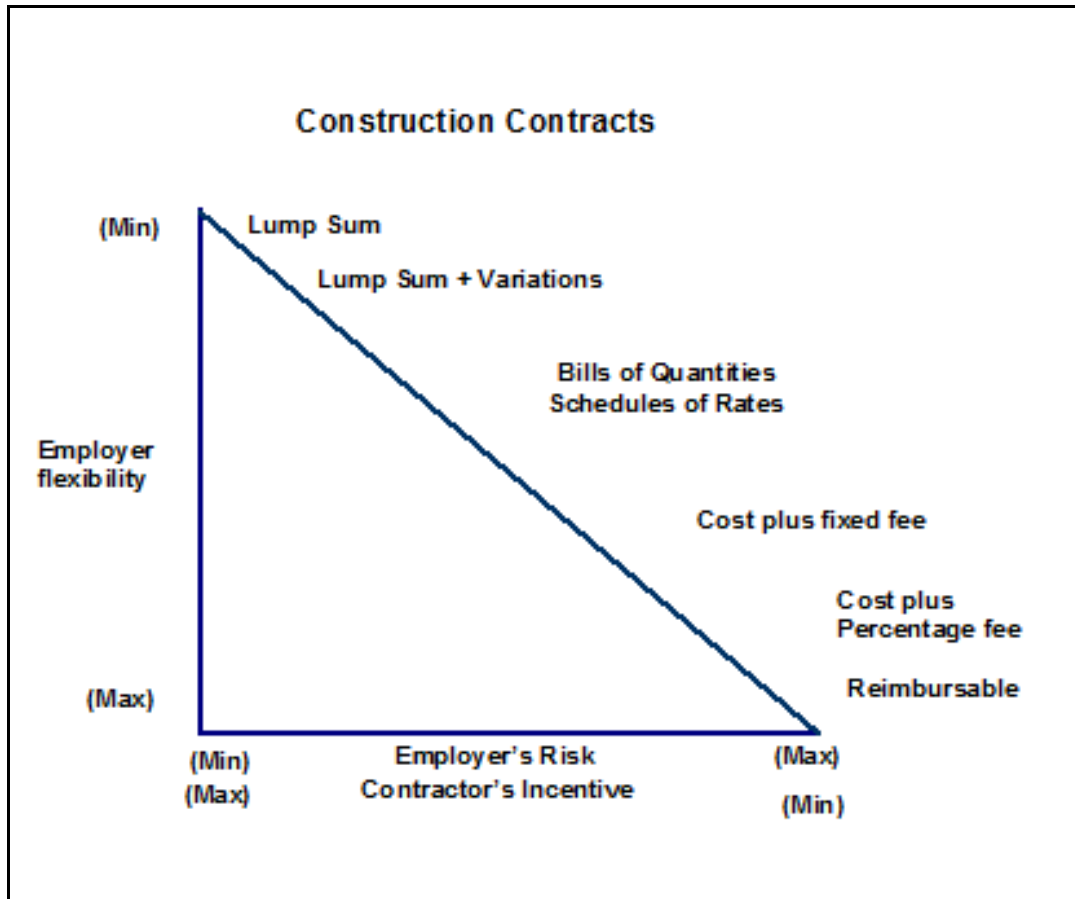


Figure 3: Contracting basis risk and incentive (Loots, 1995, adapted by A. de Waal)

Figure 3 illustrates the basic principle that with the movement to a lump-sum type contract, the contractor's incentive will increase, as too will the risk. The employer's flexibility regarding variation will decrease, although the mining house will carry less risk than the contractor (Loots, 1995).

2.4.2. Financial implication and risk to the employer

The term capital refers to wealth in the form of money or property that can be used to produce more wealth. With an engineering project or economy study,

a commitment of capital is extended over the period of the project. Therefore, the effect of time needs to be considered, with the understanding that a rand today is worth more than a rand in the future, because of the interest (or profit) that it can earn (Sullivan, Bontadelli, & Wicks, 2001).

Due to the time value of money, the employer's main concern is to finish the project on the required completion date. In the mining environment, this is even more important, due to the fact that many of the financial valuations are based on macro-economic assumptions such as commodity prices, exchange rates and inflation. All these assumptions are time related.

2.4.3. Research Question 2

What is the relative financial implication or position for the contractor and mining house to establish the quality of their Best Alternative to a Negotiated Agreement when negotiating an extension of time (by contractor) or constructive acceleration (by the mining house)?

2.5. Bargaining power during renegotiation

A comparison can now be made between the limitations of both the contractor and the employer to reach a settlement regarding the completion date of the project. Leigh Thompson concluded that aspirations play an important role in bargaining behaviour and performance, and that higher aspiration increases higher profitability as well as resulting in more favourable negotiation outcomes (Thompson, 1990). The employer's aspiration constraints lie within the contract, while the contractor's aspiration constraint lies within the South African law (Maritz & Schutte, 2006). The contractor can bind the mining house through the contract that they had agreed upon. The law still forces the contractor to complete the services that he, as supplier, intended to give to the client (mining house).

However, the negotiating counterparts “who perceived a smaller difference in relative power reach agreements of greater integrativeness than pairs who perceived a greater power difference, even after controlling for alternatives and aspirations” (Wolfe & McGinn, 2005, p. 3).

2.5.1. Aspiration levels of negotiating parties on the “Pareto Curve”

Given the aspiration constraints of both contractor and employer, the bargaining position can be plotted on the Pareto curve, to try to establish the “Pareto optimal frontier” (Prietula & Weingart, 2011, p. 86) when renegotiating the construction contract regarding an extension of time. Figure 4 indicates the Pareto curve for bargaining power during negotiations.

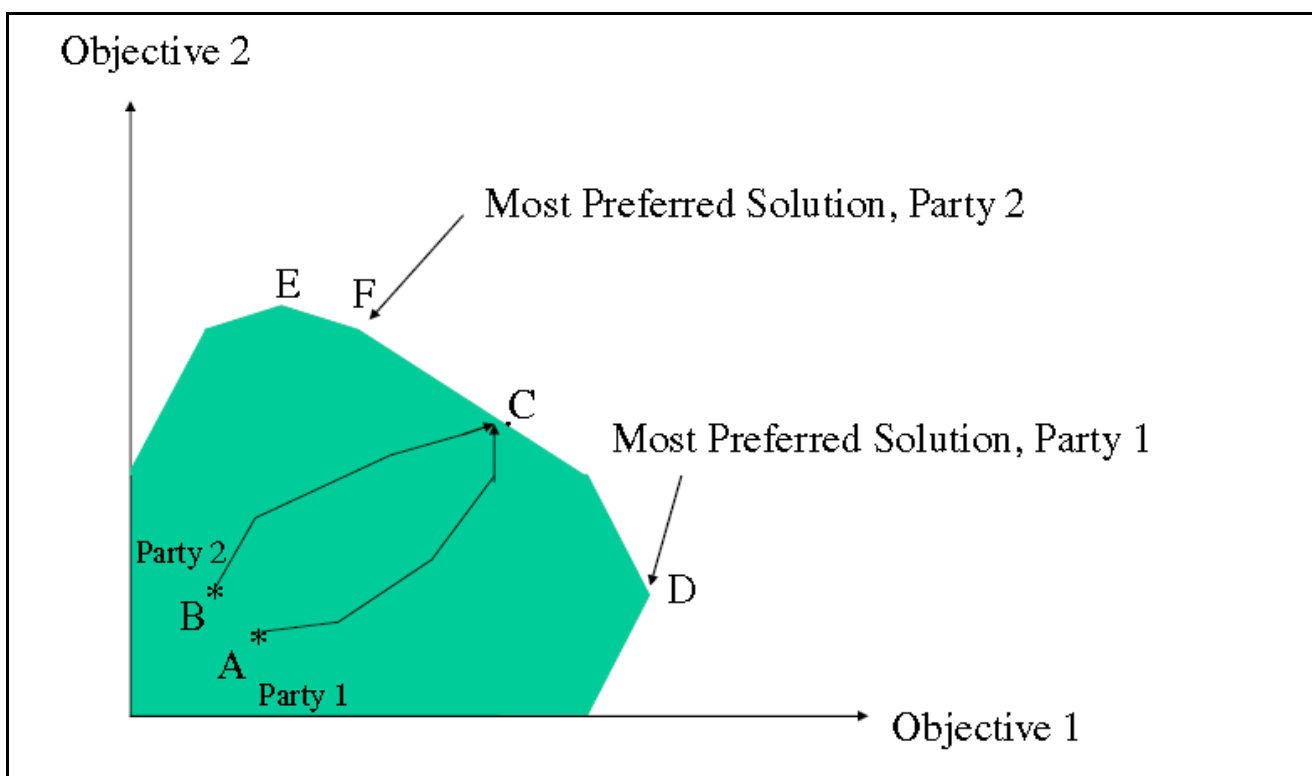


Figure 4: Convergence to single Pareto solution (Kuula & Stam, 2008)

Figure 4 illustrates that as party 1 and 2 are entering in negotiations, they will move away from their most preferred solutions due to aspiration constraints.

This is a change in aspiration vectors that will result in a modified direction. Eventually this converges to an agreement at point C that is known as the Pareto solution (Kuula & Stam, 2008).

2.5.2. Research Question 3

What is the relative bargaining power of both parties regarding negotiating the extension of time on a project, and, what is the balance between achieving their goal and fairness?

2.6. Conclusion of Literature Review

The literature review reveals that both parties do have a case in defending their position regarding their respective stands on extending the time of a project by the contractor, vs. constructive acceleration by the employer. The perceived wisdom is that the contractor has little bargaining power against the mining house, but this might not be true. Few conclusive facts and little evidence on this topic are currently available.

2.6.1. Research Question 1:

Why, in spite of an agreed-upon contract and project deliverables, do parties (contractors and mining houses) have regular disputes regarding the completion dates of a project when approaching project completion?

2.6.2. Research Question 2:

What is the relative financial implication or position for the contractor and mining house to establish the quality of their Best Alternative to a Negotiated Agreement when negotiating an extension of time (by contractor) or constructive acceleration (by the mining house)?

2.6.3. *Research Question 3:*

What is the relative bargaining power of both parties regarding negotiating the extension of time on a project, and, what is the balance between achieving their goal and fairness?

3. CHAPTER 3: RESEARCH METHODOLOGY

This section describes the methodology that was followed to address the research questions stated in the Literature Review section. The literature around qualitative research will be discussed, followed by the research design and instruments that were used in this study. Issues of the data collection and analysis in relationship to this study will be provided, followed by a discussion on the validity and reliability of the study.

3.1. Research methodology

The study used a qualitative methodology in order to collect the appropriate data to answer the questions to the research study. For this study, semi-structured interviews were used because semi-structured interviews are compatible with several methods of data analysis (Willig, 2008). In the chosen subject matter, interpretive research is the most appropriate, because the data is based on the respondent's knowledge and past experiences (DiCicci-Bloom & Crabtree, 2006).

The individual interviews will allow the "interviewer to delve deeply into social and personal matters" (DiCicci-Bloom & Crabtree, 2006, p. 315). The subject matter is negotiations, which could be based on the perceptions of the respondent. The initial phase was characterised by uncertainty due to the strangeness of the situation (DiCicci-Bloom & Crabtree, 2006). But during this phase the idea was to get the interviewee to talk and most questions were open-ended.

Initially the research was unstructured with an unclear resumed picture of the matter, assumed by the interviewer but clarity evolved as the research project developed. Furthermore, especially in phenomenology, ethical issues were considered and it must be borne in mind that a lot of the data is based on the respondent's personal view (Caelli, 2001).

The data was collected in a series of semi-structured interviews with each respondent, lasting between about thirty to fifty minutes. The assumption was made that the respondent was honest and knowledgeable in his particular field.

3.2. Research Design

The research design was compiled in the form of an interpretive study that thoroughly explores, explains or describes the phenomenon of interest on the question of time extension in mining contracts (Marshall & Rossman, 1999). The interviews covered the salient actions, events, beliefs, attitudes, social structure and processes occurring in the context of time extensions to mining contracts.

One disadvantage of using phenomenology as a research method is that initial interpretation of the data is filled with “hesitation or incoherencies” (Caelli, 2001, p. 274) and typically is difficult to understand, but the advantage of phenomenology is that later with “reflection, writing, and rewriting about the phenomenon” (Caelli, 2001, p. 274 & 275) another, deeper level of interpretation of the phenomenon of the extension of time on mining contracts from the perspective of the contractor and the mining house will be created.

3.3. Population and sample

3.3.1. Population

The population for the research comprised senior management or directors who represented mining companies, consultancy firms and contractor companies.

3.3.2. Sample and sampling method

Three senior managers and seven directors were approached by the researcher on the basis that they had extensive experience in construction projects in the mining industry. The interviews were predicated on past project experiences and opinions regarding negotiating an extension of time. The research sample consisted of representatives from the contractor's side, the employer's side, consultant engineers and project managers. This was considered appropriate, because it reveals each party's viewpoint as well as a neutral opinion regarding extension of time in mining projects.

Ten interviews were held, with many of the respondents being represented by both the contractor as well as the mining houses. This added a comprehensive opinion on time extensions in mining contracts. A formal letter of invitation was sent to each respondent.

Table 1: Profile of respondents

Organisation Type	Respondent Number	Respondent Job Description
Mining Company	1	Head of Mining Division
Mining Company	2	Head of Business Development
Consultancy Firm	3	Civil Construction Legal Advisor
Contractor Company	4	Director of Business Development
Mining Company	5	Projects Director
Mining Company	6	Commercial Director
Mining Company	7	Head of Mining Division
Contractor Company	8	Director of Business Development
Mining Company	9	Senior Project Manager
EPCM Consultancy Firm	10	Senior Quantity Surveyor
Total	10 respondents	

3.4. The research instrument

Semi-structured interviews were arranged with practitioners in the mining project environment. Each respondent was approached with a covering letter as indicated in Appendix A and with the indicated research instrument. The advantage of a semi-structured interview allowed for adaptive insight, while the disadvantage was that there might be reluctance to share confidential information or to give sensitive opinions.

3.5. Procedure for data collection

Interviews were pre-arranged with senior managers and directors within the different disciplines in the mining project environment. Most of the targeted companies were situated in Johannesburg and the interviews were scheduled at locations that were convenient to each respondent.

3.6. Data analysis and interpretation

The qualitative data analysis occurred as the data from the semi-structured interviews was collected. This enabled the investigator to generate an emerging understanding about the research questions. This in turn informed both the sampling and the question being asked (DiCicci-Bloom & Crabtree, 2006). The iterative process of data collection and analysis eventually led to a point in the data collection process where no new categories or themes emerged. This is referred to in research as “saturation”, which indicates that the data collection is completed. The saturation level was reached with ten respondents, although initially twelve respondents were intended. The analyst can thus repeatedly immerse himself into the text in reflective cycles, until the interpretation intuitively crystallises (DiCicci-Bloom & Crabtree, 2006). This happens in phenomenology.

3.7. Limitations of the study

The limitations to the study included the fact that the sample was small and was reliant on the availability of the respondents. Possible cancellations of appointments were also a reality, in which case an alternative interview would be arranged. The area on which the study was based i.e. project management is also limited in so far as companies (especially big contracting companies) that can be interviewed are restricted in being able to give an astute commercial response. In this context “astute commercial response” means that there is a clear understanding of rights, responsibilities and financial possibilities when negotiating a contract, as well as the subtleties in changes when it occurs.

3.8. Validity and reliability

Validity and reliability are conceptualised as the trustworthiness, rigor and quality of the research, where through association one can also achieve validity and reliability (Golafshani, 2003).

3.8.1. External validity

Validity determines whether the research truly measures that which it intended to measure or how truthful the end results are (Golafshani, 2003). External validity should be established by comparing the small resource that is available and is well known in the South African Industry to case studies outside the sample used.

3.8.2. Internal validity

Internal validity can be verified by “triangulation”, where a convergence among different sources of information like case studies and literature can be found (Golafshani, 2003). The researcher ensured that internal validity was not compromised and that the data collection process was uniform throughout the

study. The research will be valid to the extent that it is based on well-respected and knowledgeable respondents in their field. Furthermore, data was collected from multiple sources. Research work was conducted by a student who is a mining engineer within the mining industry.

3.8.3. *Reliability*

Reliability is a stability measure, where results are repeated with consistent data outcomes (Golafshani, 2003). The study relied upon well-known and respected professionals, which maximised the reliability of the research. The study sample was a small expert study sample. A trial test was done on a trial respondent before the actual interviews were arranged. A semi-structured interview guide was used to ensure the reliability of the study.

4. CHAPTER 4: PRESENTATION OF RESULTS

4.1. Introduction

All actual interview transcriptions are contained in Appendix A under the head “Actual Research Instrument”. These data were compressed into tables and summarised as per the respondents’ respective business discipline i.e. client, contractor and EPCM consultancy. Each table contains the summary of each respondent’s opinion with bullet points per listed interview question. If the answers were not directly linked to the relevant question, it was still included for interpretation reasons. The objective of this study is also to evaluate opinions and perceptions which could give insight into the relationship between the mining contractor and the client, on the question of the extension of time in mining construction contracts.

4.2. Demographic profile of respondents

The sample consisted of ten respondents. The initial plan was to interview twelve respondents and to split the sample equally as per their discipline groups consisting of the mining companies, the contractor, lawyers and EPCM consultants. After several discussions with operators in the industry it was decided to rather interview individuals with extensive experience in contract negotiations who had completed several mining projects themselves and therefore would have experience in the matter of time extension in mining contracts. Emphasis was placed on the quality of the respondents’ responses. With a small qualitative expert sample of this nature; the use of the individual response produced results which far exceeded the quality of a fair sample distribution. This was a logical compromise that was considered necessary in this research.

Several of the respondents also carried senior positions on both sides of the table. In other words they had deep experience of working for both the client

and the contractor. They could then give a fairly objective opinion regarding the interaction between the counter parties of the mining house client and the engineering contractor. The numbers of respondents on the contractor side were limited, due to the small number of mine contracting companies operating successfully in South Africa. The research was once again driven by the quality of respondents. These respondents represent the two biggest contracting companies in South Africa. The mining companies were represented by mining juniors, mid-tier companies as well as some of the big mining operators in South Africa.

Six of the respondents were directors in their respective mining companies who were either members of their company board or on their steering committees. One respondent was a co-owner of a consultancy firm which specialise in EPCM services and was also intrinsically involved in arbitration and litigation cases in the construction industry. Three of the respondents were senior managers within their companies, with extensive experience in a multitude of different mining projects over the years.

4.3. Results pertaining to Research Question 1

The reasons for disputes when approaching the end of the project were broken down into: commercial competency of project management teams; reasons for disputes; and, the general relationship between contracting and mining companies in South Africa. The results are summarised in Table 2.

