Investment Appraisal of Mining Projects Employing the FAST Modeling Standard*

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Abstract

In this study a project model is built to conduct an appraisal and sensitivity analysis of a gold mine. At the same time, the most up to date modeling standard, known as FAST (i.e., Flexible, Appropriate, Structured, and Transparent), is implemented.

The purpose of choosing this standard is to identify the strengths and weaknesses that may result from the implementation of this methodology for the modeling project appraisals. The FAST standard noticeably reduces the rate of error, while the speed of modeling and the appraisal of investment projects increase noticeably. The results of the analysis using FAST also becomes more communicable after implementing this standard.

An important conclusion of the appraisal is that the royalty rates charged by governments on the extraction of gold are found to be too insensitive to the magnitude of the financial surplus generated by a specific mine. In particular, our study suggests that even if the royalty rates are increased up to six times, the project still generates a positive financial net present value for the mine owners. According to this finding it should be a public finance priority to redesign the systems for setting royalty rates in mineral producing countries that would allow host countries to benefit more from high return investments while at the same time not damaging the financial viability of higher cost natural resource extraction projects.

Keywords: Investment Appraisal, Royalty Rates, Gold Mine, FAST Modeling Standard, Financial and Sensitivity Analysis

JEL Classification: L72, D61, H43, L78

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LIST OF ABBREVIATIONS

FAST	Flexible, Appropriate, Structured, and Transparent
LOM	Life of Mine
NPV	Net Present Value
ADSCR	Annual Debt Service Coverage Ratio
LLCR	Loan Life Coverage Ratio
IRR	Internal Rate of Return
PC	Personal Computer
USD	United States Dollars
PDC	Persian Daric
G&A	General and Administrative
HFO	Heavy Fuel Oil
PRI	Political Risk Insurance
CFS	Cash Flow Statement
DSCR	Debt Service Coverage Ratio

Chapter 1

INTRODUCTION

1.1 Introduction

It is increasingly expected from mining projects to bring sustainable benefits in developing countries (World Bank, 2011). In growing number of countries, basically low-income and middle-income, mining has become one of the most important economic activities among available alternatives. Meanwhile, compensation payments are attracting more and more attention due to their windfall profits, and this comes from the high mineral prices since the early 2000s.

Mineral sector regulatory has also experienced many reforms around the globe (Otto, 1996). Over 110 nations have changed laws in mining sector and this trend still continues. Hetherington (2000) notes that; a majority of developing countries are implementing new mining acts since 1990.

On the investors' side, the profitability of the project is one of the most important concerns for the investors. Exploration, extraction, and processing of minerals are generally takes place by private sector companies. Companies are facing significant risks. The risk comes from the significant upfront capital investment that usually required in mining sector. Long exploration and pre-production construction while there is no income available for the project, long life of mining projects,

accompanying with volatility of commodity markets, technical and environmental risks keep mining industry leaders worried all the times.

The royalty rate used in this sector is also important. Both sides should financially benefit from such projects. Host countries should gain from the projects to the extent that keeps the project attractive to the foreign investors.

1.2 Aim of the Study

The main aim of this study is to build a reliable financial and risk analysis for natural resources sector in particular gold mines. Having this financial model as a benchmark will help all stakeholders in the sector to understand the different aspects of this sector better than before. Having a financial model of a gold mine with a sensitivity analysis results will also help us to study this sector much easier than before. This will enable us to have further studies on this area (i.e., different royalty and tax systems in natural resource sector).

The subsidiary aim is to increase our knowledge about one of the most important standards in modeling. By implementing FAST modeling standard in building this model it is expected to experience an increase in the flexibility of the model. Having a model with more adaptable characteristics will help users in dealing with the model much easier than it used to be. Now users can add new information easily as they become available through time. Accuracy of the model is also expected to improve. Having a well-structured model will help us to keep model's consistency. This will lower the problems arising from authors who may change through time.

After building the model, having a sensitivity analysis done for different outputs, we will be able to find possible different impacts on project's outputs caused by each

variable like royalties, fuel, and other main influencers. Finding such valuable information will provide us a better understanding of this sector.

1.3 Methodology Approached in This Study

According to Jenkins et al. (2013), doing an appraisal and risk analysis for projects in advance will help different stakeholders to understand each and every aspect of the project. This plays a significant role for such projects with high level of uncertainty to be successful.

Although financial, economic, stakeholder and risk analyses are all known as different stages of a comprehensive cost-benefit feasibility analysis, financial and its relevant risk analysis was only done in this study due to the aim of the current study.

The financial model of the project was built based on a newly born but widely known standard called FAST modeling. As mentioned earlier, FAST stands for flexible, appropriate, structured and transparent. This standard offers financial modelers a set of initial principles and rules which will be used while building a model.

1.4 The Structure

A brief structure of the current research has been explained in this section:

The main focus of the thesis has been introduced in Chapter I.

Chapter II provides a short literature review. This chapter tries to express the main objectives of the financial and risk analysis. The main criteria used to gauge the financial performance of the project have also been explicated. The possible outcome of the implementation of the FAST modeling standard was explained as well.

Chapter III is dedicated to the methodology used in this study. This chapter explains the methodology used in financial and risk analysis as well as the FAST Modeling Standard, how it works and the benefits realized from implementing this standard.

Chapter IV reflects the financial analysis of the project. In this chapter, the financial model is explained with the emphasis on the most important sections of the model.

Chapter V is dedicated to the sensitivity analysis of the project. Outputs of this analysis are available in this chapter followed by the variables used in the analysis.

Conclusion has been provided in chapter VI.

Chapter 2

LITERATURE REVIEW

2.1 Gold Mine Sector

The gold industry is among those high capital intensive industries. According to Gajigo et al. (2012), generally the mines are owned by multinational companies. Mine construction and building production facilities demands a tremendous sum of capital. Heavy expenditures are needed to finance production and exploration in the long-term projects like gold mines. Technology has also played its role and greatly changed the mining industry. Gold is among one of the most popular precious metals for investors. Gold is a commodity, and, as such, the price for gold fluctuates on a daily basis in the commodity markets.

Gold prices are influenced by many variables. Supply and demand, expected inflation, returns on assets and central bank demand. Meanwhile we should mention that gold is strongly pegged to supply-and-demand patterns. In general, low prices result in low production, and high prices result in high production.

Gold that is mined today is mainly used for jewelry, financial backups (individuals and governments), electronics, dentistry, medical, aerospace, and many more.

2.2 Financial Analysis

Financial sustainability of the project is one of the major concerns for different stakeholders. Financial analysis tries to study this issue throughout projects' intended

life. The aim of this analysis is to find different performance indicators of the project. Viability and sustainability through the life of the project should be studied prior to the project. This can be achieved using predicted cash flows. According to Jenkins et al. (2013), calculating expected cash flows may help us to predict the possibility of temporary cash shortfalls in the operating stage. Availability of sufficient funds to the project is also another important issue.

Cost and revenue projections through life of mine (LOM) can also be achieved by a financial analysis. Financial analysis tries to find whether a project is attractive to investors or not. This can be reached by calculating the Net Present Value (NPV) of incremental cash flows. The project will be considered attractive if its NPV is more than zero. The Annual Debt Service Coverage Ratio (ADSCR) and Loan Life Coverage Ratio (LLCR) are also important. They are widely being used as reliable indicators of financial sustainability. These ratios advise investors about the sufficiency of the net cash flow of the projects for servicing the loan payments. Using such indicators will allow bankers to evaluate whether the project has the ability to service its debt during the loan period or not. Only projects with the ability of generating enough during the loan period can end with a good result for such indicators.

As it is expected, business owners in the gold mine sector are basically concern about the financial strength of the new gold mine and its ability to generate enough return in order to compensate their investment. On the other hand, bankers who provide loans for the project are mostly interested in the evaluation of the projects ability for reimbursement of available loans. This can be achieved by studying project yearly cash flows.

2.3 Sensitivity Analysis

According to Smith et al. (2008), the use of sensitivity analysis method goes back to 19th century. This analysis should be applied while the financial part is ready and before the final decision is going to be made. Smith et al. (2008) have remarked about other purposes of sensitivity analysis, for instance, doing a sensitivity analysis will catch unrealistic behaviors of the model. This analysis may also help modelers to detect possible errors. Doing sensitivity analysis will guide modelers to be ascertained about the degree of the required resolution in their data collection.

Sensitivity analysis is very common due to its simplicity. Sensitivity tests are being done in order to appraise the degree of vulnerability of different project outcomes to certain variables. Sensitivity analysis provides better information about specific variables which may affect projects either in a positive or a negative way.

All projects are associated with some degree of uncertainty. These uncertainties may be due to project's own parameters or resulting from macroeconomic factors. Inflation and exchange rate may be good examples of these factors. Projects' risky variables are manageable to some extend although we are not able to govern a considerable proportion of them. Having sensitivity analysis done will give us an extra opportunity to improve the models accuracy and at the same time it gives us a better understanding of the project.

2.4 FAST Modeling Standard

Models should be as user-friendly as possible. Non-modelers should be able to review models with ease. They should be able to understand the models without spending too

much time and effort. An ideal model should be adaptable as circumstances change through time.

FAST Modeling Standard is a language for communicating the finances of a business between different model users. In other words, FAST standard can be explained as a different way of spreadsheet coding. FAST stands for four important rules: Flexible, Accurate, Structured, and Transparent. The Flexibility of modeling techniques used and design of the model itself plays an important role. Second letter stands for the Accuracy of the model. The model should reflect important business assumptions accurately and directly. The model should also be structured. Having an organized model is one of the essentials to keep the integrity of the model over time. This will save time during building the model and maintaining it through time. Last letter of FAST stands for Transparency. It is not a necessity for a good model to rely on complicated formulas. Ideal models are also achievable using clear formulas. Simple design will help modelers and non-modelers to understand the model easily and this will enhance the transparency of the whole work.

Conventionally spreadsheets are used for financial modeling and MS Excel™ is the most common software being used. Excel spreadsheets and FAST standard have become unavoidably correlated. FAST standard policy was to improve Excel's weaknesses in modeling while benefiting from its strengths.

Their strategy toward not using the mouse comes from a theory called muscle memory. Detailed explanations have been provided in the next chapter.

We should also mention that academic studies regarding to the implementation of modeling standards in general and FAST in particular are really scarce. We could hardly find some studies about the results of the usage of such standards. This also motivates us to do an academic study to find the positive and negative results of the usage of the standard in the models used in project appraisals.

Chapter 3

METHODOLOGY

3.1 Introduction

This chapter provides the methodology of the thesis. First, we explain the methodology used in the financial analysis followed by the explanation for each financial indicator. Sensitivity analysis has been explained followed by a detailed explanation about the FAST Modeling Standard and its implications and benefits.

3.2 Financial Analysis

Financial analysis is one of the first and major steps in project appraisal. The main aim of this analysis is to determine the financial viability of the project throughout its deliberate lifetime.

For such capital-intensive projects like the case of a gold mine, in order to increase the probability of accepting profitable projects and reduce the chance of going for bad projects, there is a need to perform cost-benefit analysis to reduce inherent risks existing in this sector.

Financial model of the project will be generated based on the cost-benefit approach described in detail by Jenkins et al. (2013). The investment's cash flow throughout projects life span is produced to compute various performance indicators considering viability and sustainability of the project. In this approach NPV will be mainly used as a major evaluation criterion.

The financial model in this approach consists of an income statement and different cash flow statements built based on different viewpoints. Due to the fact that NPV should be calculated using real values, cash flow statements calculated in nominal terms will be converted into the real ones. Otherwise, NPV results may be untrustworthy and biased. In order to connote costs and benefits realized by different stakeholders in our model, nominal and real cash flow statements are calculated in different viewpoints. Equity (owners) and total investment (banker's) point of views have been studied in the current study. Since cash flows are calculated, next step is to calculate different decision criterion such as NPV, Internal Rate of Return (IRR), Annual Debt Service Coverage Ratio (ADSCR), and LLCR (Loan Life Coverage Ratio).

3.2.1 Price Adjustment

Market prices for project inputs and outputs are always expected to change through the life of the project. These changes may happen in real or nominal terms. Changes in supply and demand will stimulate real term changes while inflation will change the prices in nominal terms.

Unexpected changes in prices may affect the performance of the whole project significantly. In order to minimize negative consequences, price index for each year has been calculated. By multiplying real prices by the price index of the same year, nominal prices are easily calculated.

3.2.2 Time Value of Money

Any investment determination is involved with capital immediately or in advance to its expected profits. Hence, it is necessary to adapt these values to account for factors

like risk, uncertainty and timing in order to have a solid judgment regarding the investment.

According to Jenkins et al. (2013), the overall effect of the factors like inflation, current consumption penchant, uncertainty, risk, and investment opportunity on the value of the money are summarized as time value of money. The value of money can be increased or decreased by such factors. In different timings, present or future values of costs and revenues, should be calculated by compounding and discounting methods in order to fix the non-comparability problems.

3.2.3 Discount Rate

The discount rate reflects the opportunity cost of capital. European Commission (2008) defines opportunity cost of capital as a foregone expected return by avoiding other potential investment activities for a given capital.

In other words, using discount rate enables to modify all the existing cost and benefits accrued in different years to their present value.

3.2.4 Financial Evaluation Criteria

In order to appraise projects financially there are many decision criteria available and widely being utilized. According to Allen et al. (2010), NPV and IRR are the most common criterions used in financial project evaluation. ADSCR and LLCR are also used as trustable debt service ratios.

3.2.5 Net Present Value (NPV)

According to Jenkins et al. (2013, p. 101), financial NPV (eq. 1) has been defined as "the algebraic sum of the present values of the expected incremental net cash-flows for a project over the project's anticipated lifetime".

$$NPV^0 = \sum_{t=0}^{n} \frac{(B_t - C_t)}{(1+r)^t} \quad (1)$$

According to Jenkins et al. (2013), NPV can be considered as the most trust worthiest decision criteria with no drawbacks in comparing to other available tools.

Positive NPV gives the message that the project's actual rate of return is exceeding the discount rate used for discounting the net cash flow. A positive NPV denotes that the investors will be better off by going for this project. We should keep in mind that NPV calculation will compare the project with other available alternatives with a same level of risk. Reaching a negative value for NPV implies that the project is not able to recover the investment opportunity cost. Ultimately, zero NPV shows that the financial return for this project would be the same as next best alternative with a same level of risk.

3.2.6 Internal Rate of Return (IRR)

IRR evaluates the return of investments. It is anticipated to be higher than the expected return. Although this criterion is widely being used, it has serious pitfalls in giving reliable results. For instance, during the life of the project, it is quite common to experience more than one negative net cash flow for certain years during the life of the project. In this situation, IRR criterion will give multiple answers. This shortfall came from the existence of multiple roots of mathematical equation. To name other shortfalls, we may refer to problems caused by the ignorance of IRR to different timing and scale, i.e. comparing different projects with different life spans (Jenkins et al., 2013).

There is an important connection between IRR and NPV. NPV would be equal to zero if and only if discounted with the rate equal to the rate of IRR. So, when calculating IRR, if the outcome is exactly equal to expected rate of return used in NPV formula as a discount rate, we should expect the NPV to be equal to zero.

3.2.7 Debt Service Coverage Ratios

Annual Debt Service Capacity Ratio (ADSCR) and Loan Life Coverage Ratio (LLCR) are the most well-known debt service coverage ratios employed by bankers. Both ratios are enabling bankers to clearly understand the actual performance of the project. Bankers will monitor ADSCR's (eq. 2) output in order to understand project's capabilities of servicing their annual debt obligations. ADSCR is the project's annual net cash flow (before financing) over debt service of the same year (Yescombe, 2002).

ADSCR is calculated as follows:

$$ADSCR_t = [ANCF_t / Annual\ Debt\ Repayment_t] \qquad (2)$$

There is no certain value for ADSCR to be assumed as acceptable but here in this study 1.25 has been set as a covenant for ADSCR.

If ADSCR shows that project's cash flows for certain years are not enough to service that year's debt, then banker may use LLCR (eq. 3) to assess project's ability to service its debt.

LLCR is calculated as follows:

$$LLCR_t = \frac{PV(ANCF_{t\ to\ end\ year\ of\ debt})}{PV(Annual\ Debt\ Repayment_{t\ to\ end\ year\ of\ debt})} \quad (3)$$

There is no particular limit point for this ratio but here in this study bankers expect the ratio to be higher than 1.5 to be considered as capable for bridge-financing.

3.3 Sensitivity Analysis

Risky variables were always a great concern for the viability of projects. Differentiating between risky and non-risky variables can be done using sensitivity analysis. This can be achieved by a Microsoft Excel ™ built in function called "what if analysis". Risky variables can be found by recording project outputs while different values are given for certain inputs.

Some project inputs have high chance of variation in their values though there is no significant influence on the main outcome of the project resulting from possible these changes. On the other side, there may be some variables with low possibility of variation in their values but with considerably high impacts on the project outcome if these variations occur. Hence, the possibility of those variations and a degree of their influence on the project's outcome should be considered as the main issue.

In order to assume an input parameter as a risky variable, it should have a substantial impact on the final outcomes while there is an uncertainty on its possible value.

3.4 FAST Modeling Standard

3.4.1 Introduction

FAST is published by the FAST Modeling Alliance. The alliance consists of members from F1F9 (Private Ltd) and Financial Mechanics Ltd. This standard was originally opened up by John Richter and Morten Siersted almost 10 years ago. Since then more

than thousands of modelers and professionals have contributed to this standard. FAST standards organization limited was established in 2011. The main aim was to keep the standard maintained and do the future required developments. The FAST standard was promulgated in March 2010 (FAST 2010).

FAST standard methodology explicates financial spreadsheet model as a way to communicate and collaborate beside the major role which is to be used as a tool for calculation. In this standard readability, ease of understand, and standardization are really crucial.

Based on FAST, all worksheets are following the rule of common column structure. Three tiny columns have been provided at the left side of spreadsheet for assigning section and sub-section headings in the model. This helps users to navigate much easier between different sections and sub-sections. Keyboard will be utilized as a navigation tool.

Here are some samples on input coding and design standards suggested by FAST modeling:

- Consistency in the structure of the model.
- Usage of calculation blocks is strongly suggested.
- Linking should be always to the original source.
- Perform a calculation once and then refer back to that calculation.
- Having a gap between each element in a formula.
- Cell formulas should be kept as short as possible.
- Formulas in each row are expected to be constant in all columns.

- All rows should be labeled and provided with appropriate units.
- Usage of live labeling.

According to FAST (2010), use of keyboard shortcuts is tremendously suggested in the modeling. Part of the advantage comes from the human brain's abilities called "muscle memory". Muscle memory applies when a routine operation is being done. There is no need to think about the process and it will be done automatically. As a real-world example, we may name the process of driving a car. As soon as one drives a car for a certain time there is no need to think about each detail of the process. Brain will act in a way that the car is like other organs of the body. There is no need to think about changing the gear or looking at the mirror, all will be done automatically. Same situation will be experienced while keyboard shortcuts are being used. This will allow users to build a model faster and with fewer errors.

Now thanks to muscle memory, there is no need to think on how to use excel for building a model. The only need is to concentrate on the logic of the model. Using keyboard shortcuts will assist users to easily surf through the model and understand the logic behind the calculations and to verify formulas easier than before. Users will be able to go back and forth between different calculations and examine them easily without any distractions. These distractions are basically come from a well-known pointing device called mouse. Usage of this device will bring many inconveniences to the modeling. For instance, there is a need to move from keyboard to mouse which costs time. One should concentrate on the screen to find the appropriate tabs to click on. The problem is that tabs and icons are not constant. They are in different places

and even the position changes time to time. So, there is no chance to gain "muscle memory" while using mouse pointing device.

Calculation blocks (modules of codes) are also widely being used in FAST modeling. Each block holds only one calculation at the very last row. All the inputs required, known as ingredients, are kept on the top rows while they are all linked to the original value on a sheet called inputs. Output of each calculation block can also be found on the bottom row which may be referenced by other cells.

Another major rule is to always do the linking to the original source; this will help to prevent daisy chains. By doing so, unnecessary calculation blocks can be deleted without any risk of breaking the possible links to other parts of the model. Input dependents will be traceable much easier than before. These will all help the user to keep the model editable and easier to maintain.

3.4.2 FAST Modeling Alliance

According to FAST (2010), FAST Modeling Standard is defined as a set of rules on the structure and detailed design of spreadsheet-based models. By using the "common style platform" that FAST (2010) brought up, modelers will now be able to read different models easier than before. Fewer difficulties will be experienced in communication and understanding of the models.

According to FAST (2010), the FAST Modeling Alliance will frequently do the revision on this openly published standard. The standard has been formulated according to industry practitioners' experience. The aim is to replace old habits with simple techniques in order to have models with no logical errors and profound omissions. FAST standard also tries to find a reasonable way to implement some

software engineering methods and favorable exercises to the field of spreadsheet modeling in order to improve modeling productivity and solve all known and unknown faults; where in this field the “programmers” are not really programmers!

3.4.3 The FAST Acronym

Here we will explain the FAST acronym.

3.4.3.1 Flexible

One of the main goals of FAST modeling is to build models as flexible as possible in the short term and adaptable in the long-run. Modelers should be able to easily implement scenarios and sensitivities on every model. The model should be structured in a way that allows different users to make adjustments as new information becomes available.

According to FAST (2010), a flexible model is not an all-singing, all-dancing template model with an option switch for every eventuality. Flexibility is born of simplicity.

3.4.3.2 Accurate

Key assumptions of the project should be directly reflected by the model without too much unnecessary details. According to FAST (2010), the modeler should not miss the basic aim of the model. They suggest having a good representation of reality, not the reality itself.

3.4.3.3 Structured

Since always there is a chance that different modelers work on the same model either at the same time or later on, we need to persist in logical integrity of the model over time. Sticking to a consistent approach in building a model, plays an important role in

a matter of time saving. Otherwise, building, learning or even maintenance of the model would cost a lot of time.

3.4.3.4 Transparent

Simple and clear formulas should be used in models in order to help modelers and non-modelers to read and understand all aspects of each model. Logic structure lucidity will provide confidence into financial models and heighten transparency and this will add to the model's flexibility in adapting new information over time.

3.4.4 How rules are organized

Although different designs can be found in modeling that are working fine to some extend but, according to FAST (2010), essentially almost all the choices in a design of a model are objectively right or wrong. Therefore, the FAST modeling standard is fundamentally arranged about a set of rules.

Although some rules may be broken time to time but this does not imply that the rule book is ineffective. Rules may be broken consciously with proper later justification. Breaking a rule is like walking on a "thin ice". FAST standard has published a list which explains possible situations where it may be advisable to break those rules.

Imagine a process for writing a book, a skilled author would first decide on different chapters of the book. Latter on he or she will try to work on each chapter structure and at the end sentence structure and word choices. Here are four different steps we should follow to implement FAST modeling rules:

i. The workbook can be assumed as overall subject of the whole project. Here in this step the subject will be divided into different chapters. Orders of these chapters and how they contribute to each other should be highly considered.

ii. As we have different chapters in books, here we have different worksheets. In this section our highest concern is the layout design, i.e. column usage. Chapter's subject should also be separated into different sections and paragraphs.

iii. The line item can also be assumed as a specific sentence. What is the highest concern in this part is to have formulas short, plain, and easy to understand. Clarity of labels is also an important issue which should always be taken care of.

iv. Microsoft Excel™ is used as a tool to create models. There are many built in features in this program which can be applied during modeling. One of the major aims of FAST modeling is to provide some rules on how to use available features. Based on FAST (2010), some of these features are good for modeling while some are not, therefore, FAST provided users with a guideline on how to use these good and bad features.

3.4.5 Workbook Design Rules

In order to end up with a good model, modelers should begin with a definite and goal-directed structure. The model in a workbook stage should be based on a uniform system of rules. The model should be designed in a way that satisfies both modelers and non-modeler users.

3.4.5.1 General principles for workbook design

Different worksheets should be grouped according to their functions. There are four main functions defined. For instance, inputs, timing flags and indexation factors are assumed to be considered as foundation sheets. Other sheets can be grouped as working, presentation or control. The reason behind this approach is to enable

modelers to implement different design priorities as there are different audiences existing for each group function.

One important rule is to assign and keep a uniform structure for each column for the whole sheet. We should do the same thing for time rulers as well although there are some exceptions, i.e. while multiple time resolutions are implemented in the project.

Another important rule is to assign different color codes for different line-item classifications. For instance, blue font should be used while that specific line was imported from another sheet or red font for those being exported to another sheet. Black font will be used while the value is neither exported nor imported.

Each calculation should appear once in each workbook. For further usage, we should use linking instead of recalculating the same item. Furthermore, while we are linking we should use a direct link to the original calculation instead of linking to previous links. This may look not very critical but has serious negative effects and it is being violated frequently. By complying with this rule, tracking would become much easier. Precedents and dependent can be traced with less difficulty. Recalculation or linking to other links acts very similar to write a same input more than once in the model.

The last convention in this section is to keep all the numbers through the model positive and use labels to show the direction of each value. Positive labels are to designate that the value should be considered as revenue while negative labels indicate the value is an expense for the project.

3.4.5.2 Sheet Organization in workbook

Sheets should be arranged in a way that the order flows from left to the right. Working sheets should be also divided into different sheets. For instance, revenues, costs, tax, etc. We should also keep in mind that it would be always better to avoid inter-linking between different sheets.

3.4.5.3 Multiple Workbook Models

Although multiple and inter-linked workbooks are generally hard to deal with, there are some special contexts in modeling which it is advised to use so-called "split models". This usually happens when there are different recipients with different concerns or while confidentiality is the issue. Another issue which we should avoid from is to use external file links. Although there are some exceptions, i.e. while we want to avoid unnecessary back and forth flows between different workbooks.

3.4.6 Worksheet Design Rules

General design of worksheets also plays an important role in reaching a good model. Here we briefly explain some rules given by FAST (2010) to guide modeler.

3.4.6.1 General Principles on Design Layout

According to this standard, there is only one and unique purpose for each column. In other words, each column has its own role and function. This will help each line item to be easily visible and in the specific place. For example, column E is always dedicated to line-item name. Column G is for units while column F is a place for non-time dependent value. Time dependent values are expected to start from column J in a row.

Calculations as we previously mentioned should flow from up to the bottom and left to the right while intra-sheet counter flows should be gray shaded. It is good to keep

in mind that it is suggested to limit counter-flows as much as possible in order to keep the consistency of the model.

3.4.6.2 Calculation Blocks

All calculations should be constructed in individual blocks of calculations called "calculation blocks". They actually act as paragraphs in worksheet. They each convey a single idea which can be found in a single calculation at the very last row of the calculation block. All precedents to this calculation should be available above this calculation in a same calculation block. All these ingredients should be appearing in the same order as they will appear in the calculation. They should all be directly linked to the main source. Live labeling should be used whenever linking is required. In this specific way of linking, row label will be also linked. By doing so, labels will be updated automatically while source labels are changed. This will help modelers to keep the consistency of labeling all through the model.

Another benefit of the usage of calculation blocks is the ability to replicate them easily for further usages in the model. This helps modelers to save time and to reduce possible mistakes. Using calculation blocks will also help modelers to simplify their calculations. Calculations transparency and understandability will dramatically increase while error rate decreases.

3.4.6.3 Input sheets

Inputs should be grouped according to their nature, i.e. whether they are constant or series, actual values or forecasted. Even they may be grouped based on what they represent, e.g. revenue or cost, financing or capital, etc.

3.4.6.4 Presentation Sheets

One of the main purposes of each model is to have a perfect communication with its users. A model will be useless if it cannot be able to communicate. Each model should be well structured. This will enable the model to explain itself completely with no need of other applications.

3.4.6.5 Control Sheet

Having control sheets within the model will allow users to easily check whether the model or that particular section is working correctly or not. For instance, they may implement sensitivity and scenario checks, version controls, and check sheets.

3.4.6.6 The Line Item

Line item is the smallest level of each model structure which should be taken care of. It should be clearly understood and be well classified. Questions like whether it's constant or series, flow or balance should be carefully answered prior to other following steps.

3.4.6.7 Formula Design

Main rule is to keep formulas as consistent as possible. Simplicity of formulas used in the model is also viable for the model. The size of a formula is also important. It should not extend more than a size of a thumb. Rule of thumb suggests that formulas, in the editing panel, should not exceed more than size of a thumb. It suggests breaking them into smaller formulas to make them more understandable. Multi-line formulas are not allowed under any circumstances.

It is always suggested for modelers to simplify their calculations by breaking them in to smaller calculations using calculation blocks. Using of flags are tremendously suggested to reduce over-using of complicated formulas like nested IF function.

3.4.6.8 Formula Clarity

Here we mention some suggestions by FAST (2010) regarding the clarity of formulas:

- Consistency in the usage of formulas.
- Formulas are suggested to be kept short and simple.
- Use of embedded constants should be prevented except when they are universal constants or when deliberately embedded.
- Use of advanced features are not suggested where simpler features could achieve the same result.
- Spaces should be used to increase readability and clearance of formulas.
- Use of unnecessary parenthesis should be prevented.
- Over anchoring is forbidden.

3.4.6.9 Fast Labelling Convention

More and better labelling through model can significantly increase the readability of models. Labels should be provided for all line items. This will improve the clarity of models and prevent wrong assumptions to be made. It is highly suggested for modelers to invest time on labeling. All line items should have specific label and this labelling should be maintained consistent. One should not forget to choose a convention on how labels are capitalized and stick to them for the rest of the specific model.

3.4.7 Modeling Friendly Excel Features

Despite many Excel™ weaknesses, it has many good features. FAST (2010) provided modelers with guidance on how to use these features.

It is suggested to use INDEX function over CHOOSE function due to its flexibility while additional line items are added. This function also can be easily used in calculation blocks. It is more convenient to use INDEX whereas arrays are used instead of pointing for each cell address. Although using CHOOSE function is easier when values are scattered, this advantage becomes useless when implementing calculation blocks.

3.4.8 Spreadsheet Errors

According to Panko (2006), studies shows that on average spreadsheet developers either experienced or not, have 2% to 5% rate of error on their formulas. Interestingly these results are almost the same for programmers while do program coding. Although most computer programmers confess about these possible errors, it is not the case for financial modelers. According to Panko (2006), very few companies do the testing for their spreadsheets or even if they do so, they do it just to check whether results are reasonable or not which, according to Panko (1998), is completely useless.

Although error rates of 2% to 5% for formulas are not significant, it can have a considerable effect on the final results. This effect comes from a large number of formulas in a chain. We should understand the reason behind these errors. Interestingly, it is not related to the programs we use but it comes from people who use the software. Panko (2006) mentioned that studies confirm 2% to 5% error rate for cognitive activities as floor rate caused by human brain. Most errors are caused by planning errors. In other words, error will happen in human's brain. In other words, mistakes are done even before one writes them as a formula on to a spreadsheet cell. Based on Panko (2006), 80% of the errors are caused due to the same reason.

Generally, when someone is distracted, there will be higher chance of using faulty calculations or formulas comparing to the normal situation.

Since spreadsheet errors are common and effective, and we cannot blame software programs, what is the solution to decrease rate of errors? According to Panko et al. (2008), although such errors are wide spread, companies rarely test for spreadsheet errors. This lack of testing may come from their unrealistic confidence on their untested spreadsheets. Many studies revealed that inspection approaches especially in groups of 3 to 5 people is among most effective solutions. According to Panko (2006), the rate of error detection rises about 60% to 80% while a group of 3 to 5 people are involved.

3.4.9 Why using FAST Standard

In the literature, there are many suggestions about creating a well-defined spreadsheet. According to Grossman and Özlük (2010), there cannot be a one-size-fits-all approach in finding an effective spreadsheet. On the other hand, according to Hermans et al. (2012), in most companies; there is no formalized training on how to build models, basically because of a common response of "everyone knows excel". The following simple example will facilitate the understanding of this issue. It is not possible that because one knows how to use Microsoft Word™, becomes a good writer. The same situation exists for Microsoft Excel™ and modeling. Even if someone knows Excel very well it doesn't mean that he or she is a good modeler.

Now with more powerful Personal Computers (PCs) running dangerously freeform spreadsheet software with high flexibility but much unstructured, large and more complex models are built by self-taught personnel and this even worsens the situation. The solution is to have a specific way of writing and all in a consistent way. Having a

well-accepted modeling standard is the solution to solve all these persisting difficulties in reading, understanding, changing, and using the model.

Standardization really comes into the picture when reviewing spreadsheets. It's a privilege to have all the people following the same plan. In this case, there is no need to think and spend time on the format because everyone already knows it. So, the only need is to focus on individual concepts of the model that one is already working on it.

We should keep in mind that the complexity of model transactions is completely different from the complexity of the model itself. None of the techniques in FAST are complex, but nor are they that obvious. Being consistent is not that much easy.

FAST Standard will bring several benefits models such as having lower rate of error, time savings, and increase in the ability to communicate between different colleagues and users while working or testing for possible errors and many more.

3.4.10 Who can benefit from FAST Standard

If a modeler builds models for his or her own usage or for small business and is the only user of that model, certainly there is no need to implement FAST standard at all. However, if one plans to share the model with his or her colleagues and there is a need to work as a group, implementing FAST or other standards are a must. As we mentioned before, FAST standard is a language, a specific language of modeling. Other than communication purposes, it will provide us with a set of useful do's and don'ts, guiding each modeler to build flexible, more accurate, well-structured, and more transparent models. This will help us to reduce rate of error and save more time.

Chapter 4

FINANCIAL ANALYSIS

4.1 Introduction

In this chapter first we will provide a short project description followed by a summary of inputs and general assumptions of the studied gold mine. Rational expectations of future operating outcomes of this project are also introduced. All the estimates have been done in United States dollars (USD), given that a considerable portion of project transactions are in USDs.

Financial analysis focuses on a degree of attraction that a project may have for investors. This can be mainly achieved by calculating Net Present Value of incremental cash flows. As it is mentioned earlier, this criterion should be positive for projects to make them attractive comparing to other available alternatives with the same level of risk. In this analysis ADSCRs and LLCRs are also assisting investors to assess the financial sustainability of each project. Calculation of ADSCR and LLCR will assist investors in forecasting the volume of expected funds to service projects debt during the loan period.

In other words, a project can be evaluated by investors using financial analysis. The aim is to investigate whether the project is able to use its own generated funds to cover the investment and operation expenses or not. Besides we are also concern about the expected amount of money a project will return.

4.2 Project Description

This Gold Mine Project is an open pit mine located far from the capital city and some distance from the principal local town.

Exploration work was done since the mid 1990's and has increasingly resulted in expanding in the resource base to the degree where a pre-feasibility study was finished in a decade later to appraise the viability of possible physical process. The results of this pre-feasibility study were positive which led the organization to commission a full feasibility study.

The continued explorations and investigations brought a better understanding of the project as well as adding to the resource base. An exhaustive assessment brought a better understanding of the nature of the pit slopes, the inherent risks involved, as well as improved the metallurgical operating parameters through an exhaustive assessment brought a great data about this project. The results of all work carried out to date has generalized great data on this project. This information has been compiled and used in this study.

The Project is situated in an area characterized by a poorly developed infrastructure although regional developments, i.e. electricity supply from the hydro-electric scheme at the proposed facility, could bring a substantial improvement in the future. This will bring benefits for both the economics of the project as well as to the surrounding community. Off-site infrastructure such as the development of the nearby road corridor will also could aid regional development. The investment in this project is approved to be financed by private equity and international financial institutions. This is expected to contribute to the smooth and successful implementation of the project.

4.3 Model Parameters and Assumptions

In this section, we will present the main assumptions and parameters used in this financial model.

4.3.1 Project Timing

The Gold Mine Project physical construction will take 2 years to complete followed by 8.5 years of gold production. The project construction is supposed to start in 01-07-2011 and end in 30-06-2013. Production was planned to start in 01-07-2013 and continue till 30-06-2022.

The gold price was assumed to be USD 1,100/Oz in the first year of construction. Average annual production for years 1-3 was estimated to be 205,000 Oz's while the average annual production for rest of the mine life was approximated as 163,000 Oz's.

4.3.2 Inflation and Exchange Rates

Local currency, Persian Daric (PDC)[2] and USD are two currencies used in this model. Local inflation was assumed to be 5.50% per year. Inflation rate used for USD was 1.95% per year.

Price index calculations and expected exchange rates for each year have been calculated using the table below.

We should note that in all following tables; some years (columns) of the project model have been deducted in order to make the values more readable.

[2] The currency is fictitious because of the confidentiality reasons.