Table 2: Summary of respondents on Research Question 1

Client	• Top management was usually more commercially astute. Lower levels were less commercially competent. Lower levels were quite often drawn into bribery by contractors. Mining companies use EPCMs as client's representatives for larger projects. EPCM over-charge mining companies.
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	• Most disputes were due to poor project management and poor project controls. Only bigger projects got the necessary attention, regarding controls and management. • Positive relationships between contractors and mining industry are essential. Mines need their specialised skills. But little trust in that relationship was recorded.
Client	• Management teams did not possess the necessary project management skills. Mostly operational background. Little knowledge of “contract law”. • Disputes arise at the end of transaction, when the contractor is often of the opinion he will not work with the client again. Unpopular issues were not addressed during the actual project. Scope was not properly described in contract. • Relationship initially good in the mining contract. This tends to get worse as time progress and frequently moves into a blame culture by the end of the process.
Contractor	• Mining houses are commercially competent. Grey areas are due to poorly-defined scopes of the contract at the outset. • Disputes at the end of a contract are often due to poor understanding of the scope. Not enough studies are done at the outset to define the scope. Parties do not deal with changes immediately, because this creates disputes. They do not look at the overall picture. Acceleration is very limited. Contractors use acceleration as a bargaining tool. Contractor doesn’t want to irritate client with change claims and term of reference even when these are important. • Trust is very important to relationships. Contractors need to

	ensure trust and delivery.
Contractor	• Client less contractually astute. Client uses EPCM's as client representatives. Contractors are constantly exposed to change situations in contract (more exposure to transactions), while client is irregularly exposed. Contractors exposed to diversity of clients, EPCMs etc. Contractors do not exploit this diversity of clients otherwise they could have made more money. Contractors are more survival orientated. • Disputes at the end of a contract are due to contractual conditions. Poor efficiency because of the way that the contract was designed. Contracts are often not driven by productivity. Management tends to lose sight of the overall project deliverables. Smaller projects are executed better than larger projects. Maybe complexity or time duration of project causes more disputes. The number of communication channels makes it more difficult because this impairs the ability to achieve sufficient consensus. It creates wicked problems. • Relationship based on trust. Individuals usually have some relationship (client with contractor). Trust is good in the beginning of the contract and gets worse over time. Reputation of contractors drives company's success. (reputational risk)
Client	• Commercial competence is variable. The client requires more technical competence. Commercial issues are standard and mining companies use specialists. • The contractor does not achieve what he promised. Contractor tries to retrieve margin at end of project, through claims. Clients try to defend their late starts. • Relationship varies from company to company. Maturity plays a big role. Some clients are very antagonistic towards contractors.

	Size of company not really an influence, but rather individual relationships. The culture of a company also plays a role in the general relationship.
Client	• There are poor commercial competencies. There is usually a very complex technical agreement between parties. Because it is technical, there is more technical input in the agreement. Then negotiating the terms and change process is very poor. Contractors try to sell and do not challenge client. More time is needed to do up front negotiations. • Discussing changes and extensions is awkward, because of the additional cost that is involved. The client is dependent on the contractor to finish work. The contractor is dependent on monthly payments. Both postpone those discussions to the end of project. Contractors also have more power at the end of project to fight for money (they won't lose contract). Parties would rather fight than go to litigation or arbitration, due to the costs involved. • Both parties are dependent on each other. The mining industry is actually very small and everybody knows each other. Contracts start off on a trust relationship.
Client	• If it is a business event and not emotional event, then commercial competencies are good. Companies use QS companies to assist. Generally in industry there is major room for improvement in commercial skills. • Project teams do not do forecasting and compare with the current situation or calculate what they need to do to get back on track. There is no immediate communication with the contractor. • A good relationship is critical for project success. The scope needs to be very clear to both parties. Relationship goes wrong when parties are not clear on their rights and obligations.

	Selection of contractor is critical to the relationship. Upfront work extremely important. What is the maturity level of operators?
Contractor	• They are commercially weak and that's why companies employ lawyers. Use commercial issues to protect against risk and bad project management. Clients become more commercially astute as they are converting FIDIC & NEC's into their own documents. Project management are not conversant with contract documents. • Issues are not addressed and recorded during the contract and properly addressed in the contract itself. There are changes in institutional memory. Issues are not included or are vaguely mentioned in the contract. Companies leave it out purposefully to be able to negotiate later. • In South Africa there is an adversarial relationship between contractor and client. Clients use to use the "bespoke" or FIDIC type contract. Move now to NEC contract that closes the relationship gap between client and contractor. SA Mining industry mostly A-type people.
Client	• It depends in what context. Employer team always starts with disadvantage when negotiating, because of contractor's exposure. Clients team mostly generalists, thus more exposed to contractor's superior commercial knowledge. • Contract was not administrated and managed properly. Change notices were not submitted timeously. People only start fighting when they understand the actual cost or impact. Don't understand both parties' obligations from day one. The contract was not sufficiently compiled upfront. Contractor uses this as leverage to make additional money. • Most mining projects are of high value and long duration. Any down side is of high significance. For mining companies it is

	about profitability and for a contractor it is their livelihood. It takes a long time to agree on legal terms. Need a lot of technical and commercial people. The first phase (contract formation) is the most aggressive, but it is critical to establish relationships for project.
EPCM	• South African industry has a high skill level in the project environment. It has also improved in the last few years. Some projects not good, but generally better than other countries. • Parties are not dealing with issues immediately when the changes occur. Both parties are misunderstanding the scope. Contractors are not applying the right management skills across their business. Maturity level of design is low. • With smaller projects, mines tend to use the same contractor who “milks” the client. There is a lot of bribery with lower level supervision.

4.3.1. Commercial astuteness

The general response to the first research question was that top management might be more commercially astute, but that project managers who are actually managing the project, are less commercially competent and contract conversant. The mining companies tend to hire EPCM consultancy as representatives in this scenario, as they are supposed to be specialists in the field of project management.

Contractors generally believe that mining companies are less commercially astute. There are also a few mentions of the fact that contractors are exposed to more projects and that they thus have had to deal with more contract disputes and that they are definitely better adapted to defend themselves regarding contract conditions.

Interestingly enough, it is clear that most of the client's management level are seen as generalists or "production people" with few project management skills. The same applies to lower management levels within the contractor companies, where it is evident that most of their recruits come from mining companies and from day-to-day mining operations. So, they too are not well exposed to the constant challenges that an ever-changing project management environment poses.

4.3.2. Reason for disputes

The main reasons for disputes between contracting and mining companies can be broken down into categories: how the scope of the project was defined; what contract was agreed upon; how the project progressed and then the close-out of the project.

It is clear that scope definitions are mostly extremely poorly carried out and defined. This is mainly caused by not doing enough upfront work by means of trade-off studies, pre-feasibility and feasibility studies etc. to ensure that the scope for the contract is clearly defined. This may cause the level of design of the project not to be suitable for construction purposes.

When the scope is defined and the tender is rewarded, then the contract between the parties needs to be agreed upon. One main reason mentioned for disputes at the end of the project, is the fact that the contract was not properly compiled at the beginning of the project. Many important points are either excluded or included very vaguely in the contract conditions. In many cases this is purposefully done by both the contracting parties. The client will exclude conditions to enable him to bargain until the end of the project. The contractor will do the same to enable him to negotiate more claims at the end to increase his revenue on a project.

The contract conditions can also dictate when claims are brought against the client. This is contained in the FIDIC or the NEC standard contracting model.

The conditions of the contract can also be compiled in such a way, that it is counter-intuitive towards operational productivity. For example, the contractor is paid in units which do not provide incentives for work to be done more quickly. Neither the client nor the contractor, understand both their roles and their obligations towards the project, as stipulated in the contract.

During the execution of the project, the contractor is initially very optimistic as to what they can deliver, but seldom achieve what they promise in their tender documents. Often the client does not make the site available to the contractor at the agreed time thus automatically delaying the start dates.

There is very little or poor project management and project control in place during the start of the project. Managers forget to keep the overall project objective in mind and try to micro-manage the project too much. This sometimes results in the client not tracking the value change of the project over time and also does not sensitise the contractor on the effects of these value changes.

Discussion about changes is a very awkward discussion, because of the additional costs that will result. Furthermore, the contractor does not want to irritate the client with change claims during the execution of the project. The two parties then postpone the discussion to the end of the project in order to keep the relationship in good condition during the execution of the project. This frequently results in unpopular and sensitive issues not being addressed immediately when they arise and such discussions are left till the end of the project often resulting in conflicting views.

When a change occurs, the hierarchy levels of communication can make it difficult to mitigate any cost or time effect. This is why more complex and bigger projects often seem to cause more disputes. In smaller projects it is sometimes proper project principles that ultimately cause disputes between the client and the contractor. Changes in “institutional memory” also cause disputes, when a manager moves to another project or company and suddenly

things are said or done differently or even omitted. Mining companies are usually more formalised in their company management style and principles than contractors.

Close to the end of the project, the contractor will become more aggressive in his approach, because he knows that the client will not get rid of him at this late stage. The contractor may even feel at the end of the project that he will be relieved not have to deal with this client ever again, which tends to increase the aggressiveness of the manner in which he will approach the negotiations about his claims. At the end of the project, both parties will know and understand the actual cost implication in terms of a number, which will give effect to the dispute. During this time, it seems, both the client and contractor would rather have heated discussions in the boardroom to resolve any disputes, in order to avoid any formal legal resolutions.

4.3.3. The relationship

All respondents agreed that the mining company and contractor relationship is a very necessary relationship and they all put a lot of emphasis on trust. The contractor always needs to win the trust of the client and the client always struggles to trust the contractor. There is also a strong feeling that the relationship between the contractor and the client starts off stronger, but weakens over time. Reputational risk is also strongly linked to how much the client trusts the contractor. It was mentioned a few times that bribery and corruption on the part of the contractors does happen and that especially lower level supervisors are drawn into the relationship.

The initial relationship also often starts off when one or two individuals from both parties know each other and this helps to create a scenario where the two parties tend to work better together. Mining companies can be very antagonistic towards contractors and this is often due to the particular culture of that company. The maturity of the parties involved is very important in this kind of relationship, because in South Africa there is mostly an adversarial

relationship between the contractor and client in the mining industry. This is sometimes explained as being the result of the perceived fact that South African mining operators are usually A-type people who like to bang tables to make their point.

Because mining projects are of high value and of long duration, there will tend to be bigger confrontations, because any downside will be of significant value. There is also much to fight for, because for mines it is about profitability and for the contractor it is about their livelihood. The initial phase of agreeing on a contract is also seen as a critical relationship building phase. This phase is also very aggressive and a lot of highly skilled manpower goes into this phase to negotiate the contract.

4.4. Results pertaining Research Question 2

To determine the quality of BATNA to each counter party, the financial implications for each respondent was identified in the case of both extensions of time and acceleration of work processes and thereafter by their approach in defending their financial position when re-negotiating completion dates. The results were summarised in Table 3.

Table 3: Summary of respondents on Research Question 2

Client	• Usually there are penalties associated with a contract if it is late. Generally, projects do come in late. Mining companies do allow for contingencies, which are additional costs upfront. Contractors know this and then quote higher. • Revenue implications are one of the biggest factors. Sometimes additional costs are allowed to ensure delivery on time.
Client	• It depends on the commodity price. If it is high, you can afford additional costs. If it is low, then it is less important to accelerate

	the project. Acceleration is always at a premium. To get the best possible return on investment. You must improve your NPV. The other consideration is safety. Acceleration is sometimes a risk to safety.
Contractor	- Acceleration can only be done up to a point. This needs to be avoided. Extension of time is due to poor planning. Need early warning systems for client to mitigate additional costs. Acceleration has an effect on quality. - The closer to the completion of a project, the less opportunities there are to do changes and thus the higher the impact on the project. Need to do homework before going into negotiations.
Contractor	- Every project over runs, because initial cost estimation is full of mistakes. The contractor can only cost defined scope. Contractors plan a profit of 15% to 20%, but always end up making half of that. Time extension gives job security to contractor employees. If the scope is reduced, then contractors carry additional labour. - The scope is not clearly defined. You can never have a scope clearly defined. Using P & G's, difference between times related and fixed items. There are many variables in mining projects. Mining engineers are over optimistic with feasibility studies. Contractors price too optimistically to get the job.
Client	- IRR and NPV are absolutely dependent on achieving the planned schedule. Delays will kill the financial return. Contractors will try to increase their man-hours to get more revenue. - Depends on why the project runs late. Maturity of the client plays a role in how realistic the budget and schedule are. Scope

	defines the schedule. Need to spend more time to define scope. Allow contingencies for delays.
Client	• A schedule is pre-determined on the basis of the business viability. Most cases are unrealistic. Not sufficient allowance is made for float. Acceleration always cost extra money. • Save as much money as possible as well as additional risk. Bring project in on an approved budget. Client will push contractor into a better deal.
Client	• All projects always overrun. Don't know what changes will come. Do constant financial evaluations to test IRR and NPV, to know what levers in costs are. A good contract and good communication system must be in place. One cannot transfer all risk to contractor. Must have equal basis of risk. Contractor must always perform better than the client can do it themselves. • Have procedure to notify the Board of any implications . Get mandate signed off. Sit with contractor and evaluate cost and schedule implications. Test it against the NPV and apply for additional funds.
Contractor	• When a contractor is late due to his own actions, and then he needs to accelerate. When a contractor is late due to issues beyond his control, then the cost is to the client. It should be clear in the contract. Acceleration is very limited due to shift arrangements and "attacking" points. Contractors do not cover consequential costs (opportunity costs). • Would argue that reason for being late is beyond the contractor's control. NEC contracts have the best mechanism to make early warnings. It gives that warning long in advance. Then ask for extension of time. When they say yes, but need to catch up, ask

	for additional money. Must be clear in the contract upfront. Lower level of debate.
Client	• There are three cornerstones of a project, cost, schedule and scope of work. In SA contracts costs are broken into P & G's and Direct Costs. Fixed P & G's and Time-Related P & G's. With project extension, the contractor will claim time-related P & G's, but there are consequential costs as well. Increase in scope of work will have a cost increase. With acceleration you will incur additional cost, but get the advantage of revenue flow. Tactically not good, because this increases the contractor's bargaining power. Causes additional risk and influence on other contracts. In SA consequential costs are excluded. • If you do not have the three cornerstones sorted - no contract. There are always a lot of legal issues around these three cornerstones. If you re-negotiate, you go back on one of these three cornerstones. If you change the scope, there will be an impact on the price and schedule. If the contractor put an extension of time claim in, he needs to base it on something.
EPCM	• You base a project on what will give you the best financial result. Balance between cost and schedule. There's a logical duration based on the resources in a project. Time-related P & G's are normally the bigger component of the cost. Contractor will always try to extend a project to increase his revenue. • Re-negotiating is normally done by a team of specialists. Need to look at technical and financial aspects. Smaller companies have higher aspiration levels than bigger companies.

4.4.1. Financial implications

The client's financial objective is to get the best NPV and IRR from the project as possible. The schedule is pre-determined, based on a business case and the commodity price forecast. In most cases these schedules are unrealistic, but mining companies do allow contingencies for risk in the project. Both acceleration and time extension will add to the client's project cost. The issue here is the consequential or opportunity costs lost due to late revenue, when the project is extended. Contractors can also load additional cost onto the tender, due to the knowledge that client will plan contingencies.

In a good economic climate, where the commodity price is good, the client will allow additional cost going into project acceleration to get the advantage of early revenue flow. But this is tactically not a good decision, because the contractor's bargaining power can increase when negotiating the cost involved. Acceleration also has a negative effect on the quality of execution of the project. But any delay will have a negative effect on the client's financial return.

Constant financial evaluations are critical to search for an opportunity to mitigate any changes in scope on schedule and cost. Although the risk should be shared equally, the contractor should be able to complete projects more quickly and cheaply than the client could have done by himself. In South Africa, all consequential costs are excluded in contracts, so the contractor cannot be held liable for any possible future revenue lost due to poor project performance. Usually there are penalty clauses for non-compliance involved in any contract.

The contractor's cost structure is broken into preliminary and general costs and then direct costs. The preliminary and general costs are broken into time-related and fixed costs. If the project is delayed for any reason, and the client agrees to this delay, then the contractor's time-related costs will increase. If the project is accelerated, the time-related costs might decrease, but additional

resources may need to be added onto equipment and labour. The relationship between resources and time is non-linear, which will create a sub-optimum costing structure.

When a contractor is late due to his own actions, he needs to accelerate at his own risk. If the contractor is late due to issues beyond his control, then it will be to the client's cost. Acceleration is often very limited due to shift arrangements and attack points in the project. There are normally overruns in costs and schedule, due to errors and omissions in estimates. Contractors will often campaign for project delays, because this will increase the job security of their employees. Any early completion of a project will mean that the contractor will carry additional labour costs. Acceleration may affect the quality of the project and may also carry additional risk in safety exposure and labour-related exposure to the contractor.

4.4.2. Defending the financial position

When defending the client's financial position when the counterparties are re-negotiating the completion date, the client will first take his revenue implications into consideration. For this reason, the client might agree to additional costs in order to complete the project in the agreed time duration. Safety considerations might outweigh the return on investment, but usually only up to the point when the project starts to become marginal. It also depends on how realistic the budget and schedule estimates were at the beginning of the project. The client needs to be mature when re-negotiating any change in scope. The client should have also allowed for float or contingencies in the schedule. The client will try to save as much money and risk as possible and try to push the contractor for a better deal. The client can also sit down with the contractor to evaluate alternatives, test this against the project NPV and then go to the board to get a mandate to pay additional costs for a scope change.

There will always be legal issues when re-negotiating a contract, because this will have an impact on time and the cost or the scope of the project, and the contractor must base his claim for additional time on very good reasons. In these situations smaller companies tend to be tougher negotiators with higher aspiration levels, because individuals are held responsible for the project funds.

When defending the contractor's financial position, the contractor is aware that scopes of project are never clearly defined. The costing structures defined in the fixed and time-related preliminary and general costs will be used to indicate the effect of any acceleration or extension on the original contract value. There are more variables in mining projects than construction projects and contractors tend to price too optimistically to ensure they win the tender. Therefore, the contractor will argue that the reason for being late is beyond his control. He will ask for an extension of time.

If the client wants the contractor to try and catch up with the original schedule, he will ask for additional money. These types of issues must be clear in the contract upfront. The contractor generally prefers the NEC contract, because it gives the client an early warning upfront. The level of debate and antagonism will usually be minimised by a clear contract. Furthermore, the closer the project is to completion, the less opportunities exist to make changes. These changes can also then have a bigger impact on the outcome of the project cost-wise.

4.5. Results pertaining Research Question 3

To determine who has the most perceived bargaining power and to test the parties' aspiration levels, the questions were posed as to who the respondents thought had the most bargaining power, the positives and negative aspects of acceleration or extension and the reasons for poor scope definition and change control. The results were summarised in Table 4.

Table 4: Summary of respondents on Research Question 3

Client	• In most cases the contractor has the bargaining power. Clients don't want to change contractors late in the project. • Any acceleration comes at a premium. But you need to consider your revenue stream. You might still get the benefit of early production. • Projects are not usually well planned upfront. Quality of project management is generally poor.
Client	• If the contractor has several projects in line, he has more bargaining power. If there is not a lot of work available, then the owner is in a better position. If there is reputational damage to a contractor, he is in a worse position. • You create more urgency. Force people to look differently at the projects. Sooner you complete, the sooner you get a return on investment. Acceleration costs more money. Quality goes down with acceleration. • Not a clear scope. Not following all procedures to define scope. Contractors realise it, but do not highlight this in the beginning in order to avoid confrontation.
Contractor	• In the beginning power lies with the employer. In a poor economic environment, the contractor will bend backwards to get the work. As the project goes on, it get to a phase where the client must either get rid of the contractor or endure him. • You mitigate the delays. It will cost you money with no linear relationship. Too many working hours can demoralise the work force. This can lead to high staff turnover and thus the need to go

	through learning curve again. • Depends on contract model. Client doesn't know what he wants, contractor thinks he knows what the client wants. Not going through all the design phases to define scope. Need to do change control immediately and confront client immediately (fear).
Contractor	• Negotiating power lies with the EPCM or QS Company. Though the client is sometimes more commercially naïve, the contractor knows that the client drives his future work. As time progresses, and the work gets closer to completion, the contractor ends up with more bargaining power. • A mining house investigated IRR and NPV to motivate a business case. Mining juniors borrow money, but overrun on budget. Had they known this, they would not have a business case. Project comes to a halt. Single entry, like a shaft sink, has little chance of accelerating. • Try to defend the original scope. FIDIC only highlight variations at the end of the project. NEC is more progressive, but requires more administration.
Client	• The client has the most bargaining power. It can change towards the end of a project because you get to a point where you and the contractor are in bed and it is impossible to divorce. • To bring the project back on schedule. It is important to understand how realistic the budget and schedule are. If the contractor is already working excessive hours, little opportunity for acceleration exists. Need to allow float. Lead time on equipment also becomes a problem. • Sometimes the client doesn't know what he wants. The client changes his mind midstream, and then there is not enough

	information available. They don't always follow change control procedures, because of administration difficulties. There are different definitions of what is a change of scope. Need contingencies for errors or omissions.
Client	• The owner has more negotiating power, if the project is completed, the contractor did the work and he only needs to reclaim his money. Where additional cost was brought to the attention of the client and acceleration or delays need to be negotiated, then the contractor has more bargaining power. • FIDIC forces the contractor to accelerate if client requires this. The contractor has no financial resolution upfront. The contractor's only remedy is to use the legal route. Work actually gets done. Negative relationships often develop due to commercial disputes. Try to avoid constructive acceleration. • Poor drafting of contracts. Client describes scope very vaguely to manipulate contract later on. If the contract is vaguely written, then the contractor can deliver less. Discussion around scope variances is awkward discussion, thus often being delayed. There is fear of rejection. If not submitted, client cannot mitigate situation financially.
Client	• If they know the client doesn't have the skills, resources and management, and then power lies with the contractor. If the market conditions are poor and the client has enough skills, then leverage is with him. It is a supply & demand issue. The longer a contract, the more dependent you become on the contractor. • It is all about the financial situation. If no profit gain, do not accelerate. Look at the bigger picture. • Too much administration. Too lazy to do it. People delay

	confrontation till too late. There is poor scope definition.
Contractor	• Before the contract is signed, the client has the bargaining power. Then it depends on how the contract was compiled. • Chance of improving on program. You have used all available options and then there is no room to manoeuvre. Matters become more complex to manage. More labour and related issues emerge. Contractor increases revenue. • Appoint wrong people as project managers. Project managers do not understand the contracts.
Client	• The power lies with the contractor. Before the contract is signed, it lies with the client. The moment it is signed, it swings towards the contractor. • If you dictate the duration of project, the contractor will have an unrealistic estimate or sub-optimal cost structure. This is an opportunity to manipulate P and G costs. • Too much administration. Just want to get on with the work. The type of contract also dictates. Not enough people to administrate the contract. Don't understand the contract. Contractors submit change claims for more money.
EPCM	• The bargaining power lies with the person not responsible for the change. If there is no competition for the contractor, the client is also vulnerable. • Get better value for money. Longer time, longer to manage risk. Revenue stream earlier. Accelerate beyond critical point, where you lose productivity.

	• Wrong choice of project team. Not enough skill and experience.
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4.5.1. Bargaining power

From the response it is clear that bargaining power is time related over the project duration. Before the contract is signed, the bargaining power lies with the client. The perception changes when the contract is signed. Most of the clients feel that after the contract is signed power swings towards the contractor. Some believe that bargaining power lies within the supply and demand of services. If the contractor's order book is full, he would in certain circumstances have more leverage on the client. The reputation of the contractor also plays a major role in how strongly the contractor can negotiate. The perception that the client is commercially naïve was also mentioned and that he needs to employ EPCM and QS companies to assist when negotiating projects. In the early parts of the project the bargaining power can vary from who is responsible for any scope variance to the fact that the contractor will not rock the boat in the early stages of a contract. But, as the project progresses, the client becomes more reliant on the contractor. This gets to the phase where it is too difficult to "divorce" from a contractor at the end of the project. Here the bargaining leverage lies fairly with the contractor.

4.5.2. Positives and negatives of acceleration

The positive aspect of acceleration is that it creates more urgency within a project. It can force the project team to look differently at a project and to initiate new ideas. It mitigates delays in the project and pushes the revenue stream of the project forward again. The contractor can increase his revenue. If a contract is delayed, the client needs to manage risk over a longer period.

The negative aspect of acceleration is that it comes at a premium. Quality is often sacrificed with acceleration. There is no linear relationship between the money spent on acceleration and the actual productivity of it. There is a

danger of overworking the workforce and thus demoralising them. This can create a high turnover in staff, which forces the training of new people once again and that is an additional cost to the contractor. Most greenfield projects only have one attack point, which is almost impossible to accelerate. If there is little float in a project and the contractor is already working excessive hours, there is little opportunity for acceleration. Long lead time for acquiring equipment also makes it impossible to accelerate.

When using the FIDIC contract model, the contractor is then forced to accelerate if the client requires it. Then the contractor's only remedy is to use the legal route. This has a negative effect on the client and contractor relationship, which often leads to commercial disputes. Acceleration forces the contractor to use more labour on site, which makes the project more complex to manage due to the additional labour-related issues. When the client dictates the duration of the project to the contractor, then the contractor is forced to have sub-optimal cost structures, which gives the contractor an opportunity to manipulate the preliminary and general costs.

4.5.3. Poor scope definitions and change control procedures

Frequently, clear scope definition and change control is poorly executed, due to the fact that projects are insufficiently planned upfront and the quality of project managers is inadequate. Not enough studies define the scope of work properly. In many cases the contractor realises this, but does not want to highlight this, because it might cause confrontation. In many instance, the originator of the project tries to defend the original scope, even though it is not correct. Contracts are often very poorly drafted. Clients describe the scope vaguely in the hope that they can manipulate the contract towards the end. Also, if the contract is written vaguely, then the contractor can deliver less.

Change control is defined in the type of contract used for the project. FIDIC only highlights variations at the end of a contract. NEC is more progressive and highlights the variation immediately. But this creates an extremely large

amount of administration. People are lazy and try to avoid too much paperwork by not highlighting scope changes early enough. Due to fear of rejection and the awkward discussion of scope changes, the contractor is afraid to submit his scope variances. The fact that people do not fully understand the contract, also causes delays in submitting change orders. To properly administrate all the scope variances, a lot of people need to be appointed, which is not always possible. The two parties' definition of scope variance can be different and that too can cause confrontations and further time delays. Many times the client believes that the contractor is only submitting change claims to make more money.

4.6. Summary of the results

From the results it can be concluded that the relationship between the client and contractor is generally adversarial in nature. Contractors are usually commercially more astute than the clients, due to their wide range of contract and project exposure. The client would like to have his project completed within budget and time, due to the start of his revenue flow from production. The contractor on the other hand would rather have the project delayed because this will increase his revenue and put less strain on his resources. The client though, does not get the advantage from acceleration that he really wants. Acceleration can make it difficult for the contractor to maintain quality and productivity. Scope definitions fall squarely under the responsibility of the client and can be used as a bargaining tool by the contractor. Over time, the contractor's bargaining power will increase, because it becomes too difficult for the client to get rid of the contractor. Both parties will try to avoid any legal resolution, due to the costs involved.

5. CHAPTER 5: DISCUSSION OF THE RESULTS

5.1. Introduction

Discussion of results of this research is based on findings from the semi-structured interviews. These findings are then compared with the literature review. The research questions are discussed and any similarities and contrasts are commented upon.

5.2. View on respondents

The initial thought was that being engineers, the responses would be reasonably short, even though all questions were quite open ended. Most of the respondents had strong opinions, which is a clear indication of the type of people working in the mining industry. It was also noteworthy that respondents on the client's side, who had previously also worked for contracting companies, were very much more forthcoming towards contractors. The respondents whose employment histories were mainly within a mining company seem to be less trusting of their counter parts.

The same applies to contractors who mainly worked for contracting companies as they seemed to be happy to work hard on a good client relationship. However, respondents who worked for mining companies before joining contractors, seems to be less vulnerable to client's "bullying tactics". This can be explained by the fact that they know what the client wants and they understand the leverage on both sides of the negotiating table.

All respondents are highly experienced professionals, but from the interviews it was clear which respondents had a strong capital projects background versus those with a more overall business view and who manage projects only as part of the bigger picture. It was also striking how the contractor could mention the

types of contracts that are used, while the clients weren't really forthcoming on that type of detail.

5.3. Disputes regarding completion dates at the end of the project

There is a general perception in the mining industry in South Africa that mining companies and contractor companies have a very adversarial relationship. The reason for this is that the client generally struggles to trust the contractor.

The reason for this distrust may be found in the level of commercial astuteness of the two counter parties. Contractors are generally more “commercially competent”, because contractors are constantly involved in competitive tendering on different projects. Their business is project based, so they have seen many varieties of good, bad and indifferent projects.

For the mining companies, projects are either part of their expansion plans or business replacement plans. Many mining managers are exposed to a big project only once or twice in their lives. Therefore the client is not always sure of the advantages or pitfalls in a construction contract, or do not clearly understand the contractor's pricing structure and therefore do not completely trust what the contractor has to offer. For this reason, mining companies tend to hire EPCM consultants and quantity surveyor companies to represent them in negotiating the contract and to manage the contractor. This can create more problems, because the client ends up with paying additional costs to manage the project managers.

The relationship between the contractor and client starts off well. The morale is good, with the excitement of the project as a new challenge. The scope of the project is defined. The client provides the project scope to the contractor and the contractor has his own understanding of that scope. The contract is agreed upon by the main negotiators on the contracts who are mainly senior managers. The executors of the project do not understand their roles and

obligations. Often the client starts the project late or access is granted late, due to a late approval by the client's board.

While the project is in progress, the contractor realises that some of the designs were not included in the project, or some detail was excluded. This immediately requires a change in the original scope. The contractor ignores this, because he does not want to aggravate the client so early in the contract, often because the client has a clause in the contract which enables him to get another contractor if the original contractor does not perform as agreed. Furthermore the contractor cannot claim any recompense until the whole contract is completed (Maritz & Schutte, 2006). The client is therefore not aware of these potential additional costs. The costing structure of the project is such that the contractor does not need to work faster, because he can claim for time-related costs.

The results of the research concur with the items on a project that typically cause disputes. (Maritz & Schutte, 2006) namely:

- Substantial increases in scope of work
- Late information from the employer
- Numerous variation orders
- Failure by the employer to provide access to the site
- Mismanagement and/or poor site organisation by the contractor himself
- Errors in contract document
- Labour unrest and labour disputes

All these issues happen through the duration of the project and extend the project end date. The client is not constantly aware of the value change of his project. When the project approaches the baseline completion date, it is

impossible to “divorce”, this enables the contractor to defend his claims more aggressively.

The client now becomes aware of the actual additional cost and extension of the completion date, but insists on completing by the original agreed date. The client calls for constructive acceleration, but acceleration is very limited because of available shift time and limited float, as well as the optimum resources that can be used.

At this stage the contractor is quite willing to part ways and not to work with this specific client again. He had done the work and insists on all additional claims which are in the standard FIDIC contract. These stipulate that if a contractor suffers a delay and incurs cost as a result of the failure, the contractor is entitled to an extension of time for such delay and payment for any such cost plus reasonable profit (FIDIC, 1999).

There is then a dispute as to who is actually responsible for the delay and what is actually due to scope changes and what is not. Both parties then revert to the original contract. It is then found that the contract excludes some items or that some conditions are very vaguely stated. This might actually have been done purposefully by the client, because then the client has bargaining opportunity at the end of the project, while the contractor has leverage to negotiate additional claims to increase his revenue.

Both parties would rather have heated discussions in the boardroom than revert to legal resolutions. The costs of any arbitration or litigation process outweigh in most cases the actual additional costs of project extension or project acceleration. Generally, where people take matters to litigation or arbitration is when there is pride or principle involved and not due to the business case.

The basic causes for disputes at the end of a project are:

- Poor scope definition

- Contractor not sensitising client to any change timeously
- Client not re-assessing the project continuously

All these issues are contained in the type of contracting model used. The FIDIC model dictates that claims are brought against the client only at the end of the project. The NEC model allows for an early warning system to sensitise the client immediately when a change in scope occurs. This contract model can assist the client to deal with scope changes immediately.

Contracting companies prefer the NEC-type contract, because the contractor can claim immediately, which will improve his cash flow. Mining companies prefer the FIDIC type contract that allows the delay in any additional costs caused by changes, which in effect improves the client's cash flow situation. This then, ultimately exposes the client again to possible project extensions through delays caused by scope variances.

5.4. Finding the best alternative negotiated agreement

To understand the BATNA of both parties, one needs to understand the financial implications of any change in project program and how each party will defend their stand to reach their preferred outcome of the negotiations.

The client bases the project on a business case determined by feasibility studies that were completed beforehand. From the feasibility studies the client reaches a favourable NPV and IRR and decides to go ahead with the project. The NPV and IRR numbers are based on economic assumptions such as commodity prices, discount rates, exchange rates and operational costs.

The capital costs will be based on the tender submitted by the contractor. The cash flow of this capital is then based on the schedule submitted by the contractor in his tender. This project is then evaluated through discounted cash flows (Musingwini, 2011). Sensitivity analyses are then undertaken to identify whether the project is capital, operating or revenue sensitive.

If the project is capital sensitive, the client will not want any additional costs to his capital project. If the project is revenue sensitive the client would like to ensure that the project is completed as soon as possible to get revenue stream as quickly as possible. Therefore the client would not agree to time extension of the project that will negatively impact on his project.

The contractor's cost structure consists of preliminary and general costs which are either fixed or time related. The fixed cost consists of equipment, site establishment and any commercial condition. The time-related costs are compiled from labour costs, mainly salaries and wages, and any rental cost (equipment rental per day). The direct costs are linked to operational costs during the project duration and quantities that are defined in the scope of the project. If the project is extended in time, the contractor's time-related costs and operational costs (due to inefficiencies) will increase. If the project is accelerated, the contractor's cost will increase, relative to the increase in the amount of labour. This causes the rate in the time related cost to increase. There is thus no improvement in the bottom line cost, even though the time has decreased. The quantity in equipment also increases that causes the fixed costs to increase. The contractor's revenue is based on the mark-up above their costs. So in both scenarios, the contractor will benefit financially.

The schedule and scope of work is pre-determined by the business case of the project. Both parties are well aware that the scope will overrun because of errors and omissions in the cost budget. The client then allows for contingencies in costs that will still ensure viability of the project. But the viability of the project is still dependent on the original economic assumptions, which could change over time.

The tender of the contractor, in contrast with this, is relatively set in stone, except if there are scope variances or changes that were beyond his control, in which case the contractor is entitled to an extension of time for such delays and payment for any such cost plus reasonable profit (FIDIC, 1999). In South Africa any consequential costs caused by the contractor, are excluded from

any contract. The contractor cannot be held accountable for any future revenue lost by the client.

When it is evident that the project will not be completed on the agreed date, the client will take his future revenue into consideration first. This is why the client would rather incur additional costs to ensure that the project is completed within the time upon which his business case was based. These additional costs will then be then be accounted for as contingency costs.

If the contractor is behind schedule, the client will call for constructive acceleration (Maritz & Schutte, 2006), and thus try to force the contractor to bring the project completion date back to the baseline schedule. This acceleration though is very limited if the client and/or contractor did not allow any float in his schedule or working shifts. This might mean that the client will not get the result that he expected and will end up with a time delay anyway, even though he paid additional costs for extra resources in order to accelerate.

The contractor will then argue that the reason for being late was beyond his control. There will be differences in definition of specific scope variances between the client and the contractor. The contractor will immediately ask for time extension. If the client does not agree to it, the contractor will ask for additional money and the acceleration will be carried out at a premium. So in both cases the contractor will gain additional revenue and the only strong reason why an extension of time may be preferred, is due to the fact that the contractor will secure job security for his employees.

Another issue that may become a huge risk to the client in the case of acceleration is safety. South Africa has strong mine health and safety regulations and any acceleration program will tend to increase safety hazards at the work place. The also applies to labour laws, where extended hours caused by acceleration programs can demoralise the labour force which can in turn cause additional disputes and ultimately extend the program again due to labour actions.

The client's alternative options when the project is running behind schedule are limited. He will pay additional costs for acceleration and for time extension. Any gain from acceleration is also very limited and in most cases not realistic. The contractor cannot be held responsible for any opportunity costs lost to the client.

The contractor can increase his revenue through both time extension and acceleration. The client does have the right to refuse any additional claims, but the contractor also has the legal right to claim additional time and cost. The contractor can walk out of the contract with less impact on his financial situation, while the client does not want to hire a new contractor at this late stage of the project. This would delay the project even more.

Both parties would, as far as possible, avoid any legal resolution, due to the costs involved in such action. So there is definitely a power struggle to manipulate the situation from the perspective of quality for each side's alternatives to negotiated agreement (Gino & Moore, 2008).

The client will eventually be forced to pay additional costs for both acceleration and extension of time. Even though the contractor prefers an extension of time, he will not mind acceleration too much if he is paid for his efforts to complete the project within the baseline program. In an effort to avoid a project disaster, the client would normally rather agree or partially agree to such additional costs. So, the client will find it very difficult to defend any notion of program acceleration. If he does agree, it might cost him even more than the extension of time. Therefore the contractor most certainly has the higher quality in BATNA to negotiate an extension of time.

5.5. Bargaining power and aspiration levels

To better understand the bargaining power and aspiration levels of the two parties, the study investigated any advantages contained in acceleration of

projects. It was clear from all the respondents that the negatives overshadow the positives by far.

The only real positive for acceleration is that the client can attempt to achieve his baseline project duration, which mitigates any delays and ensures the client's original planned revenue stream. From this the contractor will increase his own revenue stream.

Acceleration comes at additional cost, with no linear relationship between cost and the actual productivity gained from it. Labour relationships become very strained due to additional working hours. Acceleration is very limited in flexibility and it is almost impossible to accelerate the delivery of long-lead-time items and equipment.

Now the reasons for, and who is usually responsible for, poor scope definitions and change control procedures, can also have an impact on bargaining power and aspiration levels.

In most cases capital projects are initiated as quickly as possible. This means that not enough trade-off studies and pre-feasibility studies are done to investigate all possible alternatives for the final design. Many times, the contractor notices this as well, but will not indicate this to the client, because this might jeopardise their continuation in the client's project.

Another reason is also that contracts are often compiled in very vague terms and with insufficient detail. This often happens when there is not yet certainty on the scope or because the design is not yet fully completed. For these reasons there are variances in how direct costs are compiled in tenders, which are generally dictated by the level of design certainty. This will have an influence on the client or contractor's risk, flexibility, and the contractor's level of compensation (Loots, 1995). Often the contract is written vaguely and not clearly because the client believes that by doing this he can force the contractor to do additional work without additional costs.

The reason for poor management of scope variances is mostly due to the amount of work related to submitting a variation. In many cases the contractor finds it difficult to approach the client to submit a claim. This is mostly due to fear of the way in which the client will react to the claim. Many times there are also differing opinions as to what the actual definition of scope variances are. Sometimes the contractor will submit a claim for a scope variance, while it is in actual fact poor planning or omission by the contractor that is the cause.

From these comments and insights it was interesting to see the perception as to who has the most bargaining power. It was initially thought that the contractor would explicitly indicate that the client has more bargaining power in projects. The initial thought was also that the client should have the bargaining power, because the one who holds the money should be able to control the negotiation scenario. However, this seems not to be the case.

Most of the clients believe that when the contract is signed, all bargaining power swings automatically to the contractor. Some believed that bargaining power only lies within the supply and demand of services. This, however, is only true in the beginning, before the contract is awarded. At this stage the client has all the right to choose any contractor that he wants. Some feel that the power of negotiation relates to how the contract was constructed, and this might indeed be the case during the early parts of the project. There is thus a clear correlation between time and bargaining power.

Before the contract is signed, the contractor is involved in a competitive tendering process. The client can choose whom he wants. When the project is adjudicated and a contract is signed, both parties will give extra attention to the relationship between them. Here the contractor does not want to rock the boat and may even delay submission of scope changes. So the client is then perceived to be in a stronger position.