Table 1: Price Index and Exchange Rates

Price Index and Exchange Rates										
Period Start Date					01-07-2011	01-07-2012	01-07-2013	01-07-2015	01-07-2018	01-07-2021
Period End Date					30-06-2012	30-06-2013	30-06-2014	30-06-2016	30-06-2019	30-06-2022
Construction					1	1	-	-	-	-
Operation					-	-	1	1	1	1
	Constant	**Unit**	**Total**							
PRICE INDEX AND EXCHANGE RATES										
Local Inflation Sensitivity	-	%								
Foreign Inflation Sensitivity	-	%								
Domestic (PDC) inflation rate	5.50%									
Forecast Period Flag		flag			1	0	0	0	0	0
Domestic (PDC) price index		Index			1.000	1.055	1.113	1.239	1.455	1.708
Foreign (USD) inflation rate	1.95%									
Forecast Period Flag		flag			1	0	0	0	0	0
Foreign (USD) price index		Index			1.000	1.020	1.039	1.080	1.145	1.213
Domestic (PDC) price index	-	Index	-	-	1.00	1.06	1.11	1.24	1.45	1.71
Foreign (USD) price index	-	Index	-	-	1.00	1.02	1.04	1.08	1.14	1.21
Relative Price Index		Index			1.00	1.03	1.07	1.15	1.27	1.41
Relative Price Index	-	Index	-	-	1.00	1.03	1.07	1.15	1.27	1.41
Real Exchange Rate	5				5.000	5.000	5.000	5.000	5.000	5.000
Nominal Exchange Rate					5.000	5.174	5.354	5.734	6.354	7.041

4.3.3 Initial and Sustaining Capital Cost

Project capital costs have been separated into five different sections (i.e. mining, processing plant, infrastructure, management and construction labor). Summarized initial and sustaining capital cost is available in Table 2.

Table 2: Investment Schedule (Real, USD'000s)

Initial And Sustaining Capital Cost

	Constant	Unit	Total	01-07-2011	01-07-2012	01-07-2013	01-07-2016	01-07-2019	01-07-2021
Period Start Date				01-07-2011	01-07-2012	01-07-2013	01-07-2016	01-07-2019	01-07-2021
Period End Date				30-06-2012	30-06-2013	30-06-2014	30-06-2017	30-06-2020	30-06-2022
Construction				1	1	-	-	-	-
Operation				-	-	1	1	1	1
INVESTMENT SCHEDULE (Real, USD'000s)									
Mining									
Mining Capital Cost	-	USD'000s		23,474	7,223	5,417	-	-	-
Pre-Strip Cost	-	USD'000s		-	11,497	-	-	-	-
Pit-Dewatering	-	USD'000s		-	3,520	-	529	-	-
Facilities	-	USD'000s		-	888	296	-	-	-
Haul Roads	-	USD'000s		-	2,840	556	-	-	-
Mining		**USD'000s**	**59,017**	**23,474**	**25,968**	**6,269**	**529**	**-**	**-**
Processing Plant									
Machinery & Equipment	-	USD'000s		8,029	12,558	-	-	-	-
Civils & Earthworks	-	USD'000s		6,583	10,741	-	-	-	-
Structural Steel	-	USD'000s		3,524	5,750	-	-	-	-
Piping	-	USD'000s		618	1,313	-	-	-	-
Electrical & Instrumentation	-	USD'000s		2,852	5,071	-	-	-	-
Transportation	-	USD'000s		4,940	6,408	2,003	-	-	-
Processing Plant		**USD'000s**	**70,390**	**26,546**	**41,841**	**2,003**	**-**	**-**	**-**
Infrastructure									
Power Plant	-	USD'000s		7,205	12,809	-	-	-	-
Fuel Treatment	-	USD'000s		-	-	-	-	-	-
Tank Farm	-	USD'000s		2,957	5,257	-	-	-	-
Boot Camp	-	USD'000s		202	-	-	-	-	-
Camp	-	USD'000s		4,034	-	-	-	-	-
Local Camp	-	USD'000s		600	-	-	-	-	-
Infrastructure Buildings etc	-	USD'000s		1,488	2,427	-	-	-	-
In Plant Roads	-	USD'000s		65	121	-	-	-	-
Airstrip	-	USD'000s		2,369	-	-	-	-	-
Offsite Imfrastructure	-	USD'000s		6,281	-	-	-	-	-
Cyanide Safety Equipment	-	USD'000s		-	565	-	-	-	-
Water Supply	-	USD'000s		1,803	3,070	-	-	-	-
Tailings (Start-up only)	-	USD'000s		-	7,250	3,999	1,698	1,057	-
Pit Water Conveyance	-	USD'000s		-	49	437	131	-	-
Communications	-	USD'000s		283	526	-	-	-	-
Vehicles	-	USD'000s		457	849	-	-	-	-
Mobile Plant	-	USD'000s		-	2,546	-	-	-	-
Infrastructure		**USD'000s**	**77,739**	**27,744**	**35,469**	**4,436**	**1,829**	**1,057**	**-**
Management & Other									
Plant First Fills (Reagents & Cons	-	USD'000s		-	974	-	-	-	-
Spares	-	USD'000s		-	2,941	519	-	-	-
Project Insurances	-	USD'000s		812	1,443	-	-	-	-
Vendor Services	-	USD'000s		-	250	83	-	-	-
Project Management	-	USD'000s		10,656	17,386	-	-	-	-
Management & Other		**USD'000s**	**35,064**	**11,468**	**22,994**	**602**	**-**	**-**	**-**
Construction labor									
Local	-	USD'000s		1,242	2,173	34	-	-	-
Expats	-	USD'000s		2,410	4,218	67	-	-	-
Disbursements	-	USD'000s		799	1,243	178	-	-	-
Construction P &G's	-	USD'000s		14,570	-	-	-	-	-
Owner's Preproduction Costs	-	USD'000s		-	4,203	3,438	-	-	-
Working Capital Gold Lock Up	-	USD'000s		-	8,384	-	-	-	-
Contingency	-	USD'000s		-	20,389	-	-	-	-
Government Signing Bonus	-	USD'000s		8,000	3,000	-	-	-	-
Allowance for ARD storage	-	USD'000s		-	-	-	-	-	2,724
Mine Closure	-	USD'000s		-	-	-	-	-	2,000
Tailings Closure	-	USD'000s		-	-	-	-	-	4,946
United reef limited	-	USD'000s	- -	-	-	2,000	-	-	-
Construction labor		**USD'000s**	**86,018**	**27,021**	**43,610**	**5,717**	**-**	**-**	**9,670**
TOTAL CAPITAL		**USD'000s**		**116,253**	**169,882**	**19,027**	**2,358**	**1,057**	**9,670**

4.3.4 Operating Cost

Project operating costs also have been separated into three different categories (i.e. Mining, Plant (Processing), and General and Administrative (G&A)). Summarized project operating cost per ton in real terms is available in Table 3. Operating costs are calculated in Table 4.

Table 3: Operating Cost Schedule (Real, USD/Ton)

Operating Cost								
Period Start Date					01-07-2013	01-07-2014	01-07-2018	01-07-2021
Period End Date					30-06-2014	30-06-2015	30-06-2019	30-06-2022
Construction					-	-	-	-
Operation					1	1	1	1
	Constant	Unit	Total					
OPERATING COST SCHEDULE (Real, USD/Ton)								
Mining								
Mining Labor	-	USD/t	-	-	2.71	2.46	1.68	1.73
Equipment	-	USD/t	-	-	2.40	2.23	2.01	2.14
Diesel Cost	-	USD/t	-	-	5.95	5.74	5.14	4.98
Drilling	-	USD/t	-	-	0.17	0.23	0.16	0.08
Blasting	-	USD/t	-	-	1.17	1.06	0.76	0.37
Other	-	USD/t	-	-	1.04	0.79	1.00	0.73
Total		USD/t	103.66		13.44	12.51	10.75	10.03
Plant (Processing)								
Plant (Processing) Labor	-	USD/t	-	-	2.11	2.13	0.58	0.74
Consumables & Reagents	-	USD/t	-	-	3.86	4.62	3.81	5.56
Diesel Cost	-	USD/t	-	-	0.24	0.25	0.25	0.24
Maintenance Supplies	-	USD/t	-	-	0.37	0.37	0.36	0.39
Power cost per ton	-	USD/t	-	-	5.15	5.85	4.95	9.00
Other Labor Costs	-	USD/t	-	-	0.29	0.30	0.09	0.12
Total		USD/t	105.35		11.73	13.21	9.95	15.94
G & A								
G&A Labor	-	USD/t	-	-	1.37	1.38	0.91	1.17
General & Administration	-	USD/t	-	-	1.84	1.85	1.42	1.52
Assay	-	USD/t	-	-	0.63	0.63	0.33	0.45
Total		USD/t	28.18		3.84	3.86	2.66	3.14

Table 4: Operating Cost Schedule (Real, USD)

Operating Cost								
Period Start Date					01-07-2013	01-07-2014	01-07-2018	01-07-2021
Period End Date					30-06-2014	30-06-2015	30-06-2019	30-06-2022
Construction					-	-	-	-
Operation					1	1	1	1
	Constant	Unit	Total					
OPERATING COST SCHEDULE (Real, USD)								
Total Ore Processed	-	Ton	23,510,512	-	2,850,470	2,832,672	2,882,357	680,144
Mining								
Mining Labor		USD'000s			7,726.0	6,972.9	4,853.0	1,178.4
Equipment		USD'000s			6,833.3	6,317.9	5,799.2	1,454.0
Diesel Cost		USD'000s			16,968.2	16,258.5	14,809.7	3,388.7
Drilling		USD'000s			484.6	651.5	461.2	54.4
Blasting		USD'000s			3,335.0	3,002.6	2,190.6	251.7
Other		USD'000s			2,964.5	2,237.8	2,882.4	496.5
Mining Cost		**USD'000s**			**38,311.6**	**35,441.3**	**30,996.0**	**6,823.6**
Plant (Processing)								
Plant (Processing) Labor		USD'000s			6,023.1	6,023.1	1,673.6	506.4
Consumables & Reagents		USD'000s			10,992.8	13,100.3	10,996.2	3,780.2
Diesel Cost		USD'000s			694.1	694.8	706.2	164.6
Maintenance Supplies		USD'000s			1,054.7	1,048.1	1,037.6	265.3
Power cost per ton		USD'000s			14,667.4	16,565.0	14,253.8	6,122.3
Other Labor Costs		USD'000s			840.6	840.6	263.0	78.9
Plant (Processing) Cost		**USD'000s**			**34,272.7**	**38,271.9**	**28,930.4**	**10,917.8**
G & A								
G&A Labor		USD'000s			3,895.4	3,895.4	2,623.4	794.4
General & Administration		USD'000s			5,254.6	5,254.1	4,092.4	1,035.2
Assay		USD'000s			1,795.8	1,784.6	951.2	306.1
G&A Cost		**USD'000s**			**10,945.8**	**10,934.1**	**7,667.1**	**2,135.7**

4.3.5 Power and Fuel

Heavy Fuel Oil (HFO) and diesel are among the main operating costs to this project. HFO is basically used to generate electricity for processing plants of the mine. A significant amount of electricity is used to process mined ore in this section. Table 5 provides a detailed calculation on HFO used and electricity generated as well as the calculated cost of electricity needed per ton of ore milled in real terms. On the other hand, diesel is basically consumed in mining machinery. Detailed information is available in Table 6.

Table 5: LOM Power Costs (Processing) Real

Power and Fuel							
Period Start Date				01-07-2013	01-07-2014	01-07-2018	01-07-2021
Period End Date				30-06-2014	30-06-2015	30-06-2019	30-06-2022
Construction				-	-	-	-
Operation				1	1	1	1
	Constant	**Unit**	**Total**				
HFO Price Sensitivity	-	%					
LOM POWER COSTS (Processing) REAL							
Combined Tonnage Treated		tpa		2850470	2832672	2882357	680144
Variable Power usage per ton		kWh/t		11.41	14.05	10.73	22.65
Variable Power usage		kWh		32520918	39788754	30936729	15405901
Fixed Power usage		kWh		23655915	23655915	23655915	8043011
Combined Power Requirement		kWh		56176833	63444669	54592644	23448912
Combined Power Requirement per tone		kWh/t		19.71	22.40	18.94	34.48
HFO usage for producing one Kwh		L/kWh		0.21	0.21	0.21	0.21
HFO Consumption for power production		L		11908774	13449463	11572946	4970871
HFO Price per littre		USD/L		1.19	1.19	1.19	1.19
HFO Cost		USD		14113353	15939258	13715356	5891090
Maintenance Cost per KWh	0.01	USD/kWh		0.01	0.01	0.01	0.01
Maintenance Cost		USD		554030	625707	538406	231259
Total power cost		USD/a		14667383	16564965	14253762	6122349
Power cost per KWh		USD/kWh		0.26	0.26	0.26	0.26
Power cost per ton		USD/t		5.15	5.85	4.95	9.00

Table 6: LOM Plant Diesel Costs (Processing/Mining Operation) Real

Power and Fuel							
Period Start Date				01-07-2013	01-07-2014	01-07-2018	01-07-2021
Period End Date				30-06-2014	30-06-2015	30-06-2019	30-06-2022
Construction				-	-	-	-
Operation				1	1	1	1
	Constant	**Unit**	**Total**				
Diesel Price Sensitivity	-	%					
LOM PLANT DIESEL COST (Processing) REAL							
Combined Tonnage Treated		tpa		2850470	2832672	2882357	680144
Diesel Consumption		L/t		0.19	0.19	0.19	0.18
Diesel Consumption		L		530110	530647	539355	125728
Delievered Diesel Cost		USD/L		1.31	1.31	1.31	1.31
Diesel Cost		USD/a		694092	694795	706196	164620
Diesel Cost		USD/t		0.24	0.25	0.25	0.24
Diesel Price Sensitivity	-	%					
LOM PLANT DIESEL COST (Mining Operation) REAL							
Combined Tonnage Treated		tpa		2850470	2832672	2882357	680144
Diesel Consumption		L/t		4.55	4.38	3.92	3.81
Diesel Consumption		L		12959364	12417335	11310812	2588082
Delievered Diesel Cost		USD/L		1.31	1.31	1.31	1.31
Diesel Cost		USD/a		16968159	16258461	14809651	3388668
Diesel Cost		USD/t		5.95	5.74	5.14	4.98

4.3.6 Production Capacity and Revenue

There are three different ways of processing ores in gold mine sector; oxides, transitions, and sulfides. There are different feed grades and recovery rates and they may change due to different circumstances existing in each section of the available fields. These will easily influence the total gold production of the mine. Table below presents detailed information on total production capacity and expected revenues for this mining project.

Table 7: Production Capacity & Revenue

Production Capacity & Revenue

	Constant	Unit	Total/Average				
Period Start Date				01-07-2013	01-07-2017	01-07-2020	01-07-2021
Period End Date				30-06-2014	30-06-2018	30-06-2021	30-06-2022
Construction				-	-	-	-
Operation				1	1	1	1
PRODUCTION IN DETAIL							
Feed Grade Sensitivity	-	%					
Recovery Sensitivity	-	%					
Ore Processed Sensitivity	-	%					
Oxides							
Ore Processed (Oxides)		Ton	15,644,807	2,656,120	1,228,042	810,830	77,462
Feed Grade		Gram/Ton	1.90	2.51	1.95	1.43	2.02
Recovery		%	93.4%	93.8%	93.1%	93.3%	92.1%
Total Gold Produced (Oxides)		Grams	27,631,156	6,253,516	2,229,448	1,081,801	144,112
Transition							
Ore Processed (Transition)		Ton	4,864,050	126,128	1,390,662	1,173,347	-
Feed Grade		Gram/Ton	1.52	1.15	1.65	1.25	-
Recovery		%	94.0%	95.7%	95.5%	95.7%	0.0%
Total Gold Produced (Transition)		Grams	8,115,328	138,810	2,191,335	1,403,617	-
Sulphides							
Ore Processed (Sulphides)		Ton	3,001,656	68,222	124,185	674,220	602,682
Feed Grade		Gram/Ton	2.57	2.13	1.67	2.09	2.06
Recovery		%	95.8%	96.8%	96.1%	96.3%	96.3%
Total Gold Produced (Sulphides)		Grams	6,577,361	140,663	199,302	1,356,982	1,195,588
TOTAL ORE PROCESSED							
Ore Processed (Oxides)	-	Ton	15,644,807	- 2,656,120	1,228,042	810,830	77,462
Ore Processed (Transition	-	Ton	4,864,050	- 126,128	1,390,662	1,173,347	-
Ore Processed (Sulphides	-	Ton	3,001,656	- 68,222	124,185	674,220	602,682
Total Ore Processed		Ton	23,510,512	2,850,470	2,742,889	2,658,397	680,144
TOTAL PRODUCTION							
Total Gold Produced (Oxides)		Grams		- 6,253,516	2,229,448	1,081,801	144,112
Total Gold Produced (Transition)		Grams		- 138,810	2,191,335	1,403,617	-
Total Gold Produced (Sulphides)		Grams		- 140,663	199,302	1,356,982	1,195,588
Total Gold Produced		Grams		6,532,988	4,620,085	3,842,400	1,339,701
Gold Production Sensitivity	-	%					
Grams to Ounces	31	(g/troy oz)					
Total Gold Produced	-	Grams	-	- 6,532,988	4,620,085	3,842,400	1,339,701
Total Gold Produced		Troy Oz		210,040	148,539	123,536	43,072
Total Revenue (Real)							
Gold Price Sensitivity	-	%					
Gold Price	1,100	USD/oz					
Total Gold Produced	-	Troy Oz	-	- 210,040	148,539	123,536	43,072
Gold Revenue		**USD'000s**		**231,044.5**	**163,393.1**	**135,889.6**	**47,379.6**
Total Revenue (Nominal)							
Foreign (USD) price index	-	Index	-	- 1.04	1.12	1.19	1.21
Gold Price Sensitivity	-	%					
Gold Price	1,100	USD/oz		1,143	1,235	1,309	1,334
Gold Price	1,100	USD/oz	-	- 1,143	1,235	1,309	1,334
Total Gold Produced	-	Troy Oz	-	- 210,040	148,539	123,536	43,072
Gold Revenue		**USD'000s**	**1,657,280**	**240,143.1**	**183,466.6**	**161,685.6**	**57,473.0**

4.3.7 Hedging

Hedging facility was adopted in order to offset potential losses/gains that may incur for the firm. Hedging was scheduled for the 40% of the total gold production accrue during first two years of production. Related calculations will be presented in the table below.

Table 8: Hedging Schedule (Real)

Hedging									
Period Start Date					01-07-2011	01-07-2012	01-07-2013	01-07-2014	01-07-2015
Period End Date					30-06-2012	30-06-2013	30-06-2014	30-06-2015	30-06-2016
Construction					1	1	-	-	-
Operation					-	-	1	1	1
Hedging					-	-	1	1	-
	Constant	Unit	Total						
HEDGING (REAL)									
Total Gold Produced	-	Troy Oz	-	#	-	-	210,040	203,527	200,726
Scheduled Hedging	40.00%	%			-	-	40.00%	40.00%	-
Hedged Production		Troy Oz			-	-	84,016	81,411	-
Total Gold Produced	-	Troy Oz	-	#	-	-	210,040	203,527	200,726
Hedged Production	-	Troy Oz	-	#	-	-	84,016	81,411	-
Unhedged Production		Troy Oz			-	-	126,024	122,116	200,726
Hedge Price	1,200	USD/oz			1,200	1,200	1,200	1,200	1,200
Hedged Production	-	Troy Oz	-	#	-	-	84,016	81,411	-
Total Hedged Revenue		USD'000s			-	-	100,819.4	97,692.8	-
Gold Price Sensitivity	-	%							
Gold Price	1,100	USD/oz			1,100	1,100	1,100	1,100	1,100
Unhedged Production	-	Troy Oz	-	#	-	-	126,024	122,116	200,726
Total Unhedged Revenue		USD'000s			-	-	138,626.7	134,327.6	220,798.1
Total Hedged Revenue	-	USD'000s	-	#	-	-	100,819.4	97,692.8	-
Total Unhedged Revenue	-	USD'000s	-	#	-	-	138,626.7	134,327.6	220,798.1
Total Revenue with Hedging		USD'000s			-	-	239,446.1	232,020.4	220,798.1
Gold Price Sensitivity	-	%							
Gold Price	1,100	USD/oz			1,100	1,100	1,100	1,100	1,100
Total Gold Produced	-	Troy Oz	-	#	-	-	210,040	203,527	200,726
Total Revenue without Hedging		USD'000s			-	-	231,044.5	223,879.3	220,798.1
Total Revenue with Hedging		USD'000s	-	#	-	-	239,446.1	232,020.4	220,798.1
Total Revenue without Hedging		USD'000s	-	#	-	-	231,044.5	223,879.3	220,798.1
Hedging Gain/(Loss)		USD'000s	16,543		-	-	8,401.6	8,141.1	-

4.3.8 Working Capital

Account receivables are assumed to be approximately 10.45% of sales revenue. Account payable and cash balance are also estimated to be approximately 15.12% and 15.05% of sales revenue respectively (New York University, 2014).

Other than regular working capital which we usually calculate, we have a gold lock up in project's ore processing machinery. This also can be dealt with as a working capital. Locked up gold in the system will be recovered and sold at the end of mine life. This will be possible at the point when the machineries are disassembled. Related calculations for working capital can be found in the table below.

Table 9: Working Capital (Real)

Working Capital										
Period Start Date				01-07-2011	01-07-2012	01-07-2015	01-07-2018	01-07-2021	01-07-2022
Period End Date				30-06-2012	30-06-2013	30-06-2016	30-06-2019	30-06-2022	30-06-2023
Construction				1	1	-	-	-	-
Operation				-	-	1	1	1	-
	Constant	Unit	Total						
Working Capital (Real)									
Gold Revenue	-	USD'000s	-	-	-	220,798	170,410	47,380	-
Accounts Receivable	10.45%	USD'000s		-	-	23,067	17,803	4,950	-
Gold Revenue	-	USD'000s	-	-	-	220,798	170,410	47,380	-
Accounts Payable	15.12%	USD'000s		-	-	33,377	25,760	7,162	-
Gold Revenue	-	USD'000s	-	-	-	220,798	170,410	47,380	-
Cash Balance	15.05%	USD'000s		-	-	33,233	25,649	7,131	-
Accounts Receivable	0	USD'000s	-	-	-	23,067	17,803	4,950	-
Change in A/R		USD'000s	-	-	-	322	(733)	9,247	4,950
Accounts Payable	0	USD'000s	-	-	-	33,377	25,760	7,162	-
Change in A/P		USD'000s		-	-	466	(1,061)	13,380	7,162
Cash Balance	0	USD'000s	-	-	-	33,233	25,649	7,131	-
Change in C/B		USD'000s		-	-	(464)	1,056	(13,322)	(7,131)
Working Capital Gold Lock Up (Real)									
Working Capital Gold Lock Up		USD'000s		-	8,384	-	-	-	-
Gold Lock Up Recovery		USD'000s	8,384	-	-	-	-	8,384	-

4.3.9 Depreciation and Amortization

Depreciation schedule is consisting of four different categories. Construction capital excluding gold lock-up working capital, sustaining capital, exploration costs, and capitalized financing costs have been depreciated over the life of the mine. Detailed calculations are available in the table below. Values are all in nominal terms.

Table 10: Depreciation & Amortization (Nominal)

Depreciation & Amortization										
Period Start Date					01-07-2011	01-07-2012	01-07-2013	01-07-2014	01-07-2020	01-07-2021
Period End Date					30-06-2012	30-06-2013	30-06-2014	30-06-2015	30-06-2021	30-06-2022
Construction					1	1	-	-	-	-
Operation					-	-	1	1	1	1
	Constant	Unit	Total							
Capital Cost	-	USD'000s	-	#	116,253	173,195	19,698	3,575	-	11,730
Capital Cost	-	USD'000s	-	#	116,253	173,195	19,698	3,575	-	11,730
Construction Capital		USD'000s			116,253	173,195	-	-	-	-
Construction Capital	-	USD'000s	-	#	116,253	173,195	-	-	-	-
Working Capital Gold Lock Up	-	USD'000s	-	#	-	8,547	-	-	-	-
Construction Capital (Excluding WCgl)		**USD'000s**	**280,900**		**116,253**	**164,647**	**-**	**-**	**-**	**-**
Capital Cost	-	USD'000s	-	#	116,253	173,195	19,698	3,575	-	11,730
Sustaining Capital		**USD'000s**	**46,173**		**-**	**-**	**19,698**	**3,575**	**-**	**11,730**
Exploration Cost	**67,000**	**USD'000s**	**67,000**	**#**	**67,000**	**-**	**-**	**-**	**-**	**-**
T.A. Financing Fee	4.50%	USD'000s	4,500	#	4,500	-	-	-	-	-
T.B.Financing Fee	4.50%	USD'000s	2,250	#	2,250	-	-	-	-	-
Financing Fees		USD'000s	6,750		6,750	-	-	-	-	-
T.A. Interest Capitalised	-	USD'000s	-	#	-	-	-	-	-	-
T.B. Interest Capitalised	-	USD'000s	-	#	-	-	-	-	-	-
S.D. Interest Capitalised	-	USD'000s	646	#	-	646	-	-	-	-
Interest Capitalised		USD'000s	646		-	646	-	-	-	-
T.A. Commitment Fee	0.65%	USD'000s	1,300	#	650	650	-	-	-	-
T.B. Commitment Fee	0.65%	USD'000s	650	#	325	325	-	-	-	-
Commitment Fees		USD'000s	1,950		975	975	-	-	-	-
T.A. PRI Capitalised	-	USD'000s	1,707	#	-	1,707	-	-	-	-
T.B. PRI Capitalised	-	USD'000s	854	#	-	854	-	-	-	-
S.D. PRI Capitalised	-	USD'000s	874	#	229	646	-	-	-	-
PRI Capitalised		USD'000s	3,435		229	3,207	-	-	-	-
Financing Fees	-	USD'000s	6,750	#	6,750	-	-	-	-	-
Interest Capitalised	-	USD'000s	646	#	-	646	-	-	-	-
Commitment Fees	-	USD'000s	1,950	#	975	975	-	-	-	-
PRI Capitalised	-	USD'000s	3,435	#	229	3,207	-	-	-	-
Capitalised Financing Costs		**USD'000s**	**12,781**		**7,954**	**4,828**	**-**	**-**	**-**	**-**
Capital Schedule										
Construction Capital (Excluding W	-	USD'000s	280,900	#	116,253	164,647	-	-	-	-
Sustaining Capital	-	USD'000s	46,173	#	-	-	19,698	3,575	-	11,730
Exploration Cost	67,000	USD'000s	67,000	#	67,000	-	-	-	-	-
Capitalised Financing Costs	-	USD'000s	12,781	#	7,954	4,828	-	-	-	-
Depreciation		**USD'000s**	**352,369**		**-**	**-**	**38,038**	**38,395**	**39,512**	**40,685**

4.3.10 Labor

Mining industry is a labor-intensive activity. In order to reach an accurate financial analysis on a current gold mine, a great amount of time and effort was spent on this section. More information is available in Appendix A of this study. Different labor costs for all sections are available in the next table as well as tax, social securities, and insurance. All prices are in USD per ton of ore mined.

Table 11: Labor Cost (Real)

Labor									
Period Start Date					01-07-2011	01-07-2012	01-07-2015	01-07-2018	01-07-2021
Period End Date					30-06-2012	30-06-2013	30-06-2016	30-06-2019	30-06-2022
Construction					1	1	-	-	-
Operation					-	-	1	1	1
	Constant	**Unit**	**Total**		Labor Month	Labor Month	Labor	Labor	Labor
LABOR OPERATING COST, CATEGORIZED (USD, REAL)									
Total Ore Processed	-	Ton	23,510,512	#	-	-	2,757,104	2,882,357	680,144
MINING									
Mining labor COST	-	USD	-	#	-	1,347,538	4,885,325	4,437,211	1,054,774
Mining labor ACFPE	-	USD	-	#	-	26,951	97,707	88,744	21,095
Mining labor OCSS	-	USD	-	#	-	110,337	294,486	292,844	90,457
Mining labor Health Care Cost	-	USD	-	#	-	10,088	38,663	34,182	12,071
Mining Labor		USD			-	1,494,914	5,316,181	4,852,981	1,178,398
Mining Labor	-	USD	-	#	-	1,494,914	5,316,181	4,852,981	1,178,398
Total Ore Processed	-	Ton	23,510,512	#	-	-	2,757,104	2,882,357	680,144
Mining Labor		USD/t			-	-	1.93	1.68	1.73
Mining labor TAX	-	USD	-	#	-	443,732	1,620,268	1,458,947	338,184
Total Ore Processed	-	Ton	23,510,512	#	-	-	2,757,104	2,882,357	680,144
Mining Labor Tax		USD/t			-	-	0.59	0.51	0.50
Plant (Processing)									
Process plant labor COST	-	USD	-	#	-	553,391	2,128,303	844,968	253,490
Maintenance Labor COST	-	USD	-	#	-	474,614	3,573,080	639,747	191,924
Process plant labor ACFPE	-	USD	-	#	-	11,068	42,566	16,899	5,070
Maintenance Labor ACFPE	-	USD	-	#	-	9,492	71,462	12,795	3,838
Process plant labor OCSS	-	USD	-	#	-	37,372	88,520	86,878	27,049
Maintenance Labor OCSS	-	USD	-	#	-	5,914	67,379	62,687	19,463
Process plant labor Health Care Cost	-	USD	-	#	-	4,399	18,086	5,253	3,153
Maintenance Labor Health Care Cost	-	USD	-	#	-	4,579	33,719	4,386	2,461
Plant (Processing) Labor		USD			-	1,100,829	6,023,115	1,673,613	506,448
Plant (Processing) Labor	-	USD	-	#	-	1,100,829	6,023,115	1,673,613	506,448
Total Ore Processed	-	Ton	23,510,512	#	-	-	2,757,104	2,882,357	680,144
Plant (Processing) Labor		USD/t			-	-	2.18	0.58	0.74
Process plant labor TAX	-	USD	-	#	-	182,458	703,776	241,776	72,533
Maintenance Labor TAX	-	USD	-	#	-	165,032	1,238,639	182,639	54,792
Plant (Processing) Labor Tax		USD			-	347,490	1,942,415	424,415	127,324
Plant (Processing) Labor Tax	-	USD	-	#	-	347,490	1,942,415	424,415	127,324
Total Ore Processed	-	Ton	23,510,512	#	-	-	2,757,104	2,882,357	680,144
Plant (Processing) Labor Tax		USD/t			-	-	0.70	0.15	0.19
G & A									
General & Admin labor COST	-	USD	-	#	263,932	1,972,482	2,504,616	1,654,616	496,385
General Maintenance labor COST	-	USD	-	#	-	110,204	578,207	194,874	58,462
Military Security Guards COST	-	USD	-	#	-	333,032	449,619	449,619	134,886
Admin labor ACFPE	-	USD	-	#	5,279	39,450	50,092	33,092	9,928
General Maintenance labor ACFPE	-	USD	-	#	-	2,204	11,564	3,897	1,169
Military Security Guards ACFPE	-	USD	-	#	-	6,661	8,992	8,992	2,698
Admin labor OCSS	-	USD	-	#	1,007	46,163	140,792	139,620	43,364
G&M labor OCSS	-	USD	-	#	-	11,888	37,495	37,026	11,108
Military Security Guards OCSS	-	USD	-	#	-	63,276	85,428	85,428	25,628
Admin labor Health Care Cost	-	USD	-	#	2,618	18,454	21,050	12,550	7,027
General Maintenance labor Health Care Cost	-	USD	-	#	-	786	4,914	1,080	1,080
Military Security Guards Health Care Cost	-	USD	-	#	-	1,986	2,654	2,654	2,654
G&A Labor		USD			272,836	2,606,586	3,895,424	2,623,449	794,389
G&A Labor	-	USD	-	#	272,836	2,606,586	3,895,424	2,623,449	794,389
Total Ore Processed	-	Ton	23,510,512	#	-	-	2,757,104	2,882,357	680,144
G&A Labor		USD/t			-	-	1.41	0.91	1.17
Admin labor TAX	-	USD	-	#	94,637	667,923	744,159	438,159	131,448
General Maintenance labor TAX	-	USD	-	#	-	30,096	173,531	35,531	10,659
Military Security Guards TAX	-	USD	-	#	-	45,118	120,005	120,005	36,001
G&A Labor Tax		USD			94,637	743,137	1,037,694	593,694	178,108
G&A Labor Tax	-	USD	-	#	94,637	743,137	1,037,694	593,694	178,108
Total Ore Processed	-	Ton	23,510,512	#	-	-	2,757,104	2,882,357	680,144
G&A Labor Tax		USD/t			-	-	0.38	0.21	0.26

4.3.11 Mining Reserve Tail

In addition to calculating ADSCRs and LLCRs in order to show the ability of the project in servicing its debts, in this project we are implementing mining reserve tail limit. This limit was set to 25% of the total mine reserves. This will force the project to have a minimum of 25% of its gold reserves while it is still repaying for its debts. Table 12 contains more information is given regarding to the calculation of mining reserve tail for the years of loan repayment.

Table 12: Mining Reserve Tail

Mining Reserve Tail										
Period Start Date					01-07-2011	01-07-2012	01-07-2013	01-07-2014	01-07-2015	01-07-2016
Period End Date					30-06-2012	30-06-2013	30-06-2014	30-06-2015	30-06-2016	30-06-2017
Construction					1	1	-	-	-	-
Operation					-	-	1	1	1	1
	Constant	**Unit**	**Total/Average**							
Mining Reserve Tail (Gold Production)										
Total Gold Produced	-	Troy Oz	-	-	-	-	210,040	203,527	200,726	154,247
Remaining Mining Reserve		Troy Oz			1,360,743	1,360,743	1,150,703	947,176	746,451	592,203
Total Gold Produced	-	Troy Oz	-	-	-	-	210,040	203,527	200,726	154,247
Mining Reserve at Effect Date		Troy Oz			1,360,743	1,360,743	1,360,743	1,360,743	1,360,743	1,360,743
Remaining Mining Reserve	-	Troy Oz	-	-	1,360,743	1,360,743	1,150,703	947,176	746,451	592,203
Mining Reserve at Effect D	-	Troy Oz	-	-	1,360,743	1,360,743	1,360,743	1,360,743	1,360,743	1,360,743
Ratio		Ratio			100.00%	100.00%	84.56%	69.61%	54.86%	43.52%
Tranche A&B Repayment	-	USD'000s	-	-	-	-	51,750	67,069	51,919	-
Flag		Flag			-	-	1	1	1	-
Ratio	-	Ratio	-	-	100.00%	100.00%	84.56%	69.61%	54.86%	43.52%
Reserve Tail Covenant	25.00%	%			25.00%	25.00%	25.00%	25.00%	25.00%	25.00%
Mining Reserve Tail					**N/A**	**N/A**	**Complied**	**Complied**	**Complied**	**N/A**

4.3.12 Loan Schedule

There are three loans (provided by international banks) available for this project, two senior bank loans (tranche A and B) and a subordinated loan. Table below provides the schedule for loan disbursements and principal repayments.

Table 13: Loan Payments Schedule

Loan	(USD'000s, Nominal)								
Period Start Date				01-07-2011	01-07-2012	01-07-2013	01-07-2014	01-07-2015	01-07-2016
Period End Date				30-06-2012	30-06-2013	30-06-2014	30-06-2015	30-06-2016	30-06-2017
Construction				1	1	-	-	-	-
Operation				-	-	1	1	1	1
	Constant	Unit	Total						
LOAN DISBURSEMENT SCHEDULE									
Senior Bank Debt - Tranche A		USD'000s	100,000	-	100,000	-	-	-	-
Senior Bank Debt - Tranche B		USD'000s	50,000	-	50,000	-	-	-	-
Subordinated Debt		USD'000s	35,000	7,175	27,825	-	-	-	-
LOAN PRINCIPAL REPAYMENT SCHEDULE									
Senior Bank Debt - Tranche A		USD'000s	100,000	-	-	27,500	40,000	32,500	-
Senior Bank Debt - Tranche B		USD'000s	50,000	-	-	13,750	20,000	16,250	-
Subordinated Debt		USD'000s	35,000	-	-	6,927	10,904	15,030	2,139

Following three tables are providing loan schedules for different loan plans. Political Risk Insurance (PRI) is also calculated for each loan. PRI paid during construction years is capitalized and will be depreciated through the life of the mine. Commitment fee is equal to 0.65% of outstanding debt and should be paid to the bank. Financing fee is also calculated as 4.5% of total loan amount.