When the project is getting close to the end of the project, the client cannot afford to get a new contractor at this late stage of the project. There is then no real value in accelerating the project, because of the many risks that it holds.

Poor scope definition cannot be blamed on the contractor, but will strengthen the contractor's motivation for scope variance claims. The contractor delays his scope variance submissions to the end of the project, which is correct according to the FIDIC model, because that dictates that claims are brought against the client only at the end of the project (FIDIC, 1999).

When the client and contractor sit down to negotiate either acceleration or extension of time, it will both be advantageous for the contractor. His aspiration will be to ensure that he gets all the money that he claims for.

The contractor will also be in a position where he can improve his position, not only to get a time extension, but to increase the time as much as he can. Therefore the contractor can negotiate for a first prize, which is an extension that is as long as possible. He can settle for any extension that will increase his revenue on the original scope and finally he can agree to acceleration, but mitigate the magnitude of acceleration by giving the afore-mentioned negatives of acceleration and still improve his revenue on the original scope.

The client knows he will have to pay additional costs to the contractor in both scenarios. He will struggle to motivate not having to pay for additional scope, except if he can prove that it was within the contractor's control. The only other aspect that might assist the client is the contractor's reputational risk. This also can only be true if the client is one of the bigger mining houses, who have a multitude of construction projects running at any one time. Mining juniors have less power than the bigger contracting companies and often rely on stronger contracting companies' strong cash flow.

To try to establish the Pareto frontier between the contractor and client when negotiating extension of time, the aspiration constraints need to be determined.

The aspiration constraints for the client are:

- Poor scope definition
- Poorly compiled contract
- Not attending to variations immediately
- Actual advantage gain from acceleration

The aspiration constraints for the contractor are:

- Reputational risk
- Poor productivity
- Not notifying client on variations immediately

Using Kuula and Stam's model to find a convergence to a single solution (Kuula & Stam, 2008), a Pareto frontier or final solution between the two counterparties can be plotted. See Figure 5.

The numerical definitions on the curve can be explained as follows:

1. Most preferable solution for the client, which indicates an accelerated program with early revenue.
2. Most preferable solution for the contractor, which indicates an extended program that will increase the revenue ideally for the contractor.
3. The baseline project program, which both parties agreed upon in the contract.
4. This is the new forecasted program, which is extended by scope variances.

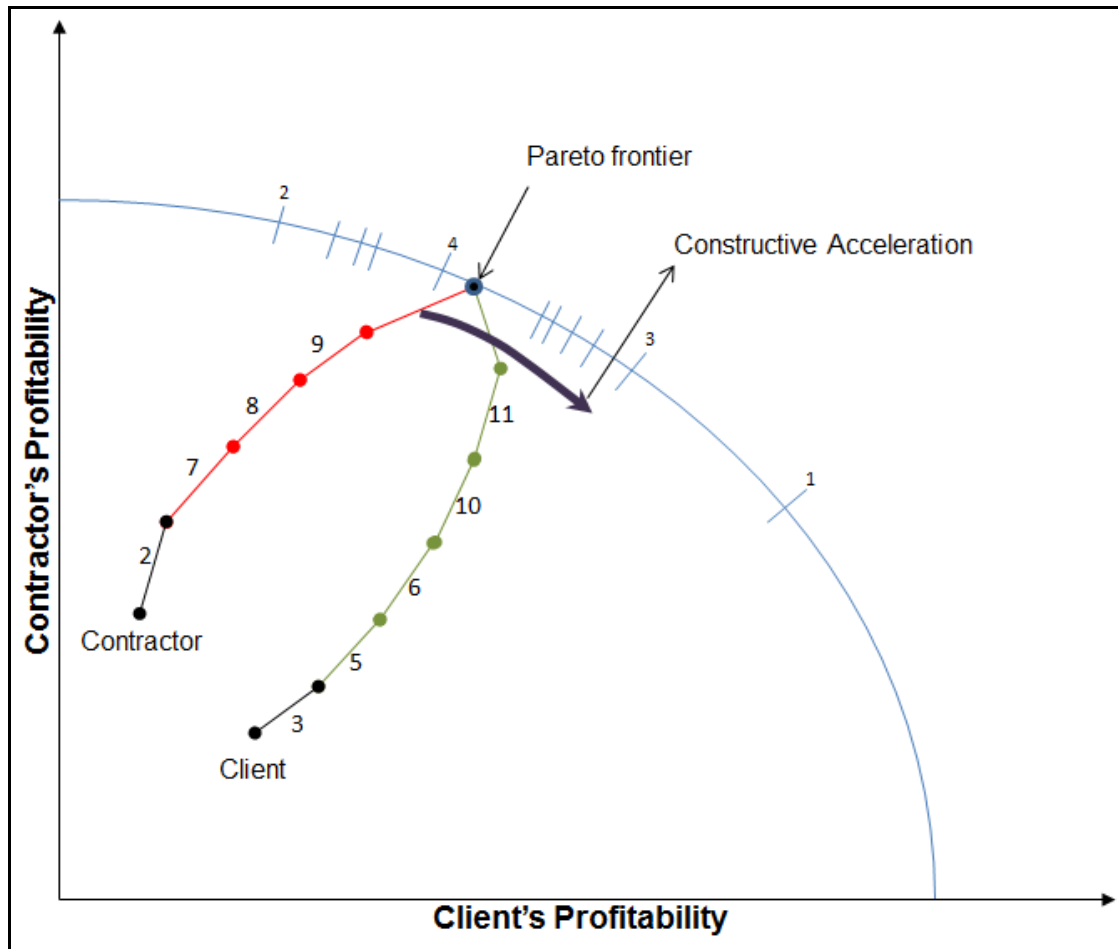


Figure 5: Final negotiated solution between contractor and client, based on aspiration constraints.

5. Aspiration constraint to client, caused by poor scope definition.
6. Aspiration constraint to client, caused by poor compiled contract.
7. Aspiration constraint to contractor, caused by poor productivity.
8. Aspiration constraint to contractor, caused by reputational risk.
9. Aspiration constraint to contractor, caused by not notifying client on variations immediately.
10. Aspiration constraint to client, caused by not attending to these variations immediately.

11. Aspiration constraint to client, caused by skewed perception on advantage gained from constructive acceleration.

From the diagram, it can be concluded that nearing the end of the project, the client's most preferred solution has shifted from an accelerated project program to the baseline program. The contractor's most preferred solution is a completion date by which he believes that he needs to complete the project. He obviously calculates this with an added contingency to allow for any errors.

The new forecasted project completion date is now calculated from the known scope variances and the client will want the contractor to accelerate his work to pull the completion date back from the newly forecasted program to the baseline program.

Using the aspiration constraints and scaling these to the size of impact on the project, indicates that though the client did get limited acceleration, the balance of the project movement on the Pareto curve is still in favour of the contractor's preferred solution. Ultimately, the contractor actually got a time extension on the baseline project completion. Therefore, he actually increased his profitability on time-related costs, and the little acceleration that he achieved added additional revenue, based on extra resources that he had to put into the contract.

This indicates that the contractor has much more bargaining power than was originally perceived. The contractor also gains revenue from both extension of time and constructive acceleration. Therefore the perception that it is unfair to force the contractor to accelerate is incorrect. The contractor also generally has less aspiration constraints. Ultimately, any acceleration in a project is tactically wrong and should be avoided at all costs.

5.6. Conclusion

The contractor and client have disputes when approaching the end of the project because of:

- Poor scope definition
- Contractor not sensitising client to any change timeously
- Client not re-assessing the project continuously

Any acceleration is ultimately not as successful as the perception is, and in most cases it is not possible to pull the project back to the original completion date when constructive acceleration is ordered by the client. The contractor will still increase revenue in both an extension of time and acceleration, if all of his claims are rewarded. Therefore the contractor does have a higher quality of BATNA than the client.

The contractor does have much more bargaining power than was initially believed. His aspiration levels are higher due to the fact that he must face fewer constraints than the client. The client will always end up paying the contractor more than was initially planned.

6. CHAPTER 6: CONCLUSIONS AND RECOMMENDATIONS

6.1. Introduction

The key results of the study will be presented through a discussion of the research findings in terms of the three research questions that were qualitatively tested. Recommendations that came out strongly from the semi-structured interviews held with industry respondents will also be included.

6.2. Conclusions of the study

From the study it was clear that contractors and mining companies have disputes when approaching the end of a project because of:

- Poor scope definition
- Contractor not sensitising client to any change timeously
- Client not re-assessing the project continuously

Generally the relationship between the contractor and client in the mining industry is very adversarial, and the use of the FIDIC contract model does not assist in improving this relationship.

Any acceleration is ultimately not as successful as it is often perceived to be and in most cases it is not possible to pull the project back to the original completion date when constructive acceleration is ordered by the client. The fact is that due to shift arrangements and labour laws it is difficult to accelerate a program at the end of a contract. The quicker these delays are dealt with, the bigger the opportunities to mitigate any late completion date becomes. The contractor will still increase his revenue during an extension of time and

acceleration, if all of his claims are rewarded. Therefore the contractor does have a higher quality of BATNA than the client.

The contractor has much more bargaining power than was initially believed. His aspiration levels are higher due to fewer constraints that he must face than the client. The client will always end up paying the contractor more than was initially planned. The contractor loses his bargaining power the moment he signs the contract. His only resolution is to ensure that the contract agreement is well drafted in favour of the client and that he understands exactly his rights and obligations in the project. He also needs to manage the contractor closely and not to lose sight of the overall picture of the project.

Originally, the literature review did indicate that both parties have a case in defending their stands on extension of time versus acceleration. The perceived viewpoint was that the contractor has little bargaining power against the client. This research has indicated that this is not the case, and that the contractor profits from both scenarios. Contractors are also very commercially astute and understand how to gain advantage from a contract.

6.3. Recommendations

The study clearly indicated the importance of a good mature relationship between the contractor and the client. A good continuous interaction is of huge importance to ensure that any changes during the execution of the project can be dealt with immediately.

A value track of the project needs to be done continuously to measure the actual against the planned. This then, needs to be compared against a forecast to determine what could be done to rectify any possible delays and cost over-runs.

More emphasis needs to be placed on trade-off studies and concept studies, before any designs are undertaken. Often the initial desktop work is skipped to

accelerate the project to execution phase. This is one of the main reasons why the scope of projects is not properly defined.

FIDIC is the preferred contracting model in the South African mining industry. The perception is that this assists the client more, because scope variances can only be claimed at the end of the project. This actually costs the client much more in the end, because of slow reaction to mitigate any changes. The NEC contract is believed to be much more progressive, but also has its constraints.

6.4. Suggestions for further research

There is little actual information or data available on the actual success of mining projects in South Africa. It would be interesting to be able to quantify the effect of acceleration on the overall project cost versus the effect of time extension.

A qualitative research is required into what commercial astuteness brings to the overall profit of contracting companies, where the quality of estimates are investigated.

A study on how to actually quantify negotiating BATNA would also be a valuable research proposition.

7. REFERENCES

- Bajari, P., & Tadelis, S. (2001). Incentives versus transaction costs: a theory of procurement contracts. *RAND Journal of Economics*, 32(3), 387-407.
- Caelli, K. (2001). Engaging With Phenomenology: Is It More of a Challenge Than It Needs to Be? *Qualitative Health Research*, 11(2), 273-281.
- Chan, M., Coffey, V., & Trigunarsyah, B. (2010). *Steering towards pinnacle of success: the NEC tenets in Australian construction contracting*. Paper presented at the CIB World Congress, Brisbane, Australia.
- CORTEX. (2009). I.T. Statistics over IT project failure rate Retrieved 9/12/2012, 2012, from http://www.it-cortex.com/Stat_Failure_Rate.htm.2009.
- DiCicci-Bloom, B., & Crabtree, B. J. (2006). The qualitative research interview. *Medical Education*(40), 314-321.
- FIDIC. (1999). *Conditions of Contract for Construction* (First ed.): International Federation of Consulting Engineers.
- Gino, F., & Moore, D. A. (2008). Why Negotiators Should Reveal Their Deadlines: Disclosing Weaknesses Can Make You Stronger. [Article]. *Negotiation & Conflict Management Research*, 1(1), 77-96. doi: 10.1111/j.1750-4716.2007.00005.x
- Golafshani, N. (2003). Understanding Reliability and Validity in Qualitative Research. *The Qualitative Report*, 8(4), 597-607.
- Kuula, M., & Stam, A. (2008). A win-win method for multi-party negotiation support. *International Transactions in Operational Research* 15(6), 717-737.
- Leach, L. P. (2004). *Critical Chain Project Management*. Norwood, MA: Artech House.
- Loots, P. C. (1995). *Construction law and related issues*. Kenwyn: Juta.
- Maritz, M. J., & Schutte, A. P. (2006). *A practical approach to calculate acceleration costs on construction projects in South Africa*. University of Pretoria. Pretoria.
- Marshall, C., & Rossman, G. B. (1999). *Designing Qualitative Research* (Third ed.). Thousand Hills, California SAGE Publications.
- McMullan, J. (2011). *Contracts Administration Principles: Guide To Engineers* Retrieved from <http://www.mcmullansolicitors.com>

- Musingwini, C. (2011, July 2011). *Time value of money, inflation and discounted cash flow evaluation*. Paper presented at the The Southern African Institute of Mining and Metallurgy Mineral Project Valuation 2011, University of Witwatersrand, Johannesburg.
- Phillis, R. C. D., & Gumede, H. (2011). A Case Study on Stoping Shift buffering at Impala Platinum: A critical chain project management perspective. *The South African Institute of Mining and Metallurgy*, 111(11), 793-799.
- Prietula, M. J., & Weingart, L. R. (2011). Negotiation Offers and the Search for Agreement. [Article]. *Negotiation & Conflict Management Research*, 4(2), 77-109. doi: 10.1111/j.1750-4716.2011.00074.x
- Sullivan, W. G., Bontadelli, J. A., & Wicks, E. M. (2001). *Engineering Economy* (Eleventh ed.). New Jersey: Prentice-Hall, Inc.
- Thompson, L. (1990). Negotiation Behaviour and Outcomes: Empirical Evidence and Theoretical Issues. *American Psychological Association. Inc.*, 108(3), 515-532.
- Vallee, M. (1999). Mineral resource + engineering, economic and legal feasibility = ore reserves. *CIM Bulletin*, 92(1031), 151-155.
- Willig, C. (2008). *Introducing Qualitative Research in Psychology: Adventures in theory and method* (Second ed.). Berkshire: McGraw Hill Open University Press.
- Wolfe, R. J., & McGinn, K. L. (2005). Perceived Relative Power and its Influence on Negotiations. *Group Decisions and Negotiations* 14, 3-20.

8. APPENDIX A

8.1. Letter to Respondents

Dear Respondent,

I am completing an MBA at the University of Witwatersrand, Johannesburg (Wits). My MBA research report is about the negotiation of extension of time during the execution of mining construction projects. Towards gathering data on this subject, I would be grateful if I could arrange a one-hour interview with you in order to better understand the preference and issues around negotiating constructive acceleration or extension of time. I understand you are extremely busy and your agreement to contribute to my research is greatly appreciated.

The interview will focus more on projects in general and not on specific projects. Confidentiality will be observed throughout the thesis process and the final report will be for academic purposes only.

I will be available to meet with you at a location and time of your convenience.

Thank you for your kind assistance.

Yours sincerely

Rudi Deysel

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8.2. Interview Questions

1. What is your opinion regarding the general relationship between contracting and mining companies?
2. How do you see the financial implication on your business when extending/accelerate the project program?
3. How do you see your “scope” in defending your business’s financial position when re-negotiating completion date of the project?
4. Who has the most bargaining power in your opinion and why?
5. Can you describe the positive & negative aspects of constructive acceleration and the consequences thereof?
6. Why, in your opinion, is clear scope definition and change control procedures poorly executed?
7. How would you describe generally the level of commercial competency to negotiate a contract by the management team?
8. Why do you think disputes’ regarding completion of projects arises at the end of the project?

8.3. Actual Research Instrument

8.3.1. Research Question 1:

Why, in spite of an agreed-upon contract and project deliverables, do parties (contractors and mining houses) have regular disputes regarding the completion dates of a project when approaching project completion?

Interview Question 7: How would you describe generally the level of commercial competency to negotiate a contract by the management teams?

Respondent 1

“At a higher level, there are generally good commercial skills. With smaller projects, unfortunately your lower management are less skilled and are often lured into fraudulent actions. I’m also of the opinion that bigger contractors and even EPCM consultants overcharge the mining industry in bigger projects. Mining houses tend to minimise their exposure to risk by appointing EPCM companies who ask a high premium to manage these projects and this is accepted too easily by industry. The main reason why we do this is because individuals within the mining companies would rather not take the risk of non-delivery than paying additional cost to an EPCM company to manage projects.”

Respondent 2

“Management teams, unless they regularly deal with projects, don’t really have the expertise to deal with this. What you will find is that in most cases, they got a lot of operational experience (day-to-day production), but they have very limited project management experience. They’ve got in most cases very limited knowledge of contract law.”

Respondent 3

“The mining houses that I’ve dealt with are fairly competent. The grey areas are to properly define the scope before you apply a budget to it. Most people in management teams have a fair understanding of the financial implications, but struggle defining the scope of work, applying change controls and understand how the contractor will be remunerated for those changes.”

Respondent 4

“The owner’s management side is less contractually astute than what one would think. However their commercial teams or their procurement buying teams are well versed in contract conditions. So they’ve got pockets of excellence, but in most cases the owner’s engineer doesn’t necessary have the correct commercial knowledge. Contractors on the other hand, due to their constant exposure to different contracts, have better appreciation for contract law. A contractor will run in a specific commercial situation at least five times in his career. An owner has in most cases only one project, with one specific claim or situation. So I think it is the diversity of contracts that contractors have, together with the diversity of owners and EPCM’s that make contractors better versed in contractual conditions, therefore our commercial competence is a lot better and we most certainly use it to our advantage where appropriate. But in saying that, we don’t exploit it. If we did, we would have been much better off commercially or business wise than what we are. The overall margins don’t justify our stronger commercial knowledge. Maybe the difference is because of the contractor’s need for survival or. Maybe our commercial knowledge actually prevents contract companies from closing.”

Respondent 5

“This is variable. What you really need is good solid technical competence which is completely interlinked with commercials, and those commercial guys need to understand how projects work as does the project guys. From a technical point of view you need to have done your homework and have to ask

the right questions. If you go out on tender to select an engineering company you need to know the company's organogram, their CV's, their rates, what similar work they have done in the same area. Projects depend a lot on individuals. Commercial issues are pretty standard and there are penalties and incentives and today, most mining companies have project specialists on their team."

Respondent 6

"Commercial competencies are very poor. The one fatal flaw in contract relationships that we have between contractors and employers is that generally contracts of this type are very complex technical agreements between parties. And there is very limited commercial skill introduced into the technical negotiations, because ultimately it is about executing work that is of a technical nature. From an employer's perspective generally you will have a contracts administrator or a buyer compiling this contract because they are seen as someone who is just putting the paper together. The technical team will most probably give the most effect or most input in to the agreement, but in terms of negotiating the commercial and particularly the change process upfront on both sides it is extremely poor. Similarly on the contractor's side he wants to secure the work and he sends his sales team in to go and negotiate a contract which turns out to be a very complex commercial agreement between two parties. The salesman is so dead set on getting the work that he doesn't put a lot of effort in to challenge the contract and possibly run the risk of challenging the integrity of the employer in so far as clearly defining how changes will be dealt with or how changes will be resolved. If more emphasis was placed on the upfront discussion, negotiations and dealings prior to the award of a contract then little work will remain to the team who will actually give effect to implementation or execution of the contract later on. And it really boils down to negotiating the correct contract."