Table 14: Senior Bank Debt, Tranche A

Loan	(USD'000s, Nominal)								
Period Start Date					01-07-2011	01-07-2012	01-07-2013	01-07-2014	01-07-2015
Period End Date					30-06-2012	30-06-2013	30-06-2014	30-06-2015	30-06-2016
Construction					1	1	-	-	-
Operation					-	-	1	1	1
	Constant	**Unit**	**Total**						
SENIOR BANK DEBT - Tranche A	100,000								
Interest Rates									
LIBOR	4.00%				4.00%	4.00%	4.00%	4.00%	4.00%
Margin					3.00%	3.00%	2.50%	2.50%	2.50%
Annual Interest Rate					7.00%	7.00%	6.50%	6.50%	6.50%
Loan Schedule									
Annual Interest Rate	-	-	-	-	7.00%	7.00%	6.50%	6.50%	6.50%
Outstanding at the Beginning		USD'000s			-	-	100,000	72,500	32,500
Loan Disbursement		USD'000s			-	100,000	-	-	-
Interest Accrued		USD'000s			-	-	7,000	4,713	2,113
Interest Repayment		USD'000s			-	-	7,000	4,713	2,113
Principal Repayment		USD'000s			-	-	27,500	40,000	32,500
T.A. Total Repayment		USD'000s			-	-	34,500	44,713	34,613
Outstanding at the End		USD'000s			-	100,000	72,500	32,500	-
T.A. Interest Scheduled		USD'000s	13,825		-	-	7,000	4,713	2,113
T.A. Interest Capitalised		USD'000s	-		-	-	-	-	-
T.A. Interest Expensed		USD'000s	13,825		-	-	7,000	4,713	2,113
T.A. Commitment Fee	0.65%	USD'000s	1,300		650	650	-	-	-
T.A. Financing Fee	4.50%	USD'000s	4,500		4,500	-	-	-	-
PRI									
Outstanding at the Beginning	-	USD'000s	-	-	-	-	100,000	72,500	32,500
Loan Disbursement	-	USD'000s	100,000	-	-	100,000	-	-	-
Beg. of Period Loan Balance (Inc Loan Dis.)		USD'000s			-	100,000	100,000	72,500	32,500
Beg. of Period Loan Balance (Inc Loar	-	USD'000s	-	-	-	100,000	100,000	72,500	32,500
T.A. Interest Scheduled	-	USD'000s	13,825	-	-	-	7,000	4,713	2,113
Interest Estimate		USD'000s			-	13,825	13,825	6,825	2,113
Beg. of Period Loan Balance (Inc Loar	-	USD'000s	-	-	-	100,000	100,000	72,500	32,500
Interest Estimate	-	USD'000s	-	-	-	13,825	13,825	6,825	2,113
Insured Amount		USD'000s			-	113,825	113,825	79,325	34,613
Insured Amount	-	USD'000s	-	-	-	113,825	113,825	79,325	34,613
T.A. PRI Scheduled	1.50%	USD'000s	5,124		-	1,707	1,707	1,190	519
T.A. PRI Capitalised		USD'000s	1,707		-	1,707	-	-	-
T.A. PRI Expensed		USD'000s	3,416		-	-	1,707	1,190	519

Table 15: Senior Bank Debt, Tranche B

Loan	(USD'000s, Nominal)								
Period Start Date					01-07-2011	01-07-2012	01-07-2013	01-07-2014	01-07-2015
Period End Date					30-06-2012	30-06-2013	30-06-2014	30-06-2015	30-06-2016
Construction					1	1	-	-	-
Operation					-	-	1	1	1
	Constant	**Unit**	**Total**						
SENIOR BANK DEBT - Tranche B	50,000								
Interest Rates									
LIBOR	4.00%				4.00%	4.00%	4.00%	4.00%	4.00%
Margin					3.00%	3.00%	2.50%	2.50%	2.50%
Annual Interest Rate		%			7.00%	7.00%	6.50%	6.50%	6.50%
Loan Schedule									
Annual Interest Rate	-	%	-	-	7.00%	7.00%	6.50%	6.50%	6.50%
Outstanding at the Beginning		USD'000s			-	-	50,000	36,250	16,250
Loan Disbursement		USD'000s			-	50,000	-	-	-
Interest Accrued		USD'000s			-	-	3,500	2,356	1,056
Interest Repayment		USD'000s			-	-	3,500	2,356	1,056
Principal Repayment		USD'000s			-	-	13,750	20,000	16,250
T.B. Total Repayment		USD'000s			-	-	17,250	22,356	17,306
Outstanding at the End		USD'000s			-	50,000	36,250	16,250	-
T.B. Interest Scheduled		USD'000s	6,913		-	-	3,500	2,356	1,056
T.B. Interest Capitalised		USD'000s	-		-	-	-	-	-
T.B. Interest Expensed		USD'000s	6,913		-	-	3,500	2,356	1,056
T.B. Commitment Fee	0.65%	USD'000s	650		325	325	-	-	-
T.B.Financing Fee	4.50%	USD'000s	2,250		2,250	-	-	-	-
PRI									
Outstanding at the Beginning	-	USD'000s	-	-	-	-	50,000	36,250	16,250
Loan Disbursement	-	USD'000s	50,000	-	-	50,000	-	-	-
Beg. of Period Loan Balance (Inc Loan Dis.)		USD'000s			-	50,000	50,000	36,250	16,250
Beg. of Period Loan Balance (Inc Loar	-	USD'000s	-	-	-	50,000	50,000	36,250	16,250
T.B. Interest Scheduled	-	USD'000s	6,913	-	-	-	3,500	2,356	1,056
Interest Estimate		USD'000s			-	6,913	6,913	3,413	1,056
Beg. of Period Loan Balance (Inc Loar	-	USD'000s	-	-	-	50,000	50,000	36,250	16,250
Interest Estimate	-	USD'000s	-	-	-	6,913	6,913	3,413	1,056
Insured Amount		USD'000s			-	56,913	56,913	39,663	17,306
Insured Amount	-	USD'000s	-	-	-	56,913	56,913	39,663	17,306
T.B. PRI Scheduled	1.50%	USD'000s	2,562		-	854	854	595	260
T.B. PRI Capitalised		USD'000s	854		-	854	-	-	-
T.B. PRI Expensed		USD'000s	1,708		-	-	854	595	260

Table 16: Subordinated Bank Debt

Loan	(USD'000s, Nominal)									
Period Start Date					01-07-2011	01-07-2012	01-07-2013	01-07-2014	01-07-2015	01-07-2016
Period End Date					30-06-2012	30-06-2013	30-06-2014	30-06-2015	30-06-2016	30-06-2017
Construction					1	1	-	-	-	-
Operation					-	-	1	1	1	1
	Constant	**Unit**	**Total**							
SUBORDINATED BANK DEBT	35,000	USD'000s								
Interest Rates										
LIBOR	4.00%				4.00%	4.00%	4.00%	4.00%	4.00%	4.00%
Margin					5.00%	5.00%	5.00%	5.00%	5.00%	5.00%
Annual Interest Rate		%			9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
Loan Schedule										
Annual Interest Rate	-	%	-	-	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
Outstanding at the Beginning		USD'000s			-	7,175	35,000	28,073	17,169	2,139
Loan Disbursement		USD'000s			7,175	27,825	-	-	-	-
Interest Accrued		USD'000s			-	646	3,150	2,527	1,545	193
Interest Repayment		USD'000s			-	646	3,150	2,527	1,545	193
Principal Repayment		USD'000s			-	-	6,927	10,904	15,030	2,139
S.D. Total Repayment		USD'000s			-	646	10,077	13,431	16,575	2,332
Outstanding at the End		USD'000s			7,175	35,000	28,073	17,169	2,139	-
S.D. Interest Scheduled		USD'000s	8,060		-	646	3,150	2,527	1,545	193
S.D. Interest Capitalised		USD'000s	646		-	646	-	-	-	-
S.D. Interest Expensed		USD'000s	7,414		-	-	3,150	2,527	1,545	193
PRI										
Outstanding at the Beginning	-	USD'000s	-	-	-	7,175	35,000	28,073	17,169	2,139
Loan Disbursement	-	USD'000s	35,000	-	7,175	27,825	-	-	-	-
Beg. of Period Loan Balance (Inc Loan Dis.)		USD'000s			7,175	35,000	35,000	28,073	17,169	2,139
Beg. of Period Loan Balance (Inc Loan	-	USD'000s	-	-	7,175	35,000	35,000	28,073	17,169	2,139
S.D. Interest Scheduled	-	USD'000s	8,060	-	-	646	3,150	2,527	1,545	193
Interest Estimate		USD'000s			8,060	8,060	7,414	4,264	1,738	193
Beg. of Period Loan Balance (Inc Loan	-	USD'000s	-	-	7,175	35,000	35,000	28,073	17,169	2,139
Interest Estimate	-	USD'000s	-	-	8,060	8,060	7,414	4,264	1,738	193
Insured Amount		USD'000s			15,235	43,060	42,414	32,337	18,907	2,332
Insured Amount	-	USD'000s	-	-	15,235	43,060	42,414	32,337	18,907	2,332
S.D. PRI Scheduled	1.50%	USD'000s	2,314		229	646	636	485	284	35
S.D. PRI Capitalised		USD'000s	874		229	646	-	-	-	-
S.D. PRI Expensed		USD'000s	1,440		-	-	636	485	284	35

4.4 Income Statement

Income statement of the gold mine project is given in Table 17. As it is shown in the statement, project is paying 2.3% of its revenues to the host country as a royalty. Other than the royalty charges, income tax is another way of transferring money from project's pocket to the host country. Income tax was set to be 30.00% of taxable income with five years of tax free holidays.

Table 17: Income Statement (Nominal)

Financial Analysis

	Constant	Unit	Total	01-07-2013	01-07-2014	01-07-2015	01-07-2016	01-07-2018	01-07-2020	01-07-2021
Period Start Date				01-07-2013	01-07-2014	01-07-2015	01-07-2016	01-07-2018	01-07-2020	01-07-2021
Period End Date				30-06-2014	30-06-2015	30-06-2016	30-06-2017	30-06-2019	30-06-2021	30-06-2022
Construction				-	-	-	-	-	-	-
Operation				1	1	1	1	1	1	1
	Constant	**Unit**	**Total**							
INCOME STATEMENT (USD'000s, NOMINAL)										
Revenues										
Gold Revenue	-	USD'000s	1,657,280	240,143.1	237,233.3	238,530.7	186,872.8	195,076.9	161,685.6	57,473.0
Hedging Gain/(Loss)	-	USD'000s	17,359	8,732.5	8,626.7	-	-	-	-	-
Gold Lock Up Recovery	-	USD'000s	10,170	-	-	-	-	-	-	10,170
Total Revenue		**USD'000s**	**1,684,809**	**248,875.6**	**245,860.0**	**238,530.7**	**186,872.8**	**195,076.9**	**161,685.6**	**67,643.1**
Costs										
Mining Cost	-	USD'000s	-	40,050.9	37,759.5	34,684.3	35,375.5	35,609.2	39,402.4	8,304.1
Plant (Processing) Cost	-	USD'000s	-	35,821.6	40,757.8	40,834.1	31,632.5	33,144.4	38,715.3	13,202.7
G&A Cost	-	USD'000s	-	11,460.9	11,672.0	11,882.4	8,476.5	8,813.0	9,178.7	2,602.1
Total Site Opex		USD'000s	687,014	87,333.5	90,189.4	87,400.8	75,484.4	77,566.6	87,296.5	24,108.9
Royalty Sensitivity	-	%								
Government Royalty	2.3%	Percentage of Revenues								
Total Revenue	-	USD'000s	1,684,809	248,875.6	245,860.0	238,530.7	186,872.8	195,076.9	161,685.6	67,643.1
Royalties To Government		USD'000s	37,908	5,599.7	5,531.8	5,366.9	4,204.6	4,389.2	3,637.9	1,522.0
Foreign (USD) price index	-	Index	-	1.04	1.06	1.08	1.10	1.14	1.19	1.21
Refining Cost	6.5	USD/Oz		6.76	6.89	7.02	7.16	7.44	7.73	7.88
Total Gold Produced	-	Troy Oz	-	210,040	203,527	200,726	154,247	154,918	123,536	43,072
Refining Charges		USD'000s	9,793	1,419.0	1,401.8	1,409.5	1,104.2	1,152.7	955.4	339.6
Total Site Opex	-	USD'000s	687,014	87,333	90,189	87,401	75,484	77,567	87,296	24,109
Royalties To Government	-	USD'000s	37,908	5,600	5,532	5,367	4,205	4,389	3,638	1,522
Refining Charges	-	USD'000s	9,793	1,419	1,402	1,409	1,104	1,153	955	340
Depreciation	-	USD'000s	352,369	38,038	38,395	38,696	38,955	39,389	39,512	40,685
Interest During Operation	-	USD'000s	28,152	13,650	9,595	4,714	193	-	-	-
PRI During Operation	-	USD'000s	6,565	3,197	2,270	1,062	35	-	-	-
Total Costs		**USD'000s**	**1,121,800**	**149,237**	**147,384**	**138,649**	**119,976**	**122,498**	**131,402**	**66,656**
Total Revenue	-	USD'000s	1,684,809	248,876	245,860	238,531	186,873	195,077	161,686	67,643
Total Costs	-	USD'000s	1,121,800	149,237	147,384	138,649	119,976	122,498	131,402	66,656
Pre-Tax Income		**USD'000s**	**563,009**	**99,638**	**98,476**	**99,881**	**66,897**	**72,579**	**30,283**	**987**
Pre-Tax Income	-	USD'000s	563,009	99,638	98,476	99,881	66,897	72,579	30,283	987
Comulative Loses		USD'000s	-	-	-	-	-	-	-	-
Operation Year		Flag		1	2	3	4	6	8	9
Tax Rate	30.0%	%		-	-	-	-	30.00%	30.00%	30.00%
Pre-Tax Income	-	USD'000s	563,009	99,638	98,476	99,881	66,897	72,579	30,283	987
Comulative Loses	-	USD'000s	-	-	-	-	-	-	-	-
Taxable Income		USD'000s	563,009	99,638	98,476	99,881	66,897	72,579	30,283	987
Tax Rate	30.0%	%	-	-	-	-	-	30.00%	30.00%	30.00%
Taxable Income	-	USD'000s	563,009	99,638	98,476	99,881	66,897	72,579	30,283	987
Income Tax Owing		USD'000s	41,683	-	-	-	-	21,774	9,085	296
Income Tax Owing	-	USD'000s	41,683	-	-	-	-	21,774	9,085	296
Income Tax Payable		**USD'000s**	**41,683**	**-**	**-**	**-**	**-**	**-**	**10,528**	**9,085**
Pre-Tax Income	-	USD'000s	563,009	99,638	98,476	99,881	66,897	72,579	30,283	987
Income Tax Payable	-	USD'000s	41,683	-	-	-	-	-	10,528	9,085
Net Income After Tax		USD'000s	521,326	99,638	98,476	99,881	66,897	72,579	19,755	(8,098)

4.5 Development of Cash Flow

Financial analysis of the project is carried out from two different perspectives. Total investment point of view (bankers') and equity owners' view-point.

According to Jenkins et al. (2013), each stakeholder has its own considerations which should be taken in to account while generating Cash Flow Statement (CFS) for different viewpoints. Not all financial items should be included into the cash flow statements for each specific point of view.

4.5.1 Total Investment (Bankers') Perspective

As previously explained, bankers are implementing ADSCR and LLCR criteria to judge the ability of a project to service its debt. The major difference between bankers' and owners' perspective is how they look at the loan. Banks are only interested in whether the project has the financial capability to pay back the initial debt and related interest or not. Hence, the bankers neither want to see the loan disbursements and proceed of the loan nor NPV and IRR. In order to satisfy them, the ADSCR and LLCR have been calculated using nominal cash flows statement. Nominal cash flow statement is presented in Table 18.

Table 18: Cash Flow Statement, Bankers' Point of View (Nominal)

Financial Analysis								
Period Start Date				01-07-2013	01-07-2014	01-07-2018	01-07-2021	01-07-2022
Period End Date				30-06-2014	30-06-2015	30-06-2019	30-06-2022	30-06-2023
Construction				-	-	-	-	-
Operation				1	1	1	1	-
	Constant	Unit	Total					
CASH FLOW STATEMENT, BANKER'S POINT OF VIEW (USD'000s, NOMINAL)								
Inflows								
Gold Revenue	-	USD'000s	1,657,280	240,143	237,233	195,077	57,473	-
Hedging Gain/(Loss)	-	USD'000s	17,359	8,732	8,627	-	-	-
Gold Lock Up Recovery	-	USD'000s	10,170	-	-	-	10,170	-
Change in A/R	-	USD'000s	-	(25,088)	304	(1,213)	10,887	6,004
Total Inflows		**USD'000s**	**1,684,809**	**223,787**	**246,164**	**193,864**	**78,530**	**6,004**
Outflows								
Investments (Initial & Sustaining Capital Costs)								
Mining	-	USD'000s	60,070	6,516	1,325	343	-	-
Processing Plant	-	USD'000s	71,285	2,082	-	-	-	-
Infrastructure	-	USD'000s	79,655	4,611	2,251	1,697	-	-
Management & Other	-	USD'000s	35,536	626	-	-	-	-
Construction labor	-	USD'000s	89,075	5,863	-	-	11,730	-
Operating Costs								
Mining Cost	-	USD'000s	-	40,051	37,760	35,609	8,304	-
Plant (Processing) Cost	-	USD'000s	-	35,822	40,758	33,144	13,203	-
G&A Cost	-	USD'000s	-	11,461	11,672	8,813	2,602	-
Royalties								
Royalties To Government	-	USD'000s	37,908	5,600	5,532	4,389	1,522	-
Refining								
Refining Charges	-	USD'000s	9,793	1,419	1,402	1,153	340	-
Tax								
Income Tax Payable	-	USD'000s	41,683	-	-	-	9,085	296
Working Capital								
Change in A/P	-	USD'000s	-	(36,302)	440	(1,755)	15,753	8,688
Change in C/B	-	USD'000s	-	36,145	(438)	1,747	(15,685)	(8,650)
Total Outflows		**USD'000s**	**1,112,019**	**113,893**	**100,700**	**85,141**	**46,854**	**334**
Total Inflows	-	USD'000s	1,684,809	223,787	246,164	193,864	78,530	6,004
Total Outflows	-	USD'000s	1,112,019	113,893	100,700	85,141	46,854	334
Net Cash Flow		**USD'000s**	**572,790**	**109,895**	**145,464**	**108,723**	**31,677**	**5,671**

ADSCR and LLCR have been calculated for senior bank debt, tranche A and B as well as subordinated debt. As it is shown in Table 19, ADSCR ratios are showing the capability of the gold mine project in covering its annual debt obligations. The minimum ADSCR is 2.12 while the average of ADSCR for three years of debt

repayments is 2.34. As it can be seen in the model (Table 19), DSCR covenant requested by the bank is equal to 1.25 which has been totally complied.

Although ADSCR ratios where quite satisfactory, LLCR was calculated due to the request of the bank. The minimum of 1.50 was requested for LLCR ratio. As it is shown in Table 19, the minimum amount for LLCR is 2.32 while the project average for LLCRs is 2.48.

Both criteria show that the project is not expected to face any anticipated difficulty regarding the payment of its debt to the bank. As a result, bankers are expected to be interested in paying the loan to this project.

Table 19: ADSCR, LLCR for Senior Bank Debt (Tranche A&B), Nominal

Financial Analysis										
Period Start Date				01-07-2011	01-07-2012	01-07-2013	01-07-2014	01-07-2015	01-07-2016
Period End Date				30-06-2012	30-06-2013	30-06-2014	30-06-2015	30-06-2016	30-06-2017
Construction				1	1	-	-	-	-
Operation				-	-	1	1	1	1
	Constant	Unit	Total						
DEBT SERVICE RATIOS									
SENIOR BANK DEBT									
Tranche A&B									
T.A. Total Repayment	-	USD'000s	-	-	-	34,500	44,713	34,613	-
T.B. Total Repayment	-	USD'000s	-	-	-	17,250	22,356	17,306	-
Tranche A&B Repayment		USD'000s		-	-	51,750	67,069	51,919	-
Net Cash Flow	-	USD'000s	572,790	(116,253)	(173,195)	109,895	145,464	141,217	108,845
Tranche A&B Repayment		USD'000s	-	-	-	51,750	67,069	51,919	-
Tranche A&B ADSCR		Ratio		-	-	2.12	2.17	2.72	-
Tranche A&B ADSCR		**Ratio**	-	-	-	**2.12**	**2.17**	**2.72**	-
DSCR Covenant	**1.25**	**Ratio**		**1.25**	**1.25**	**1.25**	**1.25**	**1.25**	**1.25**
Tranche A&B ADSCR Covenant		**Flag**		**N/A**	**N/A**	**Complied**	**Complied**	**Complied**	**N/A**
		Flag		-	-	1	1	1	-
Net Cash Flow	-	USD'000s	572,790	(116,253)	(173,195)	109,895	145,464	141,217	108,845
Net Cash Flow During loan		USD'000s	396,575	-	-	109,895	145,464	141,217	-
LIBOR	4.00%	%							
Net Cash Flow During loan		USD'000s	396,575	-	-	109,895	145,464	141,217	-
Discounted PV of Net Cash Flow		USD'000s		-	-	380,326	281,249	141,217	-
LIBOR	4.00%	%							
Tranche A&B Repayment	-	USD'000s	170,738	-	-	51,750	67,069	51,919	-
Discounted PV of Tranche A&B Repa		USD'000s		-	-	164,241	116,991	51,919	-
Discounted PV of Net Cash Flow		USD'000s	-	-	-	380,326	281,249	141,217	-
Discounted PV of Tranche A&B Repa		USD'000s	-	-	-	164,241	116,991	51,919	-
Tranche A&B LLCR		Ratio		-	-	2.32	2.40	2.72	-
Tranche A&B LLCR		**Ratio**	-	-	-	**2.32**	**2.40**	**2.72**	-
LLCR Covenant	**1.50**	**Ratio**		**1.50**	**1.50**	**1.50**	**1.50**	**1.50**	**1.50**
Tranche A&B LLCR Covenant		**Flag**		**N/A**	**N/A**	**Complied**	**Complied**	**Complied**	**N/A**

As we mentioned before, there are two loans available for this project. Second loan is the subordinated one. Detailed information regarding to this loan and the calculated ADSCR and LLCR ratios are available in Table 20.

Table 20: ADSCR, LLCR for Subordinated Bank Debt, Nominal

Financial Analysis										
Period Start Date				01-07-2011	01-07-2012	01-07-2013	01-07-2014	01-07-2015	01-07-2016
Period End Date				30-06-2012	30-06-2013	30-06-2014	30-06-2015	30-06-2016	30-06-2017
Construction				1	1	-	-	-	-
Operation				-	-	1	1	1	1
	Constant	Unit	Total						
SUBORDINATED BANK DEBT									
S.D. Total Repayment	-	USD'000s	-	-	646	10,077	13,431	16,575	2,332
Tranche A&B Repayment	-	USD'000s	-	-	-	51,750	67,069	51,919	-
Total Repayment		USD'000s	213,798	-	646	61,827	80,499	68,494	2,332
Net Cash Flow		USD'000s	213,798	(116,253)	(173,195)	109,895	145,464	141,217	108,845
Total Repayment	-	USD'000s	213,798	-	646	61,827	80,499	68,494	2,332
S.D. ADSCR		USD'000s		-	-	1.78	1.81	2.06	46.68
S.D. ADSCR		**USD'000s**	**-**	**-**	**-**	**1.78**	**1.81**	**2.06**	**46.68**
DSCR Covenant	**1.25**	**Ratio**		**1.25**	**1.25**	**1.25**	**1.25**	**1.25**	**1.25**
S.D. ADSCR Covenant		**Flag**		**N/A**	**N/A**	**Complied**	**Complied**	**Complied**	**Complied**
		Flag		-	-	1	1	1	1
Net Cash Flow	-	USD'000s	213,798	(116,253)	(173,195)	109,895	145,464	141,217	108,845
Net Cash Flow During loan		USD'000s	505,420	-	-	109,895	145,464	141,217	108,845
LIBOR	4.00%	%							
Net Cash Flow During loan		USD'000s	505,420	-	-	109,895	145,464	141,217	108,845
Discounted PV of Net Cash Flow		USD'000s		-	-	477,089	381,883	245,876	108,845
LIBOR	4.00%	%							
Total Repayment	-	USD'000s	213,798	-	646	61,827	80,499	68,494	2,332
Discounted PV of total Repayment		USD'000s		-	-	204,629	148,515	70,736	2,332
Discounted PV of Net Cash Flow		USD'000s	-	-	-	477,089	381,883	245,876	108,845
Discounted PV of total Repayment		USD'000s	-	-	-	204,629	148,515	70,736	2,332
S.D. LLCR		Ratio		-	-	2.33	2.57	3.48	46.68
S.D. LLCR		**Ratio**	**-**	**-**	**-**	**2.33**	**2.57**	**3.48**	**46.68**
LLCR Covenant	**1.50**	**Ratio**		**1.50**	**1.50**	**1.50**	**1.50**	**1.50**	**1.50**
S.D. LLCR Covenant		**Flag**		**N/A**	**N/A**	**Complied**	**Complied**	**Complied**	**Complied**

As it is shown in table above (Table 20), ADSCR has been calculated for subordinated debt. As it is expected they are assumed to be acceptable to the requested ratio by the bank, i.e. 1.25 as a DSCR covenant. The minimum is equal to 1.78 with the average of 1.88 for the first three years of loan repayment. ADSCR for the period of 2016-2017 is relatively very high due to the small loan left for repayment in the very last year.

Almost the same situation exists with LLCR ratios. Minimum LLCR is 2.33 while the average for the first three years is equal to 2.79. The bank's minimum requested LLCR ratio was 1.50 which is quite complied during the loan life.

According to above results, the bank should be eager to provide the requested subordinated loan to the project.

4.5.2 Equity Owners' Perspective

In order to appraise the project from the view point of equity holders, a more comprehensive cash flow statement is required. The owner is interested in all the existing inflows to the project as well as outflows. For instance, here we do care about the loan disbursements as a source of income as well as loan proceeds as a cost to the project. After taking all the details in to the account, net cash flow after financing is constructed.

In order to understand the project better, first we deployed a cash flow statement in nominal terms from equity holders' point of view. Then after converting it to real terms, it's now ready to calculate NPV and IRR to reach a better and more comprehensive assessment about the profitability of the project. Required rate of return on equity for this field was assumed to be 25.00%. This demonstrates the existing opportunity cost of equity funds to the owner. NPV was calculated and shows a positive NPV of USD 76.2 Million in comparing to the other alternative investment opportunities with a similar level of risk (refer to Table 21). This implies that the equity holder will be able to recover the initial capital as well as gaining an extra amount of USD 76.2 Million comparing to the other alternative investment opportunities available with the same level of risk. Hence, the project assumes to be commercially viable.

Although NPV is the most reliable criterion, IRR was also calculated. IRR for this project was obtained as almost 41%. This is much higher than what is required as a rate of return for this project, i.e. 25.00%.

Table 21: Cash Flow Statement, Equity Owners' Point of View (Real)

Financial Analysis

Period Start Date				01-07-2011	01-07-2012	01-07-2015	01-07-2018	01-07-2021	01-07-2022
Period End Date				30-06-2012	30-06-2013	30-06-2016	30-06-2019	30-06-2022	30-06-2023
Construction				1	1	-	-	-	-
Operation				-	-	1	1	1	-
	Constant	**Unit**	**Total**						
CASH FLOW STATEMENT, EQUITY POINT OF VIEW (USD'000s, REAL)									
Foreign (USD) price index	-	Index	-	1.00	1.02	1.08	1.14	1.21	1.24
Inflows									
Gold Revenue	-	USD'000s	-	-	-	220,798	170,410	47,380	-
Hedging Gain/(Loss)	-	USD'000s	16,543	-	-	-	-	-	-
Gold Lock Up Recovery	-	USD'000s	8,384	-	-	-	-	8,384	-
Change in A/R	-	USD'000s	-	-	-	322	(733)	9,247	4,950
Total Inflows		**USD'000s**	**1,521,744**	**-**	**-**	**221,120**	**169,677**	**65,011**	**4,950**
Outflows									
Investments (Initial & Sustaining Capital Costs)									
Mining	-	USD'000s	59,017	23,474	25,968	534	300	-	-
Processing Plant	-	USD'000s	70,390	26,546	41,841	-	-	-	-
Infrastructure	-	USD'000s	77,739	27,744	35,469	2,245	1,482	-	-
Management & Other	-	USD'000s	35,064	11,468	22,994	-	-	-	-
Construction labor	-	USD'000s	86,018	27,021	43,610	-	-	9,670	-
Operating Costs									
Mining Cost	-	USD'000s	-	-	-	31,977	30,996	6,824	-
Plant (Processing) Cost	-	USD'000s	-	-	-	37,607	28,930	10,918	-
G&A Cost	-	USD'000s	-	-	-	10,918	7,667	2,136	-
Royalties									
Royalties To Government	-	USD'000s	37,908	-	-	4,968	3,834	1,255	-
Refining									
Refining Charges	-	USD'000s	9,793	-	-	1,305	1,007	280	-
Tax									
Income Tax Payable	-	USD'000s	41,683	-	-	-	-	7,490	239
Working Capital									
Change in A/P	-	USD'000s	-	-	-	466	(1,061)	13,380	7,162
Change in C/B	-	USD'000s	-	-	-	(464)	1,056	(13,322)	(7,131)
Total Outflows		**USD'000s**	**1,021,705**	**116,253**	**169,882**	**89,556**	**74,212**	**38,629**	**270**
Total Inflows	-	USD'000s	1,521,744	-	-	221,120	169,677	65,011	4,950
Total Outflows	-	USD'000s	1,021,705	116,253	169,882	89,556	74,212	38,629	270
Net Cash Flow Before Financing		**USD'000s**	**500,039**	**(116,253)**	**(169,882)**	**131,564**	**95,465**	**26,381**	**4,679**
Total Loan Disbursement Real		USD'000s	-	7,175	174,424	-	-	-	-
Total Loan Repayment Real		USD'000s	-	-	633	63,402	-	-	-
Net Cash Flow Before Financing		USD'000s	500,039	(116,253)	(169,882)	131,564	95,465	26,381	4,679
Total Loan Disbursement Real		USD'000s	-	7,175	174,424	-	-	-	-
Total Loan Repayment Real		USD'000s	-	-	633	63,402	-	-	-
Net Cash Flow After Financing		**USD'000s**	**480,033**	**(109,078)**	**3,908**	**68,162**	**95,465**	**26,381**	**4,679**
FNPV Discount Rate	**25.00%**								
NPV		**USD'000s**		**76,239**					
IRR		**%**		**40.99%**					

Chapter 5

SENSITIVITY ANALYSIS

5.1 Introduction

In this chapter once again we will briefly explain the logic of sensitivity analysis followed by a presentation of the results and their interpretation.

5.2 Sensitivity Analysis

Although sensitivity analysis has its own shortcomings, for instance only one variable can be changed at a time, but it is still being used as a useful strategy in capturing the risky variables and also to study possible influences that may have on the main outcomes of projects. Risky variables are capable to bring great changes in the outcome results of the projects even sometimes with their small deviations. The extent of their influence and the likeliest of them to happen are one of the major concerns that should be studied. Project managers try to identify and understand these critical parameters prior to going for any further steps.

Here we try to choose those particular parameters, especially the ones who are suspected to be a risky variable. To name, gold price, price of diesel and HFO, cost overrun factor, percentage of a royalty to the government, total gold revenue, cost of a labor, and foreign inflation was chosen for the study. Their values were changed using a realistic range of possible values and the model was recalculated and final results were recorded. The following section is allocated to the discussion about the results of this analysis.

5.3 Results

Table 22 shows the sensitivity results to the changes in the gold price. According to the table below, this variable is assumed to be risky since even small changes, which are quite possible, have great effects on the NPV and IRR results. Ten percent (10%) decrease in gold selling price will almost make the NPV half of its previous value. A gold price of USD 885 (almost 19.6% decrease in gold price from USD 1,100 base case) will make NPV equal to zero.

Although we reached a break even at a gold price of USD 885, but we should keep in mind that the used discount rate is also relatively high, i.e. 25%. Discount rate was assumed to be high due to the high level of risk.

Regarding to the possible influence on ADSCRs, senior debt looks secured and there is no serious problem regarding to debt service although subordinated debt may face some difficulties especially when it reaches to the breakeven point of USD 885.

Table 22: Financial Sensitivity Results to Gold Price

GOLD PRICE										
Gold Price Sensitivity	-	%								
					Tranche A&B ADSCR			S.D ADSCR		
			NPV	IRR	Year 1	Year 2	Year 3	Year 1	Year 2	Year 3
			76,239.05	41.0%	2.12	2.17	2.72	1.78	1.81	2.06
	770	-30%	(41,463.87)	14.1%	1.45	1.55	1.37	1.22	1.29	1.04
	885	-19.6%	(0.00)	25.0%	1.69	1.76	1.84	1.41	1.47	1.40
	990	-10%	37,292.90	33.3%	1.90	1.96	2.27	1.59	1.63	1.72
	1,045	-5%	56,776.26	37.3%	2.01	2.06	2.50	1.68	1.72	1.89
	1,100	-	76,239.05	41.0%	2.12	2.17	2.72	1.78	1.81	2.06
	1,210	10%	115,088.71	47.9%	2.35	2.38	3.17	1.96	1.98	2.40
	1,265	15%	134,513.54	51.2%	2.46	2.48	3.39	2.06	2.07	2.57
	1,320	20%	153,938.37	54.3%	2.57	2.58	3.62	2.15	2.15	2.74
	1,430	30%	192,788.03	60.2%	2.80	2.79	4.07	2.34	2.33	3.08

Table 23 and 24 are respectively looking at the effects of possible changes in diesel and HFO prices on the project's outcomes. As it can be seen in the following tables, increase in price of diesel and HFO will have negative effects on project outcomes.

Although project will remain quite profitable even with 50% increase in diesel price or HFO price, we should keep in mind that the price of diesel and HFO are usually change together and are expected to increase or decrease simultaneously.

Table 23: Financial Sensitivity Results to Diesel Price

DIESEL PRICE

Diesel Price Sensitivity	-	%			Tranche A&B ADSCR			S.D ADSCR		
			NPV	IRR	Year 1	Year 2	Year 3	Year 1	Year 2	Year 3
			76,239.05	41.0%	2.12	2.17	2.72	1.78	1.81	2.06
	1.05	-20%	84,821.00	42.6%	2.19	2.22	2.79	1.84	1.85	2.11
	1.18	-10%	80,530.03	41.8%	2.16	2.20	2.75	1.81	1.83	2.09
	1.24	-5%	78,384.54	41.4%	2.14	2.18	2.74	1.79	1.82	2.07
	1.31	-	76,239.05	41.0%	2.12	2.17	2.72	1.78	1.81	2.06
	1.44	10%	71,948.08	40.2%	2.09	2.14	2.69	1.75	1.78	2.04
	1.57	20%	67,657.11	39.3%	2.05	2.12	2.65	1.72	1.76	2.01
	1.70	30%	63,359.77	38.5%	2.02	2.09	2.62	1.69	1.74	1.99
	1.96	50%	54,759.86	36.8%	1.95	2.03	2.55	1.63	1.70	1.94
	2.29	75%	44,009.98	34.6%	1.86	1.97	2.47	1.55	1.64	1.87

Table 24: Financial Sensitivity Results to HFO Price

HFO PRICE

HFO Price Sensitivity	-	%			Tranche A&B ADSCR			S.D ADSCR		
			NPV	IRR	Year 1	Year 2	Year 3	Year 1	Year 2	Year 3
			76,239.05	41.0%	2.12	2.17	2.72	1.78	1.81	2.06
	0.95	-20%	83,835.15	42.4%	2.18	2.22	2.79	1.82	1.85	2.11
	1.07	-10%	80,037.10	41.7%	2.15	2.19	2.75	1.80	1.83	2.09
	1.13	-5%	78,138.08	41.4%	2.14	2.18	2.74	1.79	1.82	2.07
	1.19	-	76,239.05	41.0%	2.12	2.17	2.72	1.78	1.81	2.06
	1.30	10%	72,441.01	40.3%	2.10	2.14	2.69	1.75	1.79	2.04
	1.42	20%	68,633.75	39.5%	2.07	2.12	2.65	1.73	1.77	2.01
	1.54	30%	64,820.81	38.8%	2.04	2.09	2.62	1.71	1.74	1.99
	1.78	50%	57,194.94	37.3%	1.98	2.04	2.56	1.66	1.70	1.94
	2.07	75%	47,662.59	35.3%	1.91	1.98	2.47	1.60	1.65	1.87

Investment cost overruns happen in many projects. They are assumed to be an inevitable part of each and every project. This can reduce the performance of the project and jeopardizes the expected profitability. Investment cost overrun was assumed to vary from -10% to +50%. Project's NPV becomes zero if the project faces 28.7% cost overrun. At this point NPV becomes zero and IRR will be equal to 25%. There will be no problem regarding to debt servicing since project still has enough cash flows to pay back its debt.