Respondent 7

“Where I’ve been involved it was good. The guys go diligently through the process. It is not an emotional event, but a business event. You sit down and you resolve issues. You look at the data available and benchmark it back to previous quotes. You benchmark it to current operations where the market is and you use QS companies to assist you. When you start doing that, then you do get to the answers. It is not a negotiating process and it is not a bargaining process. You need to work out, what is a fair price, what’s a fair margin and quantify as such. I’ve been very happy with my guy’s performances in the last couple of years in terms of the processes. But in general overall in the industry there is a major room for improvement concerning commercial issues. “

Respondent 8

“The answer is weak, hence the need to employ commercially competent specialists i.e. lawyers. This brings a different issue to consider when we tender that of a very conservative risk appetite and protection of your employer at all costs. There is also a view that they, the lawyers, must protect us against poor project or commercial management of our own staff. It results in a very difficult close out of contracts awarded to us, as our qualifications could amount to numerous pages. However it must be said that I do note that our clients are also becoming more risk averse and tendering with highly modified documents i.e. taking standard contract documents like FIDIC and NEC and modifying it to suit their risk appetite. We are also of the view that our project staffs are not fully conversant with their contract document resulting in under claiming for contractual entitlements.”

Respondent 9

“It depends in what context. I believe that the employer management team starts off with a disadvantage. Contractors are exposed to many projects at a time and over time. They understand their pricing structures and hence their liabilities and exposure. Due to the number of projects they were involved with,

they have been through the learning curve (if they retain their staff). When they go to a negotiating table, they sit down with an experienced team that understand that specific contract inside out. The employer's team, by the nature of their work, is at best generalists. They deal with different types of contracts at different times and never get to a point where they become specialist in a type of contract and run into the possibility of being exposed to risk by the contractor's superior knowledge on that contract.

Contractors are usually dedicating a team to a project. From the tender phase to the execution, a contract manager (he might have two or three contracts), project planner, estimator etc. are dedicated to that project. So you will find that their attention is not as diluted as the owner's team management who must manage several contracts and contract types. So your ability to oversee that contract negotiation and participate in it is very much diluted by the amount of work that you're responsible for. Not only do you not have the specialisation that they have on their side of the table but you also don't have the luxury of having dedicated individuals. So the negotiations can end up being quite one-sided from that regard for those two main reasons. The only thing that counts in your favour is that they want the work. This is the main reason why mining houses go for competitive bidding. You create an atmosphere or environment for competition and you try to keep that going as long as possible."

Respondent 10

"The South African mining industry has a very high skills level in the project environment. The skills level is normally dependent on how well you are able to put your project team together. It improved quite a lot from what it used to be. It is not only the individual, but also the support of his team. When negotiating you need the input of both the technical and financial guy for input. So South African mining companies are commercially astute, but I think they can do more and I am sometimes surprised that mining companies appoint people that are not qualified to do negotiations, especially during more complex projects.

Some mining companies think that they save money by appointing lesser qualified people, but they lose more money than when they are not appointing the right guy. There are a lot of subtleties in any contract and you need to have guys with the commercial skills to recognise these subtleties to negotiate the company's financial position."

Interview Question 8: Why do you think disputes' regarding completion of projects arises at the end of the project?

Respondent 1

"This is purely because of poor project management. If a project is properly managed, in other words there is a schedule, an in-house project manager dealing with it, a contractor dealing with the schedule and good communication as the project progresses, then you will not get that problem. We don't have controls on a real-time basis in place where people are notified about exactly what is happening with a project and at what time. When the project is late, a contingency plan should be in place to get the project back on track. We tend to put project controls in place only for bigger but ignore it for smaller projects which usually spark fights at the end of projects."

Respondent 2

"When a project is nearing completion, you often will find that a contractor decides that he will never work for a specific client again. This is when they do not hesitate to consider litigation action. The same applies for the owner's company. Unpopular issues were not addressed during the project, some points haven't properly been described in the contract and sometimes gentleman's agreements of dealing with the issue later happen a lot in projects. Before realising that time has run out, the problem has snowballed. A previous smaller expenditure increased exponentially with the owner not wanting to pay and the contractor insisting on his payments."

Respondent 3

“The main reasons are that they did not understand the scope of work, did not allow enough time for that scope or enough money to execute the scope of work. Furthermore, when a change of scope occurs, it was not mitigated immediately. Therefore the project schedule was not adapted immediately. In many cases the client delays the change procedures, but fails to recognise the effect on the critical path. When the contractor sends his certificate for work completed, then the contractor sees that he is heading for a delay, and at some stage he needs to discuss this with the employer, and then the employer has no empathy. At this stage the employer would like the contractor to accelerate, and the contractor would like to assist, but acceleration can only be done up to a certain point. The client’s expectations are then that all delays are mitigated, but then realise that many of his acceleration expenses were fruitless. This is also a possible bargaining tool for the contractor. The contractor could have ignored giving the client early warnings of possible delays or the client haven’t seen any paper work, nor change control procedures and when acceleration fees are claimed, it becomes a dispute. The contractor also doesn’t want to irritate or aggravate the client with claims, thus delaying the fight to the end where it becomes a much bigger issue. In order to avoid arbitration or litigation procedures, rather have that heated discussion immediately when the change of scope occurs than paying lawyers in the end to have that heated discussion for you. But admittedly, bigger companies do have better change controls in place.”

Respondent 4

“This is contained in the contract conditions, with FIDIC the biggest driver of that. In one of our projects running for six years, we’ve now received a letter from the client that our efficiency and productivity are poor, and I actually concur with them. I believe that, after six years, the contractor has developed inefficiencies within themselves, meaning that, even though change controls are in place, the managers actually lost focus on the business at hand. They

are just keeping the status quo by putting too much trust in the teams and forgetting the overall business case. This has a lot to do with the contractual conditions, which in this case (a “cost plus” contract) do not drive efficiency. So right at the end of the project, the client sees that this project can still go on for another two years, thus incurring additional cost. So the overall project objective was missed.

I did find though that smaller projects tend to be more successful. So these can also either be an issue of complexity of the project or the duration of projects. If a project is only one year, there goes a lot of focus in that project, but if a project is five years, project teams seem to lose intensity. Maybe communication in more complex projects is also a factor; where less channels of communication makes it easier to react to change. When the client uses an EPCM, the communication channel increases, so hierarchy and number of people definitely plays a role in how change management is communicated.”

Respondent 5

“The contractor doesn’t achieve what they promised to the client. The contractor went over budget and wants to retrieve their margin at the end of the project. This can also happen due to the client’s action. The project might have been budgeted to kick off on the 1st of July, but the board only approves it at the end of December. The Board doesn’t want to know that that cost had increased due to time value of money. To keep your company’s board happy, the contractor already starts with a budget deficit at the beginning of the project.”

Respondent 6

“Discussing changes and discussing extensions to completion dates and acceleration of completion dates and additional costs and variations and contractor entitlements is a very awkward situation and a very awkward topic to discuss during the life of the contract, when each party is totally dependent on performance by the other party. From the client’s side, he is totally dependent

on the contractor continuing the work. And from the contractor's side he is totally dependent on the client continuing to pay his monthly bills. And both parties are acutely aware that that relationship needs to be maintained. And that what makes the discussions regarding changes to a contract and variations and extension of time and acceleration of time a very awkward topic to debate to in the life of the contract. And therefore the inevitable happens that people postpone these discussions to the very end where the contractor now looks for recovery of his full costs and the client has to deal with these as a surprise at the end of the life of the contract. That's why these discussions are invariably pushed aside until they get to the completions of the works. Also the contractor leaving this discussions right to the end of the work then doesn't have such critical relationship to maintain and because the work was done, he can then find himself in a positions where he is able to put up a fight for his money rather than through the life of the project and run the risk of his payments being stopped or being removed from the project. When a project dispute runs in to arbitration or litigation, it depends on a case-by-case basis on the amount of money involved versus the cost of running a litigation matter. And generally however, you would find that both parties would exhausted every possible avenue before pursuing any litigation or dispute resolution process to try to negotiate a resolution to any conflict, prior to pursuing a matter in litigation. It is obviously in the interest of both parties for a variety of reasons for one, it is cheaper to sit and discuss a dispute and to compromise and reach a solution. Secondly, the whole process in engaging lawyers and the project team and collecting evidence and bringing a matter to court is not only time consuming in that it also ties up your resources who could have been allocated efficiently elsewhere. Thirdly the outcome is never known upfront, because it is a known fact that half of all disputes lose or half of all lawyers lose their cases. So the outcome can never accurately predict. And fourthly if matters do proceed to litigation, they tend to end up in the public domain. And people are very aware of protecting their reputation. And generally where people take matters to litigation or arbitration is when there is principle or pride

involved. If these decisions were made on a pure commercial basis, then parties will resolve their differences in a boardroom.”

Respondent 7

“The main reason for me is that the guys don’t do their forecasting. You must constantly do forecasting. You must constantly compare your base case schedule that was compiled during the tender phase. Then you look at where you are currently in the project and compile a progressive with a forecast of the project schedule that will indicate what are currently outstanding on the project between the actual and the baseline schedule and cash flow. When you understand this difference you need to alert your board or steering committee immediately. Projects always have scope changes and need to be monitored constantly. Then you have flexibility to mitigate these changes and you are in control of your SPI’s and CPI’s. This is not done and thus project teams are not able to rectify the program schedule rather than to need to accelerate in the end. If you communicate this with the contractor early, they can rectify their schedule as soon as possible. You do not want 70% of the project done at 100% of the cost. This is when people get fired; ending up blaming each other and the client-contractor relationship goes sour. The contractor should always be honest and transparent on where they are heading in the project with no surprises.”

Respondent 8

“Issues were not properly addressed and recorded during the contract and most probably not properly addressed in the contract itself. Another reason might be that there has been a change in institutional memory, in other words, people have changed as a result of the projects taking so long. People change and what was agreed between two individuals at the start of the project, they are no longer involved. They’ve disappeared or they are working somewhere else. Now other people are sitting with the baby and they are trying to resolve something, which have been previously agreed and now it is a clash, because

the people have now a different view. This is then either not in the contract or the issue is only vaguely defined in the contract, thus ending up as a matter of interpretation, thus causing a dispute. Rather include everything clear in the contract. Certain companies purposefully exclude certain issues in their contracts. Then they can gain bargaining power in the end of their project and thus can negotiate a better settlement.”

Respondent 9

“The contract was not administrated or manages properly. Firstly parties have not either read or fully understood their obligations in terms of the contract and only when the one starts demanding from the other party that issues become relevant. Secondly, paper work falls behind, which relates to administration of the project. This means that change notices weren’t submitted timeously. With most of these contracts having time bars, if you don’t notify the client within a certain period that you intent to make a claim, then you lose the opportunity collect a claim for unforeseen situations that will have ultimately have an effect on the project schedule and cost. Then the contractor will still feel that he is entitled to that claim that will spark a dispute. The third reason is that people only start fighting about things when they realise what the actual quantum is. The actual cost implication may only be known at the end of the contract, but it ties to the second point, if you’ve done your administration properly throughout the contract and hence you would have had quantification of the impacts of these changes then it wouldn’t be a surprise in the end. As project manager you should understand both the employer and contractor’s obligations from day one. If you don’t understand all of those obligations and a change occurs, the contractor can slap you with requests for time extensions very easily. The owner’s obligation is also extremely important, because if you don’t comply with your obligations, the contractor can claim standing time, which is within his rights. Administration is the very key thing when considering closing the loop back to extension of time claims and acceleration. A good contract in the beginning with actual specific intent already known as opposed

to negotiate post-contract and then manage the contract properly is always the better way of managing projects. This is the only way for the employer to protect his negotiating power. If the contract is not properly compiled in the beginning, then the contractor will use that leverage to make additional money.”

Respondent 10

“Firstly, the situation is not dealt with immediately when the change occurs. The reason for this is due to the maturity of the two contracting parties. The misunderstanding of the scope of the contract also leads to extension of time claims. This is the reason why the one party is often been misled. The contractor might have not received enough information to really assess what the logical or real duration should be and then later on, only when his bottom line is under threat, then he becomes aware of the real impact of the situation. In South Africa, most extension of time claims is due to lack of understanding the full scope by the contractor. Secondly, projects are mismanagement by the contractors. The contractor does not apply the right management skills right across to what is required to deliver within budget or on time and then later on they try to blame it on somebody else. Thirdly are changes in scope after you have leaded the contract. And that is a direct result of your project definition not being properly defined before you actually lead the contract. So you can put it back to the project management which made the decision. So your maturity of your engineering, in other words the detail of the design, has a huge impact on the accuracy of cost and time estimates during the planning phase.

The fact of a matter is, if a contractor loses money on a contract, it takes a lot of contracts to make it up again. Contractors work on a tight margin and they have to defend their margins. In defending that margin, they do put in claims. Very few people in South Africa actually do have the skill to actually properly evaluate a claim. In most cases extension of time claims are paid only partially, and mostly just out of goodwill. The client understands that the cost

of arbitration or litigation in most cases outweighs the cost of the extension. So you would rather settle with both parties unhappy than to start formal dispute resolutions.”

Interview Question 1: What is your opinion regarding the general relationship between contracting and mining companies?

Respondent 1

“There is a need for contracting companies in the mining industry, due to their specialised skills and the need by mining companies to either expand or replace existing infrastructure. There’s even a tendency to use contractors to do mining company’s operational requirements. So there is always a relationship of outsourcing and in-sourcing and a very good example is the bigger companies using these contractors. But sometimes the mining industry allows these contracting companies to operate in such way that it is costing us more than what it would have been if we have done the work ourselves. Theoretically contractors, due to their specialised skills and experience should be cheaper than the mining companies doing these operations. This is where I think there is a breakdown in the trust relationship between mining companies and contracting companies.”

Respondent 2

“The relationship between mining companies and contracting companies usually starts off very well, and then it can take one of two routes. Firstly, where everything is running smoothly or where things start going wrong and then fall back in a blame culture, where the mining company will blame the contractor or the contracting company will blame the mining company.”

Respondent 3

“When we talk about relationship from the law perspective, there are two sides to a contract, that from the employer side and one from the contractor side. The relationship that I’m very familiar with is the relationship of the contractor

with the employer, where the employer wants to build something and the contractor can build something, but he needs some money to build it. In this relationship, trust is important. If there is no trust, it will cost you money and risk. It's very important for the contractor from the beginning to assure the client that you have his interest at heart. The reason that you want to do the project is not just to make money, but also to show that you are able to handle it and is sustainable as a service provider. That's why it is important that the employer trust the contractor and the contractor must ensure that the employer can trust the contractor. We, as contractors, sell promises and we try to make promises come true. Anything that you commit to the employer you need to make it work. If you can't do that, then you're in the wrong business. This brings you back to the trust relationship, if you cannot deliver your commitments, you will not have a sustainable business."

Respondent 4

"The whole relationship is based on trust, and that is gained over a period of time. It's actually people who drive the relationship, most times, as oppose to inter-company. The fact that those people work for that company, then obviously draws that company into it. By saying that, one of our most successful jobs, are the ones where the relationships are the strongest with individuals in a company. Then they associate that person with the company and therefore the relationship is good. But what I've seen, when you tender on work, and you do work for a client, the relationship is generally good in the beginning, the longer a project is, the often times the more strain the relationship becomes. And when a project is longer than five years, at the end of it, guys are quite happy that both part ways. And you part amicably, and you get both together in five years beyond that and you've forgotten about things, but the relationship is a strained at times. I think that a company's reputation is very important and that's the thing that grows a company. When you are dealing with big clients and big projects, then your company reputation supersedes that then of an individual. So when the reputation of a company, in

terms of how many people they have, their equipment and the backup service to that client distinguish a big company from a small one. This then creates reputational risk that keeps contractors honest.”

Respondent 5

“I guess it varies from company to company and it depends on whether you have a mature client or not. I know of many companies who treat the engineering companies very badly. But more mature clients understand the difficulties of doing these types of projects and are probably more realistic of what the outcomes are going to be. Some companies are very antagonistic towards engineering companies and there are companies who manage the relationship well, where it works as one team. Size of the company does not have really an effect on the relationship, but rather the individuals within the companies. In addition, sometimes company culture also has an influence.”

Respondent 6

“It is a necessary relationship because in mine development the miners are as dependent on the contracting company as is the contractors depend on the miners for the work that they do. That is a foregone conclusion that the one cannot continue to survive, continue his business or build his business without the other. And some of the contracting companies are established for exactly that reason and that’s the purpose why they are in business. In terms of the actual relationship I think it is also a given that in a small market such as the mining industry, these relationships are pretty much well established and well founded. If you are to ask any miner to give you the name of three contracting companies, they give them right off the top of their head and will most probably give you the telephone numbers and the contact people, because it is such a very close community. And that is possibly where some of the dilemma starts, because there is such a high degree of trust between mining companies and contracting companies. And a lot of contracts start their lives on the basis of a trust relationship.”

Respondent 7

“I’m yet to see a project that is successful with poor relationships and I’m yet to see a project that is bad with good relationships. The success of a project and the way that the relationship works, goes hand-in-hand. In terms of tenders, all is dependent on the upfront work that gets done before the execution of the project, which includes the contractual conditions and any special conditions of contract. The scope of work must be very clear, the guys must know exactly what they let themselves in for on both sides. Then they must have a very clear picture of their rights and their obligations. The relationship normally starts getting sour, when either party is not clear on his rights and his obligations. What normally happens is that the client doesn’t understand his obligations correctly, and then he normally wants to impose his obligations onto the contractor, which is not the contractor’s duty to perform. The contractor also needs to understand the terms of his contract properly. But you can get the situation where both parties play exactly the rules, to the letter of the word, where they read the contract document every day and every hour of the week, which also lead to conflict. In one of our recent projects, the selection of the contractor was vital to the success of the project. When one spend a lot of time on the documentation and ensure that the contractor understand it and you got a strong engineer or appointed representative from the company, who also understand the documentation, then the relationship is generally good. With this specific project, the ground conditions were totally different than what was anticipated in the tender stage. But the way it was addressed with the contractor, and the way that the contractor responded, was in a win-win situation. It was yes there was additional work to be done, yes the contractor should be paid for it, and yes he must get a fair return on the money that he spends on the end of the day. There was no scenario where a change happened and the contractor tried exploiting the client. It also got to do with the maturity level of the actual operators on both sides.”

Respondent 8

“The contracts used in the South African scenario tend to lead to an adversarial relationship between the contractor and client. The first break that we’ve seen in the market is where the client is actually starting to use a NEC type of contract. That is actually a first step away from a very adversarial, where the bespoke and the FIDIC type of arrangement are used. So NEC is going towards actually trying to close the relationship gap that I always believed that existed within the mining industry. This is mainly as a result of new players entering the South African or Southern African space and in particular that of Australian operators that come in with totally different contractual models. These models are more alliance based and that to me is the biggest closure that I’ve seen in relation building or wanting to actually working together. However what we also are faced with in the industry is the fact that people do not like change. They also like the way in which they always worked. Now South African mines as such is very hierarchical sort of structure and the guys like command and control. So they want to control their contract and they want to control their workforce. They want to control every aspect of the entire project. And this leads to this adversarial sort of relationship. So irrespective of sometimes of what type of contract you’ve got, personalities come into play. That’s in the way that the guy was brought up and if he was brought up in the South African mining industry, he has a certain style that he operates under. And it is typically that most of our mining guys are A-type people. In other words, they love banging tables, they love shouting. And they belief that that is the only way they can manage. At a Canadian company, for example on one project, you couldn’t distinguish between who was the owner (or owner’s team members), who were the EPCM team members or who were the contractor’s team members, because they all wore the same shirts. They all were in the same office block, until month end where you sit across the table and you actually have to write out the certificate, and only then you know that he his your client because he is going to sign something for you.”

Respondent 9

“Most mining contracts are usually of high value and long duration. So it means the down side of those contracts are significant. The value is high, so if you get it wrong there are serious repercussions to both parties. So on the mining side it relates to their profitability and on the contractors side it's their livelihood. In terms of those relationships people tend to enter into formal agreements and it takes a lot of time to get the parties to agree on all the legal terms. So it ends up being quite a difficult situation because you negotiating for a large amount of money and you are binding the company for a long period of time. You have to go into a lot of detail and hence depending a lot on people like lawyers, commercial and technical people. These parties are going to determine the relationship between them. How they treat the negotiation and how they actually execute the contract. There are three distinct phases to a contract with firstly the contract formation where the company go out on enquiry, get proposals, you adjudicate, you negotiate and then you get a contract. This is usually an aggressive phase. The employer wants the lowest price with the best terms and the contractor wants to make the best profit out of it so they negotiate hard. This is usually adversarial and is usually a difficult phase and contract formation is marked by a business-like and very aggressive environment. The second phase is the actual execution period, which is contract administration. Now you've got a signed contract and you manage the contract with that contract. Then the third phase is just a close-out. Any contractor then, when the work is done, have to close it out to make sure that everyone, in terms of deliverables, and all final accounts have been paid. Any financial performance guarantees or retention bonds and things are in place. It usually goes wrong if the first part was not done properly. If something goes wrong with the contract like inclement weather and you have an extension of time on the contract, but it is not clear who carries that risk and whether there were an allowance in the contract in terms of time extension or not, then the parties start fighting. The moment when you start having disagreements in the

execution phase, that leads to deteriorated relationships between the parties. The first phase is crucial in terms of establishing the relationship.”

Respondent 10

“With smaller projects there is usually a direct relationship and also a direct manage relationship between a mine and any contractor. With major projects, the mine might use an EPCM to manage that relationship with the contractor. With the smaller projects, mining houses tend to use the same contractors over and over again and sometimes, the contractors think they’ve got all the power and sometimes they “milk” the mining houses a little bit. They know how to manipulate the situation to their favour. Many times, when a quantity surveyor is appointed to a project site, there is already a relationship between the miner and the contractor. Then it is difficult to change their “operational ways”. With a recent project the client used a civil contractor and they had agreed rates. The contractor did the work and sent a bill, but nobody checked it or queried why they only had to do so little bit and they had so much equipment on site and this was the norm. When the project got bigger and controls were put in place, these contractors became very upset that caused a lot of conflict. The way you put service level agreements in place is very important, because this is where you find bribery and corruption with contractors. Then supervisors just sign work off without really interrogating the quantity and quality of the work. With major projects and using contractors with who did not have a previous relationship with the company are usually there for the business relationship then you are sometimes on an even foot. In the mining house want to spend as little money as possible and the contractor wants to make as much money as possible. Then it will really depend on how that contract is managed to make sure that both parties get a fair deal out of it.”

8.3.2. Research Question 2:

What is the relative financial implication or position for the contractor and mining house to establish the quality of their Best Alternative to a Negotiated Agreement when negotiating an extension of time (by contractor) or constructive acceleration (by the mining house)?

Interview Question 2: How do you see the financial implication on your business when extending/accelerate the project program?

Respondent 1

“Normally there are penalties associated with contracts being late but it is general knowledge that projects come in late. It is very rare in the mining industry to come in on time and cost. This is a management problem from both the owner’s as well as the contractor’s side. Generally to get a project on time, it will always be at a premium and my general feeling is that the mining industry allows the contractor to deliver behind schedule. The mines do allow a contingency in their planning to try to ensure that a project tries to deliver on time as close as possible. Additional costs are also planned upfront. The contractors know this, and in many cases they will quote bigger company’s more than what they will do for smaller companies, and blame this on the standards and procedure requirements set by bigger companies.”

Respondent 2

“It firstly depends on the commodity price. If the commodity price is high, then you can afford to pay additional cost possibility to complete the project sooner. If the price is not good, it would be less important to complete the project as soon as possible. It also depends on the cost associated with accelerating the project. On a previous project we investigated the possibility of accelerating a part of the project to get the project in earlier, but when looking at the cost benefit, it just weren’t worth doing. So you do need to do a cost benefit

analysis with any acceleration program. You also need to consider all hidden cost in any acceleration.”

Respondent 3

“There is in most cases opportunities to accelerate any project, but there is a limit to this where a program can only be accelerated to a point. Unfortunately this comes at a premium. You need to try to plan to avoid any acceleration to catch up with the original time frame. Extension of time also comes down to planning. If you promise to deliver a project in nine months, you need to ensure that you do deliver in that time. But sometimes things do happen that is outside the control of the contractor. It is important to inform the client as soon as possible about the possibility of an extension of time. There are various models. The NEC contract model calls it an early warning system. The FIDIC contract model also has a similar system whereby you need to warn the employer as soon as possible of the possibility of the project being extended. The reason for this is to give the client the opportunity to try to mitigate this. The sooner he knows about the problem, the sooner he can work on possible solutions that have less financial implications. Another issue on acceleration is that it has an impact on your human resources. If you over work your people, you will pay a premium in the end concerning quality, money and time.”

Respondent 4

“From an owner’s point of view, every project will over run, because nobody prices correctly. Seeing the contracting world, I understand why every project overruns. Because the scopes given are defined and you can only price that defined scope. The reality is that 30% of all projects in the country, according to studies, are going to overrun. So there is a 30% additional cost that the client don’t know about. And he doesn’t know when it is going to hit him. An interesting study shows that the USA has a 50% overrun. This is a Deloitte study. When the project overrun, the client immediately thinks that the contractor is taking chances. Contractors generally prices projects to make a

profit of between 15% and 20%. But in the end of the day the contractor makes halve of that, because these projects do not run smoothly as planned. So I think any extension of time, are a positive for a contractor, because it gives security to your employees, and it takes a long time to build up these teams. So even though it is a bad business case for the client, it makes good people sense for the contracting company. And sometimes you have too many people at the end of a project, because there is no new work for them so you end up being inefficient or ineffective, and the client pays you only the agreed amount of money that erodes your profit.”

Respondent 5

“The IRR and NPV in a project are absolutely dependent on achieving the schedule. Any delays will pretty much kill your financial return. This is why people strive to achieve the schedule. Some contractors will try to get as many man-hours as possible to increase their revenue. But I think that that is probably in the minority in most cases. However, for the client it is critical to get the project in on time and budget.”

Respondent 6

“I have a very articulated view on accelerating a project program. When starting a project, a program is pre-determined on the basis of the business viability of the project and on the expansion of the development. And you establish a baseline program that you can live with. And that is acceptable to your business. But I think in most cases that program is built in “Utopia”. On the understanding that everything is going to go well and everything is going to run smoothly. I don’t think that we make sufficient allowance in determining a float for a program that allows for the unforeseen. When the program then gets into trouble, it’s normally incumbent on the mining company to accelerate the program to meet the objectives they have sold to their shareholders and respective boards. I think that it is also then a foregone conclusion that in trying to accelerate the program, the people on the ground, responsible for

accelerating and for delivering a project, is not sensitive to the fact that acceleration cost money, while on the contracting side of their business, the contractor in order to maintain this trust and friendship relationship with the miners and for continued business from the miners don't always alert the miners the impact, the full impact, that acceleration has on their program. So each party will then continue accelerating a project program without full exposure to the other party from the other party of the total impact on the development and on the cost."

Respondents 7

"All projects that I've been involved with do overrun, because with the commencement of the projects you don't know all the changes that will happen. In one of our projects, we decided in the middle of the project to add an additional decline, that might increase our cost, but it actually increased our NPV and IRR of the project. So you need to look at the total business plan. To do this properly, you need to have good communication and a very good contract in place. In the contract document, you need to make provisions that there can be changes to the contract and then you use similar rates that are already published in the contract that you do the extension of work. All contractual conditions need to be clear from the beginning. If particular rates were not there, you can use the existing rates to negotiate rates acceptable to both parties. Extension of time is a bit of a difficult one. You know at the end of the day, from a client's point of view, you cannot transfer all the risk to the contractor. If you transfer all the risk, the contractor's tender is going to be so expensive and will jeopardise the viability of the project. So you must make sure that there is an equal base of risk in the project. For example, these are certain unknowns and if those things happen, then you need to take the bold step and say right we must take that cost and go with it. If it takes longer, then you have to live with it. But if the contractor underperforms, you have a total different scenario. If they underperform due to a lack of commitment, training, adequate personnel or equipment, then you need to go through the motions.

Put them on terms, get them to rectify, and if they don't rectify, you can bring additional resources in at their cost to accelerate or rectify. Then you must give them the opportunity to actually fix their work. And that's also where the relationship normally gets difficult. From a contractor's perspective they must always make sure that there is no mediocrity. The contractor must perform better than what the mine can do it themselves or another contractor can do it!"

Respondent 8

"There are two issues around that. The one is the contractor is late because of his own doing and he got to accelerate. Or the contractor is late because of conditions beyond his control like ground conditions or employer supplied services and now he must accelerate. So the contractor is late for reasons beyond his control. That is at the cost of the client. It is absolutely clear and it is written into our contracts like that all the times. The ability to do it, however, is actually very restricted. Typically in mining contracts are done on a twenty-four seven basis. It is only where you have entered into a contract on an eleven day fortnight or some other shift arrangement that actually allows you to either implement an additional shift, goes to CONOPS where you can actually introduce some ability of actually catching up a program. Typically the work can't be done in parallel with one another, due to the nature of the job. Sometimes you can actually bring in an additional fleet and attack something at a different end if it is a Brownfields type project, but if it is a Greenfield type project where you've got one way of actually getting through that entire project, you got very little opportunity to do it either in terms of adding more people. And the only ability that you have is if you actually adding more shifts to something like that, only if this is the way in which you've tendered allows you to do that. In the second scenario where the contractor is late, due to his own inefficiencies, it will be at his cost to accelerate, in order to achieve the end goal that the client is asking for. Again, he is faced with the same restrictions as when or whether it was not his fault. What chances does he actually have to implement additional people and additional equipment? We as contractor

write out responsibility for consequential loss. We cannot as a contractor possibly afford consequential losses. No contractor worldwide would be able to afford that. So you write out consequential losses as well as any other loss of profit that the client might occur. I use to put in the contract nil, now I put in one rand.”

Respondent 9

“It depends on the contract, if there is a mining contract, where they supply mining drills etc., those typically have a fixed duration and the only thing how you would alter that contract is you would ask the contractor to achieve a different through-put, which means a fleet increase or decrease. But you wouldn’t ask the guy for acceleration or to extend the contract. If you look at construction contract, there are three corner stones. One is the contract pricing schedule, how much it’s going to cost. Other one is the contractual schedule and the third one is the scope of work. The three are inter-related because on a construction contract especially in the South African contracting environment – we usually break the contract into two components: There’s a direct cost which relates to the physical items being installed but then the contractors give you P&G cost, which is overhead cost. Then they break the P’s & G’s into time related, which is linked to durations. The other portion is fixed P’s & G’s that would normally be your establishment and disestablishment and some capital costs. The moment when an employer allow an extension of time, the contractor will claim extra for time related P’s & G’s because the contract would have been eleven months and now the employer have agreed it can be fourteen months. So on construction contracts, extension of time almost always has a cost implication. But there are direct and indirect cost components or consequential cost component. Direct cost is how much does the contract value increase by and what is the cost to have that thing delivered. There are consequential cost implications as well. For example if a processing plant is delayed by three months, there is a three months delay in opportunity costs, where you could have generated cash flow.

Typically in contracts in the mining environment, consequential damages are excluded from the contract. So if you now suffer consequential damages in terms of delayed cash flows in future, you can't go back onto the contractor. You still incur that cost. So in terms of granting an extension of time, that is one of the first things you need to understand, what the consequential cost is. If the extension of time is due to increase of scope, obviously there is further cost increases because now you've asked him to do more work so there is going to be direct cost and the contractor may have to bring additional equipment to site, thus additional establishment or de-establishment costs and thus actually hitting all three of the contract elements.

On the other hand, the motivation for acceleration potentially because if you can bring that metallurgical plant forward and you've got the available ore to feed into the plant, there may be a significant financial advantage to the business to actually accelerate the contract. But tactically, that is not my preferred way of entering into a contract, because if you sign a contract for certain duration and within the first month you re-negotiating the completion date, he will see an opportunity to make money. So he knows he basically got you in his grasp. If you are asking for acceleration there is never a cost saving. There is always just a cost increase because he is going to maybe reduce his time related P's and G's due to completing in a shorter period, but to do that he will need more equipment and people.

Acceleration creates a lot of risk if there is more than one contract working together. When it is a standalone contract it may be relatively easy to manage. Both acceleration and extension of time are swearing words in project management. It means additional risk and effort to manage the contract. So my preference is always to understand what you are contracting for up front because tactically you also have an advantage. If the contract is not signed you can still walk away from it and the contractor knows it. The moment you've signed the balance of power moves to him."

Respondent 10

“When you do a project you decide on what will give you the best financial result out of a project. There is always a balance between the time you spend on a project and the cost of a project. A project has a certain logical length of how you can do it, you can vary it a little bit, but if you squeeze it too short, it is like a balloon that will pop out. This indicates that you will need an extraordinary amount of resources on site which cause the risk of losing effectiveness and productivity, because people are going to be in one another’s way. With a recent project where we tried to accelerate, we spend a lot of money with achieving very little. One must be careful of making a project too short or too long. Then people also work too slowly, with no urgent sense of getting things done. This is where strikes and labour action becomes reality. This normally happens towards the end of the project, when you have to lay people off. Because contractors try to extend their work on any project and make more money. The contractor must indicate what is the optimum time, with the amount of resources available, to accelerate. You need to calculate how much revenue you are losing if the project comes in late, and how much it is going to cost to accelerate to bring the project in on time. That is the negotiated settlement with the contractor in the end, because obviously he will try to push it out as far as possible. Normally how the contractors price a job, is that they will have the time related component of the P & G, which are always the bigger component of their P & G. So the moment when you get an extension of time, then the contractor makes more money. And that will be their objective to negotiate and try to get to an extension of time so that their time related P & G’s can get them more revenue.”

Interview Question 3: How do you see your “scope” in defending your business’s financial position when re-negotiating completion date of the project?

Respondent 1

“I think we all realise it makes business sense to have a project delivered on time because of the revenue implications for us when the project is not delivered on time. So sometimes we bend over backwards in terms of getting something delivered on time in terms of the cost associated with it. So we allow things to happen that were not originally in the contract.”

Respondent 2

“My scope is to make sure that I get the best possible return on investment. So it doesn’t assist me if I renegotiate and I get a smaller return on investment or NPV. I must get the best possible NPV. So it is a financial decision. Another consideration to make is safety issues. I cannot push for a project to be accelerated, when I know I’m going to pay a penalty in terms of safety. This is a huge risk, so I cannot only focus on the financials, but also need to look at safety that is a quality issue in terms of social occupation.”

Respondent 3

“The further you go on a project, in terms of time, the fewer the opportunity to do any changes and the higher the impact on the project. The sooner you approach a problem, the more opportunity there is to make changes with less the impact on the project. The same applies for extension of time. My first objective as project manager is to ensure that I deliver in the agreed time frame. Secondly I need to do it constantly. As soon as I see there is a risk that I will not do it in time, I need to see what is the problem and if this is my problem (or within my responsibility). It is then resolved by either adding more resources or working overtime to accelerate. When it is because of a change of scope or any other thing that I need to deliver that was not part of the

original contract, I need to notify the client as soon as possible. I need to notify the client as soon as possible, in order for the client to mitigate his damages. If you want to negotiate, you need to do your homework. Make sure that you understand all the preliminary agreements of the contract. Ensure that you have read your contract and any dairies up to date. You would be surprise how many people want to negotiate and then they haven't read their contract. You need to understand where the risk in the contract is. Then you are in a position to negotiate. If you've done your homework, then the financial impact will be less and more to your advantage."

Respondent 4

"Our biggest thing that we would use or say is that our scope is not clearly defined. Therefore we are always looking to find fault with somebody in the process. Be it the client, the QS's, whatever it is. You can never have a scope so clearly defined. That informs the financial position to why we need these changes. By the time you need to do an extension of time, you know what your errors in your cost estimation are. So you include that in you claims. So sometimes the extra scope work could cost more than your initial work, because of the chance that you've made some errors on certain things. For example is when you put some of your equipment in fixed P & G's instead of time related P & G's, and the job overrun by six months, you've got to carry six month's cost. So you end up loading your P & G's cost as appose to putting in a rate if you are using a rate contract. This is actually done because you are not sure of delivering what you ultimately said. Extension of time puts less pressure on the contractor than acceleration. Some people think that if you accelerate your project program, you actually got a saving in time related cost, which is incorrect. When accelerating, you need a lot more people and equipment which cost more. Furthermore, in acceleration, the mining industry and mining engineers are too optimistic about what they can achieve and never achieve their targets. So we are already put dates forward that are not quite correct. Because we've got this inherent believe that whatever the task

is, we can do it in that time. So invariably, we don't meet our own deadlines. Sometimes the planning of projects is also poor. We are so focused on the now, that we don't look into year two and three. I think the mining industry is less static than the building industry. There are so many variables in any mining project, and we always tend to price with contingencies to mitigate any changes. When doing feasibility studies, mining engineers in mining companies are far too optimistic in what production efficiencies could be achieved, while contractors are far too optimistic in their pricing. During the tendering process the contractors just price the scope, which leaves very little flexibility for any acceleration in future. Furthermore, in South Africa construction and mining workers mostly works 23 days a month, which excludes pay weekends. Worldwide it is practise to work seven days a week in the mining industry. South African productivity is therefore much lower. So in the South African scenario there is space for some acceleration.”

Respondent 5

“It depends on the circumstances of why the project is running late. The maturity of the client also plays a role in a sense of how realistic the budget and schedule was compiled. If you've compiled an unrealistic schedule and budget, you have created a serious problem from day one, and then you are actually in a very weak bargaining position. For example, if you are so aggressive that you don't allow for any probable delays that are apparent from previous knowledge or experience, then you will run into trouble. Your scope determines your schedule and your schedule is a major component of your budget, so how longer it is, the time base cost becomes more. You need to follow the proper steps through all the project phases (from scoping phase, pre-feasibility, to feasibility phases) to ensure that your scope is properly defined. These stages are so important and you can shortcut them, but then you are increasing your risk. The biggest problem with projects is that the work is not scoped very well. If you don't scope it well, you cannot cost it well. But there also should be a balance between the amount of engineering that you

should do and therefore allow the amount of contingencies that you need to allow for errors and omissions. You can engineer it to death, and actually missing the opportunity of profit and a good NPV. So you need to determine the point where you have done sufficient engineering, where you have sufficient confidence to develop a budget and a schedule that you can live with.”

Respondent 6

“Save as much money as possible, save the exposure to additional risk and obviously try to bring the project in within the approved budget. Very often this happens to the detriment of the contractor and I think most miners in this instance will try to push the contractor for the best possible deal in negotiating the final conclusion to any acceleration or extension of time.”

Respondent 7

“We’ve got a process called the “Capital One” procedure. You know what your mandates are and you have to notify your superiors and the board, in our case we go to the Steer committee and then to the board and say to them, listen this is the situation, this is the financial implication long before it actually becomes a problem. Then you can get approval from the board to do those changes. Because if those changes jeopardise the viability of the project then you just carry on doing it then you going to end up without a job. If you see there is changes, example if you have a contract to do 10,000 metres of development for an R 100 million, and you are running into problems and you can see that you are running over that limit. In your negotiation process with the contractor you can’t say to the contractor, listen, I’ve got a only a hundred million bucks, so stuff you, just do whatever you need to do to fix the problem. Obviously you have to sit with him, evaluate the problem, get their estimating people in, do calculations, see if the impact that they are talking about is real. Evaluate how much of it is required and can you do something else. How can you adjust everything, change the scope so that you still stay within that approved value?