Table 25: Financial Sensitivity Results to Investment Cost Overrun

INVESTMENT COST OVERRUN										
Cost Overrun Factor	-	%			Tranche A&B ADSCR			S.D ADSCR		
			NPV	IRR	Year 1	Year 2	Year 3	Year 1	Year 2	Year 3
			76,239.05	41.0%	2.12	2.17	2.72	1.78	1.81	2.06
		-10%	102,787.70	49.9%	2.16	2.17	2.73	1.81	1.81	2.07
		-5%	89,513.38	45.1%	2.14	2.17	2.72	1.79	1.81	2.06
		-	76,239.05	41.0%	2.12	2.17	2.72	1.78	1.81	2.06
		5%	62,961.58	37.4%	2.10	2.17	2.72	1.76	1.80	2.06
		10%	49,663.54	34.2%	2.09	2.16	2.71	1.75	1.80	2.06
		15%	36,365.50	31.4%	2.07	2.16	2.71	1.73	1.80	2.06
		25%	9,769.41	26.5%	2.03	2.16	2.71	1.70	1.80	2.05
		28.7%	(0.00)	25.0%	2.01	2.15	2.70	1.69	1.79	2.05
		50.0%	(56,720.80)	17.8%	1.93	2.14	2.69	1.62	1.78	2.04

In many mineral producing countries, royalties are among the main source of revenues for their governments. Although gold mines are generally known as high-yield projects the percentage used as a royalty rate is relatively too low (i.e. 2% to 5% in many cases).

The main goal of doing a sensitivity analysis to royalties (presented in Table 26) is to see the possible negative effects that it may cause on this project as a sample. We want to see what would be the effect if royalty level goes higher. As it is obvious in Table 26, our study suggests that even if the royalty rates are increased up to six times, the project still generates positive financial NPV. According to our finding, having the royalty rate increased in this specific gold project will not damage financial viability of the project and will allow the host country to benefit more from the gold extraction.

Since there are generally many foreign companies who are extracting from similar natural resources, this extra flow of money may, of course with a good financial management, help the undeveloped but mineral reach countries to build their economy and reduce their poverty.

Table 26: Financial Sensitivity Results to Royalty

ROYALTY										
Royalty Sensitivity	-	%			Tranche A&B ADSCR			S.D ADSCR		
			NPV	IRR	Year 1	Year 2	Year 3	Year 1	Year 2	Year 3
			76,239.05	41.0%	2.12	2.17	2.72	1.78	1.81	2.06
	1.69%	-25%	79,186.51	41.6%	2.15	2.19	2.75	1.80	1.82	2.08
	2.25%	-	76,239.05	41.0%	2.12	2.17	2.72	1.78	1.81	2.06
	2.81%	25%	73,291.60	40.4%	2.10	2.15	2.69	1.75	1.79	2.04
	3.38%	50%	70,344.15	39.8%	2.07	2.13	2.67	1.73	1.77	2.02
	4.50%	100%	64,438.10	38.6%	2.02	2.09	2.62	1.69	1.74	1.98
	7.88%	250%	46,705.82	35.0%	1.85	1.96	2.46	1.55	1.64	1.87
	11.25%	400%	28,973.53	31.3%	1.69	1.84	2.31	1.42	1.53	1.75
	13.50%	500%	17,152.01	28.7%	1.58	1.76	2.20	1.32	1.46	1.67
	16.76%	645%	(0.00)	25.0%	1.43	1.64	2.05	1.19	1.36	1.56

The changes in total gold production also have a tremendous effect on the financial viability of the project. The possible changes in the gold production may result from the recovery rate of the gold or the feed grade of that specific mine pit.

Although the possibility of errors in such estimations are low due to the technological improvements in mining sector and usage of different available high tech equipment, the high negative effect brings up the importance of such studies which are being done prior to the start of the project. According to the Table 27, 15.3% decrease in the total amount of gold production will bring down the NPV to zero. This reveals the importance of this variable.

In order to assume this variable as a risky one, we need to study and find the possibility of above circumstances that will affect the total volume of the gold production and eventually the project's revenue.

Table 27: Financial Sensitivity Results to Total Gold Production

TOTAL GOLD PRODUCTION											
Gold Production Sensitivity	-	%									
					Tranche A&B ADSCR			S.D ADSCR			
			NPV	IRR	Year 1	Year 2	Year 3	Year 1	Year 2	Year 3	
			76,239.05	41.0%	2.12	2.17	2.72	1.78	1.81	2.06	
	1,152,617	-15.3%	(0.00)	25.0%	1.48	1.62	2.04	1.24	1.35	1.54	
	1,156,632	-15.0%	1,471.09	25.3%	1.49	1.63	2.05	1.25	1.36	1.55	
	1,224,669	-10.0%	26,400.60	30.8%	1.70	1.81	2.27	1.43	1.51	1.72	
	1,258,687	-7.5%	38,865.36	33.4%	1.81	1.90	2.39	1.51	1.58	1.81	
	1,292,706	-5.0%	51,330.11	36.0%	1.91	1.99	2.50	1.60	1.66	1.89	
	1,326,725	-2.5%	63,794.87	38.5%	2.02	2.08	2.61	1.69	1.73	1.98	
	1,360,743	-	76,239.05	41.0%	2.12	2.17	2.72	1.78	1.81	2.06	
	1,428,780	5.0%	101,110.39	45.8%	2.33	2.35	2.94	1.95	1.96	2.23	
	1,496,818	10.0%	125,981.72	50.5%	2.54	2.53	3.17	2.13	2.10	2.40	

As it can be seen in the table below, USD inflation is assumed to be 1.95% as a base-case. We assumed that it may vary from 0.98% as a lowest to 3.41% as a highest. We monitored the financial criteria for any changes. Since there is no sign of significant changes in projects' financial criteria, this variable should not be assumed as a risky variable for this project.

Table 28: Financial Sensitivity Results to Foreign (USD) Inflation

FOREIGN (USD) INFLATION											
Foreign Inflation Sensitivity	-	%									
					Tranche A&B ADSCR			S.D ADSCR			
			NPV	IRR	Year 1	Year 2	Year 3	Year 1	Year 2	Year 3	
			76,239.05	41.0%	2.12	2.17	2.72	1.78	1.81	2.06	
	0.98%	-50.0%	74,918.51	40.8%	2.08	2.11	2.62	1.74	1.76	1.99	
	1.17%	-40.0%	75,191.69	40.8%	2.09	2.12	2.64	1.75	1.77	2.00	
	1.46%	-25.0%	75,596.79	40.9%	2.10	2.14	2.67	1.76	1.78	2.02	
	1.76%	-10.0%	75,990.64	40.9%	2.12	2.16	2.70	1.77	1.80	2.05	
	1.95%	-	76,239.05	41.0%	2.12	2.17	2.72	1.78	1.81	2.06	
	2.15%	10.0%	76,485.39	41.0%	2.13	2.18	2.74	1.78	1.82	2.08	
	2.44%	25.0%	76,851.02	41.1%	2.14	2.20	2.77	1.79	1.83	2.10	
	2.93%	50.0%	77,450.14	41.2%	2.17	2.23	2.82	1.81	1.86	2.14	
	3.41%	75.0%	78,036.57	41.3%	2.19	2.26	2.87	1.83	1.88	2.18	

Chapter 6

CONCLUSION

6.1 Introduction

Here in this final chapter we summaries our findings in this study. We briefly discuss about the project itself as well as FAST modeling standard and the advantages that we realized while we were implementing it in the model. We will also explain our study findings including royalties.

6.2 Conclusion

Financial analysis was done on an open pit gold mine project as a sample. Cash flows from two different viewpoints, Bankers' and Equity holders', were constructed in order to appraise the project in financial terms, and study the ability of the project in servicing its debt. Sensitivity analysis was also done in order to find the risky variables to the project.

The project was found quite feasible with the positive NPV of USD 76.7 Million. IRR was also found to be 41.12% which is very satisfying. Bankers are also expected to be interested for lending money to this project since ADSCR and LLCR ratios are all meeting bankers' requirements.

Sensitivity analysis brought some important points about different parameters affecting this project. Gold price was assumed to be a risky variable since it is able to have a great influence on the viability of the project. Cost overrun was accepted as a

risky parameter to the project due to the existence of a high possibility in facing some cost and time overruns. According to the documents for this project, the accuracy level for the capital cost estimations was assumed to be 10% to 15% of the overall project costs and this may put the project's financial viability in to the great danger. Total gold production was also found to be risky. This shows the importance of the pre-feasibility studies since the gold production may vary due to different gold feed grades and gold recovery rates. It is always worth to spend money in order to have accurate information about the quality of the available ore in mine pits.

Another important finding was about the royalties. Royalty rate in gold mine projects in many countries are usually set from 2% to 5% of the total project revenue. Existing tax revenues are the only channel for the host country government to benefit from these extractions. Since mining projects are usually provided with tax free holidays, royalties will become the largest source of revenue for host country governments out of this sector.

Using What-if Analysis™ feature in Microsoft Excel™, we found that even with 13.5% as a rate of royalty, interestingly the project would be still feasible and able to pay for its debt. This can increase the revenue of host country and make the deal closer to a fair one.

Due to the implementation of one of the latest modeling standards, FAST Standard, in the building of this model, a significant positive difference was experienced. FAST standard noticeably reduced the rate of error while on the other hand increased the speed of modeling. Although this model was not built in a group of modelers, the

increase in its commutability was obvious. It was much easier to communicate with other modelers or non-modelers while presenting this model.

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APPENDIX

Appendix: Labor

Labor																
Period Start Date					01-07-2011	01-07-2012	01-07-2013	01-07-2014	01-07-2015	01-07-2016	01-07-2017	01-07-2018	01-07-2019	01-07-2020	01-07-2021	01-07-2022
Period End Date					30-06-2012	30-06-2013	30-06-2014	30-06-2015	30-06-2016	30-06-2017	30-06-2018	30-06-2019	30-06-2020	30-06-2021	30-06-2022	30-06-2023
Construction					1	1	-	-	-	-	-	-	-	-	-	-
Operation					-	-	1	1	1	1	1	1	1	1	1	-
	Constant	**Unit**	**Total**		Labor Month	Labor Month	Labor	Labor	Labor	Labor	Labor	Labor	Labor	Labor	Labor	
INFLATION AND EXCHANGE RATES																
Local Inflation Sensitivity	-	%														
Foreign Inflation Sensitivity	-	%														
Domestic (PDC) inflation rate	5.50%															
Forecast Period Flag		flag			1	0	0	0	0	0	0	0	0	0	0	
Domestic (PDC) price index		Index			1.000	1.055	1.113	1.174	1.239	1.307	1.379	1.455	1.535	1.619	1.708	
Foreign (USD) inflation rate	1.95%															
Forecast Period Flag		flag			1	0	0	0	0	0	0	0	0	0	0	
Foreign (USD) price index		Index			1.000	1.020	1.039	1.060	1.080	1.101	1.123	1.145	1.167	1.190	1.213	
Domestic (PDC) price index	-	Index	-	#	1.000	1.055	1.113	1.174	1.239	1.307	1.379	1.455	1.535	1.619	1.708	
Foreign (USD) price index	-	Index	-	#	1.000	1.020	1.039	1.060	1.080	1.101	1.123	1.145	1.167	1.190	1.213	
Relative Price Index		Index			1.000	1.035	1.071	1.108	1.147	1.187	1.228	1.271	1.315	1.361	1.408	
Relative Price Index	-	Index	-	#	1.000	1.035	1.071	1.108	1.147	1.187	1.228	1.271	1.315	1.361	1.408	
Real Exchange Rate	5.00				5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	
Nominal Exchange Rate					5.000	5.174	5.354	5.541	5.734	5.933	6.140	6.354	6.575	6.804	7.041	

NUMBER OF LABORS														
Mining labor														
Local Category L	#	-	92	16	16	16	16	16	16	16	16	16	16	
Local Category R	#	-	588	119	119	119	119	119	119	119	119	119	119	
Local Category H1	#	-	228	54	54	54	54	54	54	54	54	54	54	
Local Category H2	#	-	-	8	8	8	8	8	8	8	8	8	8	
Expats	#	-	82	38	33	22	15	15	15	15	15	15	10	
VAS	#	-	-	15	15	15	15	15	15	15	15	15	15	
TOTAL	#	-	990	250	245	234	227	227	227	227	227	227	222	
Process plant labor														
Local Category L	#	-	60	24	24	24	24	24	24	24	24	24	24	
Local Category R	#	-	88	25	25	25	25	25	25	25	25	25	25	
Local Category H1	#	-	160	14	14	14	14	14	14	14	14	14	14	
Local Category H2	#	-	-	5	5	5	5	5	5	5	5	5	5	
Expats	#	-	40	8	8	8	1	1	1	1	1	1	1	
VAS	#	-	-	5	5	5	5	5	5	5	5	5	5	
TOTAL	#	-	348	81	81	81	74	74	74	74	74	74	74	
Maintenance Labor														
Local Category L	#	-	46	23	23	23	23	23	23	23	23	23	23	
Local Category R	#	-	8	8	8	8	8	8	8	8	8	8	8	
Local Category H1	#	-	1	15	15	15	15	15	15	15	15	15	15	
Local Category H2	#	-	1	3	3	3	3	3	3	3	3	3	3	
Expats	#	-	52	21	21	21	1	1	1	1	1	1	1	
VAS	#	-	-	4	4	4	4	4	4	4	4	4	4	
TOTAL	#	-	108	74	74	74	54	54	54	54	54	54	54	
General & Admin labor														
Local Category L	#	2	372	110	110	110	110	110	110	110	110	110	110	
Local Category H1	#	4	134	23	23	23	23	23	23	23	23	23	23	
Local Category H2	#	-	29	6	6	6	6	6	6	6	6	6	6	
Expats	#	16	128	8	8	8	3	3	3	3	3	3	3	
VAS	#	-	-	12	12	12	12	12	12	12	12	12	12	
TOTAL	#	22	663	159	159	159	154	154	154	154	154	154	154	
General Maintenance labor														
Local Category L	#	-	70	22	22	22	22	22	22	22	22	22	22	
Local Category R	#	-	24	4	4	4	4	4	4	4	4	4	4	
Local Category H1	#	-	24	6	6	6	6	6	6	6	6	6	6	
Expats	#	-	6	2	2	2	-	-	-	-	-	-	-	
VAS	#	-	-	3	3	3	3	3	3	3	3	3	3	
TOTAL	#	-	124	37	37	37	35	35	35	35	35	35	35	
Military Security Guards														
Local Category L	#	-	696	78	78	78	78	78	78	78	78	78	78	
Local Category H1	#	-	76	8	8	8	8	8	8	8	8	8	8	
TOTAL	#	-	772	86	86	86	86	86	86	86	86	86	86	
TOTAL	#	22	3,005	687	682	671	630	630	630	630	630	625		

COST PER LABOR / LABOR MONTH (REAL)														
Mining labor														
Local Category L	PDC		-	1,914	22,849	22,849	22,849	22,849	22,849	22,849	22,849	22,849	6,855	
Local Category R	PDC		-	3,109	35,136	35,136	35,136	35,136	35,136	35,136	35,136	35,136	10,541	
Local Category H1	PDC		-	3,759	45,038	45,038	45,038	45,038	45,038	45,038	45,038	45,038	13,511	
Local Category H2	PDC		-	-	100,270	100,270	100,270	100,270	100,270	100,270	100,270	100,270	30,081	
Expats	USD		-	9,454	146,000	146,000	146,000	184,259	184,259	184,259	184,259	184,259	55,278	
VAS	PDC		-	-	39,043	39,043	39,043	39,043	39,043	39,043	39,043	39,043	11,713	
Process plant labor														
Local Category L	PDC		-	2,170	24,254	24,254	24,254	24,254	24,254	24,254	24,254	24,254	7,276	
Local Category R	PDC		-	3,127	35,494	35,494	35,494	35,494	35,494	35,494	35,494	35,494	10,648	
Local Category H1	PDC		-	3,495	44,215	44,215	44,215	44,215	44,215	44,215	44,215	44,215	13,265	
Local Category H2	PDC		-	-	95,123	95,123	95,123	95,123	95,123	95,123	95,123	95,123	28,537	
Expats	USD		-	9,020	197,917	197,917	197,917	300,000	300,000	300,000	300,000	300,000	90,000	
VAS	PDC		-	-	32,153	32,153	32,153	32,153	32,153	32,153	32,153	32,153	9,646	
Maintenance Labor														
Local Category L	PDC		-	2,154	23,241	23,241	23,241	23,241	23,241	23,241	23,241	23,241	6,972	
Local Category R	PDC		-	3,210	35,494	35,494	35,494	35,494	35,494	35,494	35,494	35,494	10,648	
Local Category H1	PDC		-	3,580	46,426	46,426	46,426	46,426	46,426	46,426	46,426	46,426	13,928	
Local Category H2	PDC		-	27,085	66,255	66,255	66,255	66,255	66,255	66,255	66,255	66,255	19,877	
Expats	USD		-	8,529	152,778	152,778	152,778	275,000	275,000	275,000	275,000	275,000	82,500	
VAS	PDC		-	-	27,524	27,524	27,524	27,524	27,524	27,524	27,524	27,524	8,257	
General & Admin labor														
Local Category L	PDC		1,985	1,767	20,380	20,380	20,380	20,380	20,380	20,380	20,380	20,380	6,114	
Local Category H1	PDC		3,575	3,558	42,593	42,593	42,593	42,593	42,593	42,593	42,593	42,593	12,778	
Local Category H2	PDC		-	6,523	118,313	118,313	118,313	118,313	118,313	118,313	118,313	118,313	35,494	
Expats	USD		16,267	13,342	204,864	204,864	204,864	262,971	262,971	262,971	262,971	262,971	78,891	
VAS	PDC		-	-	33,102	33,102	33,102	33,102	33,102	33,102	33,102	33,102	9,931	
General Maintenance labor														
Local Category L	PDC		-	2,093	23,136	23,136	23,136	23,136	23,136	23,136	23,136	23,136	6,941	
Local Category R	PDC		-	3,210	35,494	35,494	35,494	35,494	35,494	35,494	35,494	35,494	10,648	
Local Category H1	PDC		-	3,593	43,184	43,184	43,184	43,184	43,184	43,184	43,184	43,184	12,955	
Expats	USD		-	8,042	191,667	191,667	191,667	-	-	-	-	-	-	
VAS	PDC		-	-	21,437	21,437	21,437	21,437	21,437	21,437	21,437	21,437	6,431	
Military Security Guards														
Local Category L	PDC		-	1,968	4,770	4,770	4,770	4,770	4,770	4,770	4,770	4,770	1,431	
Local Category H1	PDC		-	3,886	234,509	234,509	234,509	234,509	234,509	234,509	234,509	234,509	70,353	