But if you can't stay within that approved value, then you need to finish the project. You can't get to a point where you just say that we can't pay you, because my level of authority doesn't allow me to go over a certain value. There it is all about cost controls, with conditions that are in place. You must do your forecasts and try to control it to as best to your ability. The bottom line is that you must be able to identify the problem, long before hand , so that you can have adequate time to do the necessary evaluations to see what is the extend of the expenditure, what is the impact on the project in terms of the NPV or IRR? If it goes above certain levels, then you have to notify the board. We use a project value tracker. You start off with a NPV at the required discount rate or the hurdle rate and then you show all the external factors that impact on it. This includes your metal price, inflation and escalation rate changes. Then you get your controllable factors like your speed, how quickly are you falling behind schedule, are you gaining on schedule, do you accelerate, do you crash the project? Do you allow for certain extension of time? And you put that into your project. The amount of money you pay the contractor at the end of the day in terms of the total impact on the job in terms of delays or anticipated production cost is minute against those major things. So you must constantly know where you are. This is typically done on a quarterly basis. You plot those on a waterfall graph where you can see the current situation and whether the project still falls within the business plan. Then the board can make a qualified decision to approve funds to continue. Then you can say that it is viable to accelerate and it's quantified, plotted on a graph and you can go to the board, who signed it off. So you got the documents and if something happens afterwards and the board ask why you did it, you can go back and find those files and pull it out and shows that it had been discussed at board level. I believe that the more mature you approach it and contractor sees it, then he can trust you."

Respondent 8

“We would argue that the reason for being late was beyond our control. Now I would think that the NEC contract got the best mechanisms that ensure that the client is always aware of such situations. It got a mechanism that is called an early warning. Then you can tell the client, that as result of this condition that you have found or non-delivery of that from you Mr Client, I’m giving you an early warning now and this is the result of it or the impact of it. And then he got to take a decision based on it. Either he accepts it or he tells you to accelerate to get out of it, but there is a mechanism that looks at it way in front. You should give him warning long in advance. As a professional contractor, you try to make it black and white. There is no question about it. Mr Client, you took responsibility for ground conditions, you took responsibility for gas underground, you took responsibility for water inflow underground and as a result we have suffered loss in time on the project. We want an extension of time and all costs associated for it. But then he can still say that yes, but I still want you to catch that up. Then I would say, yes, but that comes at an additional cost. So it is absolutely clear in our contracts. And I think that to lower the level of debate or tension on a site, it is better to rather have it in your contract than to try to debate the legalities or the rights or the wrongs of it afterwards. Rather have it absolutely clear. And spend more time upfront to negotiate the terms of the contract than actually trying to do it posts the event. As a professional contractor, this company has been in the contracting business for a hundred years, you should by now have institutional memory of every condition that you are likely to encounter. And you take your key ones that really would have a big impact on you and ensure that you make them 100% clear in your contracts.”

Respondent 9

“There are three corner stone in a project; pricing schedule, scope of work and the schedule. If you don’t have those three sorted out you don’t have a proper contract. Around the two there is a lot of other, the lawyers will take exception

on my statement here but that covers the commercial issues and then there is a lot of legal issues around it in terms of indemnities and ownership of information, anti-bribery and corruption and dispute resolution. So there are a lot of legal issues that you wrap around those three corner stones. So if you want to re-negotiate a contract it's going to go back to one of those three corner stones. Either you changing the scope and normally if you change the scope there will be an impact on the price and the schedule.

If a contractor comes to you with an extension of time claim, he is going to have to base it on something. So depending on the basis of their claim you're defence would be in response to that. But if their scope has not changed, there has to be a very good reason for you to consider any changes of the extension of time. You can also answer this question in a different way and say that may be one of your tools is to take some scope out of the work, but I want the project to end earlier. So my objective is earlier completion by keeping the same resources and does less work. So the price should come down and the end date should come in. But scope, I wouldn't use it as a tool to defend. It is really a tool for the contractor as a basis to claim. You have to look at the facts and has the scope increased? Were there delays outside the control of the contractor? What gets me very angry is this term what they call "scope creep". This happens when you get a contract quickly in place and then try sort the rest out as you go along. Then you expose yourself as the employer so much because now the contractor knows he got the job and he dictates the terms. My view point that I take into contract negotiations, is that if I give you more work the unit price must come down. You don't get that benefit by trying to negotiate after you've signed the contract. If it's prior to contract formation you can say to the guy there is more work, so there is a bigger scope, so I want a better unit price. He will offer it as long as he is still in competition with somebody else. So again it comes back to the fundamentals, you do not want any extension of time or acceleration. Sometimes it is unavoidable but it is always, in my opinion, in favour of the contractor, because

he is negotiating from a position of strength. He got the contract and he is not going to give you the benefit of any additional quantities of reduced unit rates.”

Respondent 10

“Re-negotiating is normally done as a project team or your mine management team. Somebody must look at technical issues and the costing impact of changing or extending the time. Again, it is not just the cost of that extension of time, it also delay the project and then delay your revenue stream. And if something does not have a direct impact on your revenue, then it is just the cost of that extension of time. Those are the components that you must ensure are aligned and everybody got under control before you make a decision. The aspiration levels of mining companies do differ when negotiating. For example some of the bigger mining houses don’t care as much as smaller mining companies, because it is not their money. It depends on how strict the mining house is to run his business, and from the contractor’s side this is also true. Some of the big contractors only go through the motions. It is not as tough to negotiate with bigger companies as with smaller companies. If a person is responsible for the budget or the bottom line profit, then he is a much tougher negotiator, than when he is not responsible.”

8.3.3. Research Question 3:

What is the relative bargaining power of both parties regarding negotiating the extension of time on a project, and, what is the balance between achieving their goal and fairness?

Interview Question 4: Who has the most bargaining power in your opinion and why?

Respondent 1

“I think it depends on the situation I think that sometimes you can say that the organisation is has the least bargaining power as you want your project to be

delivered on time. So the question is: What do you bargain? Based on what? Bargain for what? You want your project and the costs associated with it. You cannot stop the project and you cannot get rid of a contractor, because you don't want to go to another contractor at that late stage of the contract. So the contractor got all the power. Where I think there is a little bit of bargaining power, is when it's not a massive project and there is more projects in the same relationship. Then you have a little bit of bargaining power because of the next projects. The big projects that we normally negotiate on, in the mining industry, we don't have any bargaining power, especially when it comes close to the end of the project."

Respondent 2

"It depends on the circumstances. If the contractor has several contracts lined up and they don't need to pay many penalties in terms of breach of contract, they do have more bargaining power. If there is not a lot of work available, then obviously the owner will be in a better position. If it is a once-off contract, it doesn't really matter for the owner or for the contractor. If there is reputational damage to the contractor, then he will also be in a slightly worst bargaining position. We had a situation not so long ago, where the company who was doing the contract mining for us and the profit margin that he was earning was just not in line with what he was expecting and he then gave us termination of contract notice. But it is always better to go for a reputable contractor that is commercially more inclined, but it also depends on his commitments. If I can get the A-team of a reputable company, I will go for it. But if he is so busy all over the world that I can only get his F-team, then I will rather go for a smaller contractor or less known contractor with people that I know. It depends on the type of team, the contractor's previous experience on doing something, but normally it pays you to go for more experienced people with the right back-up. You always have challenges with smaller companies, especially "one-man" shows who normally don't have the depth or the money

to pay their people. Mid-size companies are currently the companies I prefer to use, because they want to grow and they are more inclined to please.”

Respondent 3

“In the beginning of the contract the power lies with the employer, especially with the current construction environment. The contractor will bend backwards to get the job, but as the contract carries on, the employer gets to a point where either he needs to get rid of the contractor (and get a new one) or just endure and make things work. The bargaining stake for the contractor is higher at the end of the contract than at the beginning of the contract. You will see it in the attitude as well. We all talk of the “honeymoon” phase and then it get worse and end up in litigation. This is where the conflicts begin and there is always a gap between reality and plan, and as project manager you need to ensure that you reality stays as close to your plan as possible.”

Respondent 4

“Negotiation power lies with the EPCM or the QS Company. In big projects an owner can be quite naïve concerning commercial issues. Then the owner makes use of an EPCM to interface between him and the contractor with some mining projects. If you are doing a project like a shaft sink, you need a lot of thinking, planning, coordinating activities and designs, and then an EPCM is perfect. Sometimes the QS companies do the negotiations on behalf of a client and they end up becoming bullies, to proof that they are more correct or has more knowledge than the contractor. And then you start bringing in your heavy weights, the guys who are commercially more astute. So I think in most instances owners are possibly more naïve and that’s why you have EPCMs and QSs. And I think the QSs are very close in overstepping their boundaries in some instances. So more power rests with the owner team, because the contractor is often more willing to give in more, because he knows the situation with his people or his workload and therefore will be more adaptable to the needs of the owner, because the client’s requirements is what drives the

contractor's future work. Other contracting companies are more hardball, but as a company we prefer to work with the guys, and sometimes hurt us in terms of our overall profit. The time factor regarding bargaining power work both ways. Upfront it is always the tough negotiations, once those rules are set, you generally stick with it and as the project progresses, and there will always be a new rule that creeps that people have forgotten about. Contractors become more forgetful over a period of time, where the consistency of a QS company keeps the rules quite grounded. I think over time contract companies becomes less assertive in terms of what they have, but when things go wrong for them, right at the end they can get relative aggressive as a contractor to a point if they have lost money or starting to lose money, then there is no holds barred. They get incredibly aggressive with a client or with the situation, and become very defensive and everything is at fault. So over time, the relationship sours, if it does, contractors end up with stronger bargaining but most times never go to court, because of the long duration and cost. This is not something that we want tainted with us, so we try to negotiate it as best we can and then you end up splitting the differences percentage wise."

Respondent 5

"The money holds the cheque book. He, who holds the gold, makes the rules. If the contractor does not like the rules, the client has the money, the contractor can go elsewhere. But when you reach the end of a project you can't change. If you got to that point, you're in bed and it's impossible to "divorce" without serious pain to both parties. Then you would rather negotiate acceleration. But then again you can only accelerate so much and you can only put so many bodies onto it and then it becomes dangerous if you go beyond a certain critical mass. And the only way to accelerate is to increase resources. It will cost you more money, but it again depends on the sensitivity of your project. Is it more sensitive to capital or more sensitive to time (operating cost)?"

Respondent 6

“I think the answer would be the one who owns the money, holds the power. However, I think that only works in so far as contractors have an appetite or a will to be bullied. In certain instances however, the contractor may just appoint a very astute commercial team to conduct his negotiations and discussions for and on his behalf. And in the instance what you’ve describe where acceleration takes place and we try to “divvy” up the damages after the project , invariably the contractor finds himself in a very awkward position where he wants to get paid and is prepared to compromise more than what he possibly should, and the client is more aware of this. And they take full advantage of this position, so it could be perceive that the owner holds the most power in that condition where everything is done, the money is spend and now it is just a case of recovering the money. Unfortunately the contractor does not have much bargaining power left, because the client sits with all the money. That’s the standard answer, however, if contractor would change their tactics or change their approach, obviously and negotiate at an appropriate time and bring the acceleration or the delay or the additional cost to the attention of the owner upfront, where they still need to do the work, that changes the position of bargaining power in favour of the contractor.”

Respondent 7

“It depends on the situation. For example the mining contractor and you want to extend the contract. If they know you don’t have the skills, equipment or management, then obviously the leverage in terms of bargaining is on their side. If you do have the skills, and the market conditions is such, that they are hungry for projects. Then the lever is in the employer’s hands again. Then you can squeeze the contractor with the price. So it is situational dependent. It depends on where the balance of power is. Is it the supplier who is driving it or is it the demand that is driving it. Supply and demand, and who is prepared to fight the hardest for their stake. In the end it boils down to the maturity of the people involved. The more mature they are the more they focus on

fairness and what is right and what is wrong. If is fair, the better the negotiation process will go. You know where your walk away points are. If the contractor keeps on pushing through beyond your walk away point, then you would rather do it yourselves or get another contractor. The contractor also got a walk away point, and he knows that if he is going to make a loss, he will not do the project. The important thing is that you must be careful on the contracting basis that the contract doesn't become too long. The longer the contract become, the more dependent you become on them and the more difficult it is becoming to exit from the contract, then you start putting the lever back in the contractor's hands. Then the contractor gets the stronger bargaining lever. So if you are going to change there-after, it is a painful exercise."

Respondent 8

"Before the contract is signed, the client has the bargaining power. Because you as the contractor want the work and the client has the option to actually go to someone else. So he definitely got bargaining power. We have seen contracts, where the client closed out the tender with two contracts in absolute detail, so that you were kept competitive at all times, so that you have lesser bargaining power at all times. There were never any indications, whether you are going to get the project or not, until they have concluded all the commercial negotiations, and crossed every T and dotted every I and agreed every contractual term with both contractors. They've discussed and close out every technical and price related and programming issue with regards. And they had written the contract for both the contractors and then they went and awarded it to one. So that is holding all your strings to make sure that you maintain bargaining power. So ones the contractor signed, it depends on the circumstances. If the circumstances contained within your contract, I would have said maybe you have equal rights. I suppose it depends on how that particular clause is worded, whether it is in the contractor's favour, because the contractor is all about allocation of risk. What one should be doing, ensuring

that the risk is allocated to the party that can best deal with it from a practical sense? So ultimately, who got the best bargaining power, once the job is going, you hit bad ground, you as contractor, got conditions in contract to get an extension of time, additional cost, everything like that, you've got the best power, it is contained. There might be other conditions where you are behind the contract and the client tells you to accelerate. It is contained in the contract to what you've got to do. You've got to supply more resources and equipment and everything else to try to catch up. He's got the power that is contained in the contract. So it is about what is contained at the end of the day. That will shift the power from the one party to the other party. So it is based on circumstances."

Respondent 9

"I honestly believe it is in favour of the contractor. Before you form a contract, and before you would actually look at acceleration and extension of time, he doesn't have the work. So you've got options, you can go to contractor B, C or D. He knows that, but the moment you sign that contract you are in bed with him. The probability is that you are going to give that little bit of work to somebody else is highly unlikely, so they've definitely got the advantage."

Respondent 10

"The party that is not responsible for the change got the most bargaining power. If the mining house initiates the change because he is late with free issue equipment or whatever, then the contractor will have more bargaining power. If the contractor is late, due to his own poor management of a contract, and he has to apply for an extension of time and negotiate, he will be in a vulnerable position. The key is, don't make changes and don't be late. That will save your position. I've also found that if you go to the contractor first and say I am considering doing this and this change, give me a quote, then you get a better deal than when you just say, move this out to that date. Then immediately the contractor gets the stronger position. So if you do it properly

and you say this is what you think of doing give me a quote. What I normally try to do on mega projects, is mobilise more than one of a typical type of contractor. If you get more contractors on site, and you want something to change or do additional work, then you've created competition. If you've got only one contractor, and you rely mainly on him, and then you just ask him to do work and negotiate cost and time impact later, then you are really vulnerable."

Interview Question 5: Can you describe the positive & negative aspects of constructive acceleration and the consequences thereof?

Respondent 1

"Any acceleration comes with a premium. There's never acceleration that is cheaper than originally planned. So if you acceleration, even if it is to catch up, it increases your costs. But again, you have to consider that against your revenue for the project. Although you might spend money at a premium you can still get the benefit of early production. And then the revenue is more important than the cost. If one understands the reasons for acceleration claims and the employer requested it, and then you need to pay those additional cost."

Respondent 2

"One of the advantages is that you do create a bit more urgency. You're forcing people to look at the challenge. You basically forcing people to break the "mould" and look at things differently. You then create opportunities and you often find that people didn't think accelerating was actually possible. The positive is also, the sooner you can complete the project, the sooner you can get a return on the project. The negative is that it will cost you more money. You need to consider very carefully whether the money you are going to spend is a good investment. The other issue is that when you have less time, your quality would suffer. People will take short cuts, and there will be penalties."

There is that triangle with cost, time and quality. And the chance is always good that if you reduce time, you will sacrifice on cost and quality.”

Respondent 3

“The positive is that you can mitigate a delay, but a contractor will not accelerate if he does not need to. It will cost you money and it is not a linear relationship. If I have two teams I will not halve the hours, because people are working ineffectively. If they need to work too many hours and over weekends it will demoralise them and it will cost the client. If you have to accelerate, you can draw back your schedule to make your deadlines. The negative side is that you will reach a point where your people will become demoralised and start abandoning the project and lost faith in the project. You can have people working for so long up to a point, and then you have high staff turnover and new people have to go through the learning curve, you especially don’t want this at the end phases of the project.”

Respondent 4

“When a guy wants to accelerate a project, the most important part is that mining houses have done NPV’s and IRR’s, so they have put forward a good business case. So the contractor will know that the scope will change by 30% over time, which means that there will be a 30% extra cost, minimum, and there is going to be an extra 30% in time. Out of interest from a project management world, if your project cost more than 25% of the plan, then it is considered a failed project. Some of the mining houses, the juniors, borrow money on a certain plan, had they known that their project will overrun by 30% there would have probably not been a business case, or there could have been a business case, but they would have never raised enough funds. We have had that experience at one of our mines, a recent one, the company borrowed funding. The project overran probably by 50% in time and cost, they hadn’t risen enough funding, and now they are under financial review. So the consequences of a contract and not understanding the client’s financial

position are huge for the contractor. The bigger companies, especially on a brown field's site, can ride that wave, because delaying or deferring capital expenditure till later doesn't make as big a difference as getting income from somewhere else. Only the green fields' sites are really hurt by funding and the effect of a delay. With acceleration, there is a point where, there the cost exceeds the financial benefits or rewards of going quicker. I don't think it happens with South African companies, I don't think we can accelerate that fast. A single entry like a shaft, there is very little opportunity for acceleration. But with multiple ends, infrastructure development actually got the best opportunity for acceleration. It will cost the client a lot more; therefore it defeats the objective of accelerating."

Respondent 5

"The positive thing is, is that you can try to bring back your project on schedule. The question is whether the acceleration is realistic. All of these questions go back to, did you realistic put together a realistic schedule and budget. It is absolutely pointless for example having your contractor working twelve hours a day, seven days a week from day one, because there is no catch up potential and you cannot accelerate. You need to allow float or catch up potential. The negative thing is obviously cost. Cost and planning. For example if you want to accelerate, you need a piece of kid, which is not there yet. You allow resources for certain date on your schedule, if you accelerate, it is difficult to achieve those dates and cost additional money."

Respondent 6

"Constructive acceleration has a place in the execution of any project. Constructive acceleration by definition is where the contractor is forced into a position of accelerating a program either by instruction of the client or circumstances of the project. So the contractor has no choice. The removal of his choice stems from the model of contract used. Typically in a FIDIC type contract there is a requirement for the contractor to fulfil any instruction given

by the client and if the client instructs him to accelerate a program, whether intentionally or unintentionally or whether he intends to pay for that acceleration or not, the contractor has no option but to accelerate that program. He must do so, because the client requires him or the contract requires him to do so. In most instances this put the contractor at a financial disadvantage, because he has no financial resolution upfront and he is then forced in accelerating his program. This invariably leads then to a disagreement on the recovery or remedies available to him later on. But the fact remains that he has to fulfil or face of being in bridge of his contract. This put the contractor in a very awkward position where he is uncertain that he is going to get the money, but he has to fulfil the instruction to accelerate the program. That is the term by definition for constructive acceleration. The only remedy available to the contractor is to give effect to the instruction and then to pursue a legal recovery of his cost at the end of the period. The positive to this is that the work is actually gets done. This is if there is no dispute and the one can't hold a gun to the other one's head and the project comes to a standstill in consequence to that. On the negative side is obviously an unresolved commercial issue that has to be dealt with. The other negative to this is that invariably it places the two parties in a disagreement or in a dispute and this always troubles a relationship. The contractor will always be aware of this. He will try his utmost not to trouble the relationship for the fear of not securing future work. I think at the end of the day, the negatives far exceed the positives and parties should do their utmost to avoid a condition of constructive acceleration."

Respondent 7

"For me it is about the financial benefits. If the project doesn't gain from those acceleration programs, which cost you more money, you don't do it. It got nothing to do with relationships between the contractor and the owner. Obviously it depends on your cash flow and funds available. If you got a loan facility or cash from other sources, like from operations, to fund your capital

and your contractor's costs and there is a very viable proposition when you going to accelerate at double the rate, then you do it. But now you need double the money, but you do not have that money even if it gives you good results at the end of the day, then you just can't do it. You have to look at the whole picture and stay within your cash constraints."

Respondent 8

"The positive one is obviously that there is a chance that you are going to improve on the program and meet the original delivery date. The negative is that you might have used up all of the available options that should there be a subsequent event to it, you've got no further room to manoeuvre. Then obviously it means that there is more people and more equipment so it becomes more complex to manage. There is more labour on site and all the issues of more people on site like issues with unions, accommodation and transport. A positive for the contractor is that he is turning over more revenue."

Respondent 9

"It comes back to cost. There is a graph with a local maximum and a local minimum related to contract duration and cost. Often people make the mistake of saying to a contractor to complete in a specific time that may not be the efficient duration for that project. Again it boils down to contract formation, contract management or administration and then contract closure. In that contract formation phase, if you dictate to the contractor what the schedule will be, he may come up with either an unrealistic estimate or sub-optimal cost structure. A contractor would know if he got a steel tying team that does re-enforcing steel installation, that team can do so many tons per day. So if you tell him to do it in a specific duration or ask him how long it will take, he may say if he uses one team it's going to take so long and if he uses two teams it takes perhaps half the time. But if you tell him do it in a specific duration then he may end up having to put in three teams, but the one team is half utilised. The contractor knows that graph, with the local minimum and local maximum

and perhaps if he is a good contractor and an honest contractor he will offer the most cost-effective solution to you. If you sign the contract and you go later and indicate that you want to accelerate, it will be difficult to manoeuvre on that graph. It is a reactive approach to contracting. A clever way of mitigate this problem is to use an ICU type of contract where you don't have the traditional scope and you actually only have unit rates. You tell the contractor to put an excavator, a dozer and supervision on site, and then I, the employer, will make sure that there is enough work for them. Then you create a lot more flexibility from that acceleration point of view and if you need more you just give him notice in terms of the contract and say bring another machine, but that cost is already known. Then you can actually negotiate with him an extension of time i.e. a later completion date if you realise that your overall construction schedule for the project doesn't need him to finish early. But then your negotiation is very different, where your P's and G's become more but certain of the other cost then come out and it may be that you then work towards this minimum, a lower cost. It will still be difficult to negotiate it with him, because depending on how he offered his pricing structure. One of the first things you learn in terms of contract administration with these re-measurable contracts is that the contractor always hide costs somewhere in the contract and depending on their perception of whether you are going to have scope growth or schedule growth, they would put the cost in different places. So if they think you're going to double the amount of work, they probably would inflate their unit costs because they now if this contract is doubled they can have the advantage for additional work. The client will double the amount of work and give 20% more time. So he's not going to make a lot of money on his P's and G's, he's going to make a lot more on the units or direct costs. If he believes your scope is overstated, in other words now you are going to go take work out of the scope because you've done a preliminary measure of the bill, which may reduce in future. If you give them drawings, measure it and realise that the employer is overly conservative in terms of the quantities that they indicate, so in all probability it is going to be less, and then they would reduce the unit rates and hide the money

somewhere else. He knows if you reduce the scope, there will be less work. Then the work trust becomes very difficult because contractors got a work profit incentive. They're going to work very hard to make sure that they make a profit. They're not going to be exploitative or necessarily going to be profiteering, but they will work hard to allocate, secure and defend their profit margin. So it really comes back to that you must know what you are buying and you must understand how you are contracting and what are the risks as you make changes to it later. Do you believe you're going to change the scope, do you believe you are going to change the end date, do you believe you are going to change the start date? Because you may have different ends date because you've got a different start date. So you delay the contractor from mobilizing for various reasons. Then it may not be extension of time in terms of the overall duration but it may be a different end date to the contract. I don't trust contractors and that is why we and all the bigger projects do use professional quantity surveyors at the contract formation phase. Because then you can draw up the pricing schedules and the associated cost breakdown in such a way that it is transparent. So you see what you pay for. So if there is a change to that unit, even though it is covered under P's and G's, and you suddenly have to double the number of LDV's, you've already got a unit cost in the P's and G's that relates to that. If you don't specify that in the first submission, they'll have P's and G's, and it's just like a black box. And if you've got a black box, contractually you so weak because that guy can tell you he want two weeks more. The contractor would just say to you listen I had a ten week contract, it's now two weeks longer, so it's going to be two over ten additional P's and G's. But it may not be the case, because it's supposed to be only time related and not the fixed P's and G's. So whether I trust them or not is not really relevant as to how do you manage that process. You need to make sure that your pricing schedule is clear because then it makes it easier to negotiate extensions or acceleration. You must have a breakdown of the P's and G's and obviously the breakdown of the unit cost. So don't trust the contractor, do your homework and manage it."

Respondent 10

“Positive, you get better value for money, and you eliminate some risk out of the longer duration. With the longer duration you have, the longer you have to manage risk, the longer the chances of a strike, inclement weather, and then you would look at accelerate some aspects and then achieve those aspects as well as getting your revenue stream flowing earlier. The negative aspect of it is that it would be a change, which will put you in a bit of more vulnerable position. You sometimes accelerate beyond that critical point where you lose productivity and things are not as effective as what it used to be. Workers start leaving things for tomorrow, which they could have finished today and then you lose productivity.”

Interview Question 6: Why, in your opinion, is clear scope definition and change control procedures poorly executed?

Respondent 1

“I think if it is not planned well up front, then it leaves a gap for people to control it. And secondly, I think the quality of the project management that we are doing in the mining industry is not that good. It is simple little things, day to day controls that need to happen. Many times smaller projects are given to line people in the organisation and its when you have those line people involved in terms of the project delivery and they don't have those project management skills. Massive projects it is slightly different. You bring in a project manager and they deliver and they've got their schedules and controls in place. But the moment you go into smaller projects delivered on mine to the organisation you can't exclude those operational people from the project. They've got to have that commitment to enable delivery on that and many times we don't appoint the right level of project management from the contractor's side and from the organisational side on those projects and that causes most of our failures.”

Respondent 2

“Firstly, we normally do not have a clear scope. We do not go through the right procedure or process in preparing the scope. In creating the scope, you have to be very careful, in the early stages of the project; the owner doesn’t exactly understand what he wants. Or he understands what he wants, but he doesn’t understand what he needs. So there is a difference between what he really wants and what he really needs. The contractor on the other side often realises that the owner got that problem. It’s then too soon in the contract and they don’t really want to “make waves”. So they would rather let it stay and by the time they figure out that here is a problem, there is already a lot of water under the bridge and production slips and become a bit of a challenge. And then secondly the day-to-day management of the contract is not good. The short term clause, when not meeting certain expectations, action should be taken immediately. You should not wait till the last moment and only then confront the problem.”

Respondent 3

“It depends on the contracting model, if it is going to be EPC or EPCM etc. It all depends on the model that you choose and where the risk lies. There is some guilt to both the contractor and the employer. The employer doesn’t know what he wants, and the contractor think he knows what the employer want. And then there is a discrepancy between what the employer wanted and what the contractor believed the employer wanted. In the ideal world the employer, with his EPCM representative, will in the BFS phase ensure that the scope is properly defined. Employers will take up that risk, ending up paying for it. It is better to extend the pre-feasibility phases and concept phases to ensure that you know and understand exactly what the scope is. The contractor needs to ensure that he understands the scope. If he doesn’t understand the scope, he needs to go back to the client in the beginning or negotiating phase to understand what the scope is. Ensure that client and contractor is on par regarding the scope of the project. Usually the contractor

is just too happy to get the job and the client too happy that they've got somebody to start the project, without giving attention to the detail of the scope. The same apply for change control. Now there is a scope and we've identified the break-down structure. It is important to identify any changes timeously to mitigate the time, cost and quality impact. If you leave this for later, you will get problems that will lead to a conflict phase. The earlier you make the client aware of any additional cost, the better. If you leave it, you will have problems at the end. Maybe it is an emotional thing. In the beginning of the project, the contractor don't want to go to the client for every little change and request for a change order, for fear that the client will believe that the contractor is only here to make money and doesn't feel that the contractor has the client at heart. But unfortunately to ensure quality, time and cost, they need to put it down on paper and sign it off for every change. If you do this, there is a good possibility that the project will be completed without any major conflict."

Respondent 4

"When you define a scope and changes occur, you cannot believe that you were wrong, therefore you defend that scope to the end degree. The difficulty that contractors have is that you got to work on numerous different contracts. You've got the FIDICS, the NEC's and then you've got derivatives within those two. And under each one, there is a variation of certain things. I think one of the concerns with something like a FIDIC is that you only put in writing your concerns, and only at the end of the project, can you actually sit with a client and trying to negotiate that 30% overrun, and you try to get your extra 30% of cost and time at the end of the project. The problem with that is that you defer your problems way into the future. So when it hits the client, in terms of money, it is a big number. NEC is more progressive, because you put in your claims every week and within a month or fourteen days or whatever the period stipulated, you resolve your issues. So over time, the client has actually better knowledge about what his financial situation is going to be. So I think the

contract type, informs the scope change. NEC is more paperwork. But more paperwork, actually gives him a better picture, of where he is heading for the future. And then he can actually change his scope or reduce his scope, so that he doesn't over spend on it."

Respondent 5

"The client doesn't know what he wants. The client changes his mind in mid-stream and there is not enough information to execute the project on. For example, for mining, have you done enough drilling, do you have enough information and really understand the ore body? What the grades are, what type of mine I can deliver in terms of tonnes and what the mine can deliver in terms of grade. Most engineering companies have change control procedure and the change control procedure requires quite a lot of paper work. So when you are an engineering company, you become nice to the client and you do not implement it. You don't implement the change procedure and the consequences of that are that you are running into budget problems. The opposite end of the spectrum, which is equally bad, is the guys who implement the change control procedures so strictly, that you can snow it under paperwork. And both of those have an effect on how you control your contingency, contingency being for errors and omissions. For me, for instance, say you've done a drawing and you have done the earthworks and you put the civils together and you have a "oops" moment and the pump is in the wrong spot. For me that's an error, that come straight from contingency. The "oops" thing where we have forgotten a pump, that is a change of scope. Unfortunately this is not quite black and white. Which is which? You might say a pump is USD 50,000, I've got a USD 4 Billion project, so don't worry about that. But "O dear, we've forgotten a circuit!" and that circuit is a Hundred million dollars, for me that circuit is a change of scope. Remember you've budget a scope, which exclude something. If you buy something or do something that wasn't in the original scope, it means that you can't either buy

something or it takes money away from contingency, which you need for errors or omissions.”

Respondent 6

“This is due to poor drafting of contracts. There is a general perception in the industry, and I’ll give it to you from both the employer and contractor’s perspective, the employer thinks that if he describes the scope of the work or the scope definition very vaguely, that he can manipulate that later on, to incorporate things that he never intended to be in the scope or deliberately describe very vaguely so that he can bully the contractor into a submission to give him more than what he bargained for in the first instance. Similarly on the contractor’s side, they’ve got a diametrically opposed objective in that if the contract is vaguely written, then he could deliver less than what the client was paying for later on and get away with it or claim extras as he pursues depending on how scrupulous or unscrupulous each of these parties are. The only definite out of a poorly drafted contract is that there in most likelihood is a dispute. It is far more important to describe the contract and the scope definition in absolute clear terms so that each party understands what they are paying for and what they are paid for. And then there can be no dispute. The change control procedure is then much better reflected if the scope is very clear, because each party understands then what their responsibility is and what they are getting paid for and what they are paying out money for. And then change control becomes a very simple exercise. If it is in the contract, the contractor does it and he gets paid under the contract. If it is not in the contract, a variation or change order has to be drafted and issued. The difficulty here with change control procedure is that generally there are three pillars of any project namely, scope definition, schedule definition and cost definition. Those three rules apply to any contract as well. Scope, time and cost are the three essences of any contract. Generally the cost is well described; the time is very well described in that you put a base line schedule together, but both of these falls over, if the scope is not clearly defined. That is

why it is very important to have a very clear scope definition. It is inevitable that the contractor will postpone the discussion of scope variation in order to delay any perceived possible conflict. In my experience in dealing with contractors in the construction industry, this happens 99.9% of the time. The discussion around change control is invariably delayed because it is an awkward discussion to have. It is a discussion where the contractor feels that he has to submit something, but whether the fear of rejection or what the case may be doesn't necessarily always submit these to the client and the danger to the client in that instance is that he hasn't proper control of his full exposure to costs. Similarly on the client's side if the contractor is not forthcoming with all of his required changes on an on-going continuous basis, then he doesn't have the opportunity to decide whether to pursue or not to pursue any changes and that removes any opportunity of choice from the client. Invariably the work gets done and there is a fight about costs afterwards. Whereas if there was a proper change control or change management process in place between the client and the contractor and the contractor was absolutely forthcoming with changes, the client is then in a position to pursue those changes or not. He has then a choice. And similarly if the client was more forthcoming in dealing with changes in the run, the contractor would know what his risk profile and what his exposure to costs and addition time is, and he will be able to make a similar business decision on the run."

Respondent 7

"Because people don't like paperwork and very often the guys are just slack. They are lazy and maybe what sometimes happens is that they keep on showing that everything is fine, until the last moment and then the bomb burst and then everybody is in trouble. I've often thought that those things start to happen when people start telling things to people what they think they want to hear. At a board meeting they assure the board that they are still on budget and on schedule. Then suddenly something happens and you find out that everything is a mess up and people haven't done their job properly. It is the

understanding of what those things are. If the scope is not clear, then the change management processes will not be managed properly. It can actually push a project in being a negative NPV very quickly, and then the relationship starts getting bad very quickly. Then you get into a blame culture and amnesia starts to appear. Nobody knows anything and suddenly signatures exist.”

Respondent 8

“We appoint the wrong people to actually run what is really or belongs in the field of a professional project manager. We appoint mining engineers, electrical or mechanical engineers that are not necessarily properly trained in the field of project management. And the guys either come through the production environment of a mining house and that is totally not what project delivery or only a small element of what project delivery is. If one looks at like a PMBOK’s thirteen elements, project control and change management are a major component of it. And they actually have never been exposed to it. It was never an issue in a mine type production environment. And the same really applies to a typical electrical or mechanical engineer that comes from a mine; he hasn’t had exposure from delivering projects on a mine. He is a maintenance engineer, and he focusses on his planned maintenance programs and it is a very structured environment and none of the challenges that faces a project manager. He never gets exposed to it, so he never learns the systems that need to be put in place. And he never got to comply with a contract between two parties. He got his KPI’s and his KPA’s to ensure that the equipment utilisation and availability matches and exceeds that of the requirements to meet the production of the mine. This is very different to actually deliver a project. And that’s why these guys slip up on change management and everything else. I’ve said it at the Board and EXCO over and over again, and everybody’s hair stands up when I say, because we don’t employ professional project managers. We can pull somebody of the street that can do a better job than some of our guys. Let’s take the Greenpoint Stadium as an example, the guy never build a stadium in his life before. Yet

he delivers this as a highly successful project on time. Yes, there was a cost overrun, but that had all to do with design changes. We insist that we must have a guy that has done that job before, to be the project manager. And that to me is wrong. So I believe that, and I've done it now for one of my projects for the first time, that there is two project managers, it looks almost like a one over one situation, but they've got two different responsibilities. The one guy is there to purely deliver the project and he must be the technical expert. And the other guy is there for client relationship, EPCM relationship and change management. And I see a lot in the word relationship. Then the poor guy who is delivering the project, don't need to worry about all of these types of things. He just gets on and focuses on delivery. I think we don't put into our structures the skills that the poor guy needs on the site. That detailed planning that is required, contractual management and assistance that the guy actually requires. We don't even give this poor guy any assistance to actually handle it. So there are a few fingers pointing back at management not giving the guys the support they actually need. But ultimately it comes down to calibre and the experience of the person. He is technically competent but not professionally competent to run projects. Personalities also come in to play as well. How hard nose is this individual that we've employed. If he is soft and the client walks all over him, then you need to pull him off site. You need a guy that understands the contract, because a lot of the guys take the contract and put it in the corner and never takes a look at it. You need to know this contract from front to back. Yes there are some sections in the contract that you never want to look at, but there is some sections that you need to look at and implement on a daily basis."

Respondent 9

"I think one of the main reasons is that it is a pain and people just want to get on with the work. So quite often you get an attitude that you just want to get on with it and do the paper work later. Then when you get to sort things out, you end up with blood on the walls because people said no but you said I must do

this and we haven't specifically agreed the cost etc. So I think it is an administrative burden and hence if you don't have the resources to do it, it goes undone to a point to the third phase of the contract which is now contract closure. And that's always good to look at, if you want to evaluate anybody's performance on a contract in terms of managing it. You must look at the close-out phase. If you close it out to a relative short period of time, they've managed the contract well. If they take as long to close out the contract as the work took; it is a very clear indication that the contract wasn't well managed. You may end up with 150 side instructions which were never approved. You may end up with a whole bunch of change notices that was never submitted, acknowledged or accepted. The types of contract that you enter into, because you can have a FIDIC, NEC or the bespoke type of contract that you wrote yourself, also have an impact. For example if you contract NEC, one of the biggest errors that the guys actually make is that they don't have enough people to administrate that contract. That contract is built on the principle of forewarning the other party of changes. And if you do not do that you can end up in a very bad situation as the employer and with the advantage to the contractor. So you have to match the staffing of your contract or your contract administration staffing to the requirements of your contract. So the other issue is time, because quite often you're under a lot of time pressure to get the contract works completed. You just have to go ahead and we'll come back to it later, which end up not being done. Ignorance is also a problem, which comes back to skill levels. You can't have an insufficiently skilled person managing the contract and expect a beautiful outcome of the contract. So that is the area where people very often don't want to spend money, is on contract administration. You spend a lot of money on tenders getting five quotes, two beautiful reports, and then they select the contract. Then they throw the contract in the cupboard and never look at it again until they try to close it out and then the contractor gives a list of claims with additional cost and suddenly the contract price is double. Depending on the complexity, the type of contract and the nature of the contract and even the nature of the partners can influence your level of control on a project. When you are going into a

contract, very early in the contract negotiations, you'll get a feel for the approach and the ethics of the other party. You have to match your level of contract administration with that perception. With one of our projects we've made a lot of changes but everything was sorted out and agreed and settled on an amicable way. With another project, though, even before the contract was signed there was already twenty-one change notices on the table. So they took a very aggressive approach and everything you say that deviate from the letter, is a change. Contractors always submit the change to get more money. So if you've got an aggressive contractor like that you have to match him with manpower to be able to manage him in terms of the contract."

Respondent 10

"The wrong choice of project team causes poor control. You must make sure that the guys that you want to follow procedures are able to do it. So your task of a manager is to make sure that the guy that you make responsible to execute the project has got the capabilities and experience to do what you require him to do. It is normally the individual on how well he was trained and his level of experience. If you don't make sure that whoever you appoint in any position fulfil the requirements of that specific position you will find that you've got poor execution and poor management of procedures."