LABOR COST (REAL)															
Labor Cost Sensitivity	-	%													
Mining labor															
Local Category L		PDC	-	176,120	365,586	365,586	365,586	365,586	365,586	365,586	365,586	365,586	365,586	109,676	
Local Category R		PDC	-	1,828,320	4,181,173	4,181,173	4,181,173	4,181,173	4,181,173	4,181,173	4,181,173	4,181,173	4,181,173	1,254,352	
Local Category H1		PDC	-	856,980	2,432,037	2,432,037	2,432,037	2,432,037	2,432,037	2,432,037	2,432,037	2,432,037	2,432,037	729,611	
Local Category H2		PDC	-	-	802,160	802,160	802,160	802,160	802,160	802,160	802,160	802,160	802,160	240,648	
Expats		USD	-	775,254	5,548,008	4,818,007	3,212,004	2,763,890	2,763,890	2,763,890	2,763,890	2,763,890	2,763,890	552,778	
VAS		PDC	-	-	585,648	585,648	585,648	585,648	585,648	585,648	585,648	585,648	585,648	175,694	
Process plant labor															
Local Category L		PDC	-	130,200	582,099	582,099	582,099	582,099	582,099	582,099	582,099	582,099	582,099	174,630	
Local Category R		PDC	-	275,160	887,346	887,346	887,346	887,346	887,346	887,346	887,346	887,346	887,346	266,204	
Local Category H1		PDC	-	557,525	619,012	619,012	619,012	619,012	619,012	619,012	619,012	619,012	619,012	185,704	
Local Category H2		PDC	-	-	475,617	475,617	475,617	475,617	475,617	475,617	475,617	475,617	475,617	142,685	
Expats		USD	-	360,814	1,583,335	1,583,335	1,583,335	300,000	300,000	300,000	300,000	300,000	300,000	90,000	
VAS		PDC	-	-	160,765	160,765	160,765	160,765	160,765	160,765	160,765	160,765	160,765	48,230	
Maintenance Labor															
Local Category L		PDC	-	99,100	534,537	534,537	534,537	534,537	534,537	534,537	534,537	534,537	534,537	160,361	
Local Category R		PDC	-	25,680	283,951	283,951	283,951	283,951	283,951	283,951	283,951	283,951	283,951	85,185	
Local Category H1		PDC	-	3,580	696,389	696,389	696,389	696,389	696,389	696,389	696,389	696,389	696,389	208,917	
Local Category H2		PDC	-	27,085	198,765	198,765	198,765	198,765	198,765	198,765	198,765	198,765	198,765	59,630	
Expats		USD	-	443,525	3,208,333	3,208,333	3,208,333	275,000	275,000	275,000	275,000	275,000	275,000	82,500	
VAS		PDC	-	-	110,095	110,095	110,095	110,095	110,095	110,095	110,095	110,095	110,095	33,029	
Admin labor															
Local Category L		PDC	3,970	657,300	2,241,790	2,241,790	2,241,790	2,241,790	2,241,790	2,241,790	2,241,790	2,241,790	2,241,790	672,537	
Local Category H1		PDC	14,300	476,760	979,630	979,630	979,630	979,630	979,630	979,630	979,630	979,630	979,630	293,889	
Local Category H2		PDC	-	189,180	709,877	709,877	709,877	709,877	709,877	709,877	709,877	709,877	709,877	212,963	
Expats		USD	260,278	1,707,834	1,638,912	1,638,912	1,638,912	788,912	788,912	788,912	788,912	788,912	788,912	236,674	
VAS		PDC	-	-	397,224	397,224	397,224	397,224	397,224	397,224	397,224	397,224	397,224	119,167	
General Maintenance labor															
Local Category L		PDC	-	146,500	508,981	508,981	508,981	508,981	508,981	508,981	508,981	508,981	508,981	152,694	
Local Category R		PDC	-	77,040	141,975	141,975	141,975	141,975	141,975	141,975	141,975	141,975	141,975	42,593	
Local Category H1		PDC	-	86,220	259,105	259,105	259,105	259,105	259,105	259,105	259,105	259,105	259,105	77,731	
Expats		USD	-	48,252	383,333	383,333	383,333	-	-	-	-	-	-	-	
VAS		PDC	-	-	64,310	64,310	64,310	64,310	64,310	64,310	64,310	64,310	64,310	19,293	
Military Security Guards															
Local Category L		PDC	-	1,369,800	372,025	372,025	372,025	372,025	372,025	372,025	372,025	372,025	372,025	111,608	
Local Category H1		PDC	-	295,360	1,876,070	1,876,070	1,876,070	1,876,070	1,876,070	1,876,070	1,876,070	1,876,070	1,876,070	562,821	

LABOR TAX (REAL)														
Mining labor														
Local Category L	PDC	-	17,612	36,559	36,559	36,559	36,559	36,559	36,559	36,559	36,559	36,559	10,968	
Local Category R	PDC	-	548,496	1,254,352	1,254,352	1,254,352	1,254,352	1,254,352	1,254,352	1,254,352	1,254,352	1,254,352	376,306	
Local Category H1	PDC	-	257,094	729,611	729,611	729,611	729,611	729,611	729,611	729,611	729,611	729,611	218,883	
Local Category H2	PDC	-	-	240,648	240,648	240,648	240,648	240,648	240,648	240,648	240,648	240,648	72,194	
Expats	USD	-	279,091	1,997,283	1,734,482	1,156,322	995,000	995,000	995,000	995,000	995,000	995,000	199,000	
VAS	PDC	-	-	58,565	58,565	58,565	58,565	58,565	58,565	58,565	58,565	58,565	17,569	
Process plant labor														
Local Category L	PDC	-	13,020	58,210	58,210	58,210	58,210	58,210	58,210	58,210	58,210	58,210	17,463	
Local Category R	PDC	-	82,548	266,204	266,204	266,204	266,204	266,204	266,204	266,204	266,204	266,204	79,861	
Local Category H1	PDC	-	167,258	185,704	185,704	185,704	185,704	185,704	185,704	185,704	185,704	185,704	55,711	
Local Category H2	PDC	-	-	142,685	142,685	142,685	142,685	142,685	142,685	142,685	142,685	142,685	42,806	
Expats	USD	-	129,893	570,001	570,001	570,001	108,000	108,000	108,000	108,000	108,000	108,000	32,400	
VAS	PDC	-	-	16,077	16,077	16,077	16,077	16,077	16,077	16,077	16,077	16,077	4,823	
Maintenance Labor														
Local Category L	PDC	-	9,910	53,454	53,454	53,454	53,454	53,454	53,454	53,454	53,454	53,454	16,036	
Local Category R	PDC	-	7,704	85,185	85,185	85,185	85,185	85,185	85,185	85,185	85,185	85,185	25,556	
Local Category H1	PDC	-	1,074	208,917	208,917	208,917	208,917	208,917	208,917	208,917	208,917	208,917	62,675	
Local Category H2	PDC	-	8,126	59,630	59,630	59,630	59,630	59,630	59,630	59,630	59,630	59,630	17,889	
Expats	USD	-	159,669	1,155,000	1,155,000	1,155,000	99,000	99,000	99,000	99,000	99,000	99,000	29,700	
VAS	PDC	-	-	11,010	11,010	11,010	11,010	11,010	11,010	11,010	11,010	11,010	3,303	
Admin labor														
Local Category L	PDC	397	65,730	224,179	224,179	224,179	224,179	224,179	224,179	224,179	224,179	224,179	67,254	
Local Category H1	PDC	4,290	143,028	293,889	293,889	293,889	293,889	293,889	293,889	293,889	293,889	293,889	88,167	
Local Category H2	PDC	-	56,754	212,963	212,963	212,963	212,963	212,963	212,963	212,963	212,963	212,963	63,889	
Expats	USD	93,700	614,820	590,008	590,008	590,008	284,008	284,008	284,008	284,008	284,008	284,008	85,202	
VAS	PDC	-	-	39,722	39,722	39,722	39,722	39,722	39,722	39,722	39,722	39,722	11,917	
General Maintenance labor														
Local Category L	PDC	-	14,650	50,898	50,898	50,898	50,898	50,898	50,898	50,898	50,898	50,898	15,269	
Local Category R	PDC	-	23,112	42,593	42,593	42,593	42,593	42,593	42,593	42,593	42,593	42,593	12,778	
Local Category H1	PDC	-	25,866	77,731	77,731	77,731	77,731	77,731	77,731	77,731	77,731	77,731	23,319	
Expats	USD	-	17,371	138,000	138,000	138,000	-	-	-	-	-	-	-	
VAS	PDC	-	-	6,431	6,431	6,431	6,431	6,431	6,431	6,431	6,431	6,431	1,929	
Military Security Guards														
Local Category L	PDC	-	136,980	37,203	37,203	37,203	37,203	37,203	37,203	37,203	37,203	37,203	11,161	
Local Category H1	PDC	-	88,608	562,821	562,821	562,821	562,821	562,821	562,821	562,821	562,821	562,821	168,846	

ACFPE COST (REAL)														
Mining labor														
Local Category L	PDC	-	3,522	7,312	7,312	7,312	7,312	7,312	7,312	7,312	7,312	2,194		
Local Category R	PDC	-	36,566	83,623	83,623	83,623	83,623	83,623	83,623	83,623	83,623	25,087		
Local Category H1	PDC	-	17,140	48,641	48,641	48,641	48,641	48,641	48,641	48,641	48,641	14,592		
Local Category H2	PDC	-	-	16,043	16,043	16,043	16,043	16,043	16,043	16,043	16,043	4,813		
Expats	USD	-	15,505	110,960	96,360	64,240	55,278	55,278	55,278	55,278	55,278	11,056		
VAS	PDC	-	-	11,713	11,713	11,713	11,713	11,713	11,713	11,713	11,713	3,514		
Process plant labor														
Local Category L	PDC	-	2,604	11,642	11,642	11,642	11,642	11,642	11,642	11,642	11,642	3,493		
Local Category R	PDC	-	5,503	17,747	17,747	17,747	17,747	17,747	17,747	17,747	17,747	5,324		
Local Category H1	PDC	-	11,151	12,380	12,380	12,380	12,380	12,380	12,380	12,380	12,380	3,714		
Local Category H2	PDC	-	-	9,512	9,512	9,512	9,512	9,512	9,512	9,512	9,512	2,854		
Expats	USD	-	7,216	31,667	31,667	31,667	6,000	6,000	6,000	6,000	6,000	1,800		
VAS	PDC	-	-	3,215	3,215	3,215	3,215	3,215	3,215	3,215	3,215	965		
Maintenance Labor														
Local Category L	PDC	-	1,982	10,691	10,691	10,691	10,691	10,691	10,691	10,691	10,691	3,207		
Local Category R	PDC	-	514	5,679	5,679	5,679	5,679	5,679	5,679	5,679	5,679	1,704		
Local Category H1	PDC	-	72	13,928	13,928	13,928	13,928	13,928	13,928	13,928	13,928	4,178		
Local Category H2	PDC	-	542	3,975	3,975	3,975	3,975	3,975	3,975	3,975	3,975	1,193		
Expats	USD	-	8,871	64,167	64,167	64,167	5,500	5,500	5,500	5,500	5,500	1,650		
VAS	PDC	-	-	2,202	2,202	2,202	2,202	2,202	2,202	2,202	2,202	661		
Admin labor														
Local Category L	PDC	79	13,146	44,836	44,836	44,836	44,836	44,836	44,836	44,836	44,836	13,451		
Local Category H1	PDC	286	9,535	19,593	19,593	19,593	19,593	19,593	19,593	19,593	19,593	5,878		
Local Category H2	PDC	-	3,784	14,198	14,198	14,198	14,198	14,198	14,198	14,198	14,198	4,259		
Expats	USD	5,206	34,157	32,778	32,778	32,778	15,778	15,778	15,778	15,778	15,778	4,733		
VAS	PDC	-	-	7,944	7,944	7,944	7,944	7,944	7,944	7,944	7,944	2,383		
General Maintenance labor														
Local Category L	PDC	-	2,930	10,180	10,180	10,180	10,180	10,180	10,180	10,180	10,180	3,054		
Local Category R	PDC	-	1,541	2,840	2,840	2,840	2,840	2,840	2,840	2,840	2,840	852		
Local Category H1	PDC	-	1,724	5,182	5,182	5,182	5,182	5,182	5,182	5,182	5,182	1,555		
Expats	USD	-	965	7,667	7,667	7,667	-	-	-	-	-	-		
VAS	PDC	-	-	1,286	1,286	1,286	1,286	1,286	1,286	1,286	1,286	386		
Military Security Guards														
Local Category L	PDC	-	27,396	7,441	7,441	7,441	7,441	7,441	7,441	7,441	7,441	2,232		
Local Category H1	PDC	-	5,907	37,521	37,521	37,521	37,521	37,521	37,521	37,521	37,521	11,256		

OCSS COST (REAL)															
Mining labor															
Local Category L	PDC	-	33,463	69,461	69,461	69,461	69,461	69,461	69,461	69,461	69,461	69,461	20,838		
Local Category R	PDC	-	347,381	794,423	794,423	794,423	794,423	794,423	794,423	794,423	794,423	794,423	238,327		
Local Category H1	PDC	-	162,826	462,087	462,087	462,087	462,087	462,087	462,087	462,087	462,087	462,087	138,626		
Local Category H2	PDC	-	-	9,383	9,383	9,383	9,383	9,383	9,383	9,383	9,383	9,383	9,383		
Expats	PDC	-	8,014	44,568	38,704	25,802	17,593	17,593	17,593	17,593	17,593	17,593	11,728		
VAS	PDC	-	-	111,273	111,273	111,273	111,273	111,273	111,273	111,273	111,273	111,273	33,382		
Process plant labor															
Local Category L	PDC	-	24,738	110,599	110,599	110,599	110,599	110,599	110,599	110,599	110,599	110,599	33,180		
Local Category R	PDC	-	52,280	168,596	168,596	168,596	168,596	168,596	168,596	168,596	168,596	168,596	50,579		
Local Category H1	PDC	-	105,930	117,612	117,612	117,612	117,612	117,612	117,612	117,612	117,612	117,612	35,284		
Local Category H2	PDC	-	-	5,864	5,864	5,864	5,864	5,864	5,864	5,864	5,864	5,864	5,864		
Expats	PDC	-	3,909	9,383	9,383	9,383	1,173	1,173	1,173	1,173	1,173	1,173	1,173		
VAS	PDC	-	-	30,545	30,545	30,545	30,545	30,545	30,545	30,545	30,545	30,545	9,164		
Maintenance Labor															
Local Category L	PDC	-	18,829	101,562	101,562	101,562	101,562	101,562	101,562	101,562	101,562	101,562	30,469		
Local Category R	PDC	-	4,879	53,951	53,951	53,951	53,951	53,951	53,951	53,951	53,951	53,951	16,185		
Local Category H1	PDC	-	680	132,314	132,314	132,314	132,314	132,314	132,314	132,314	132,314	132,314	39,694		
Local Category H2	PDC	-	98	3,519	3,519	3,519	3,519	3,519	3,519	3,519	3,519	3,519	3,519		
Expats	PDC	-	5,082	24,630	24,630	24,630	1,173	1,173	1,173	1,173	1,173	1,173	1,173		
VAS	PDC	-	-	20,918	20,918	20,918	20,918	20,918	20,918	20,918	20,918	20,918	6,275		
Admin labor															
Local Category L	PDC	754	124,887	425,940	425,940	425,940	425,940	425,940	425,940	425,940	425,940	425,940	127,782		
Local Category H1	PDC	2,717	90,584	186,130	186,130	186,130	186,130	186,130	186,130	186,130	186,130	186,130	55,839		
Local Category H2	PDC	-	2,834	7,037	7,037	7,037	7,037	7,037	7,037	7,037	7,037	7,037	7,037		
Expats	PDC	1,564	12,510	9,383	9,383	9,383	3,519	3,519	3,519	3,519	3,519	3,519	3,519		
VAS	PDC	-	-	75,473	75,473	75,473	75,473	75,473	75,473	75,473	75,473	75,473	22,642		
General Maintenance labor															
Local Category L	PDC	-	27,835	96,706	96,706	96,706	96,706	96,706	96,706	96,706	96,706	96,706	29,012		
Local Category R	PDC	-	14,638	26,975	26,975	26,975	26,975	26,975	26,975	26,975	26,975	26,975	8,093		
Local Category H1	PDC	-	16,382	49,230	49,230	49,230	49,230	49,230	49,230	49,230	49,230	49,230	14,769		
Expats	PDC	-	586	2,346	2,346	2,346	-	-	-	-	-	-	-		
VAS	PDC	-	-	12,219	12,219	12,219	12,219	12,219	12,219	12,219	12,219	12,219	3,666		
Military Security Guards															
Local Category L	PDC	-	260,262	70,685	70,685	70,685	70,685	70,685	70,685	70,685	70,685	70,685	21,205		
Local Category H1	PDC	-	56,118	356,453	356,453	356,453	356,453	356,453	356,453	356,453	356,453	356,453	106,936		

HEALTH CARE COST (REAL)														
Mining labor														
Local Category L	PDC	-	1,183	2,469	2,469	2,469	2,469	2,469	2,469	2,469	2,469	2,469	2,469	
Local Category R	PDC	-	7,562	18,364	18,364	18,364	18,364	18,364	18,364	18,364	18,364	18,364	18,364	
Local Category H1	PDC	-	2,932	8,333	8,333	8,333	8,333	8,333	8,333	8,333	8,333	8,333	8,333	
Local Category H2	PDC	-	-	1,235	1,235	1,235	1,235	1,235	1,235	1,235	1,235	1,235	1,235	
Expats	USD	-	38,763	277,400	240,900	160,600	138,195	138,195	138,195	138,195	138,195	138,195	27,639	
VAS	PDC	-	-	2,315	2,315	2,315	2,315	2,315	2,315	2,315	2,315	2,315	2,315	
Process plant labor														
Local Category L	PDC	-	772	3,704	3,704	3,704	3,704	3,704	3,704	3,704	3,704	3,704	3,704	
Local Category R	PDC	-	1,132	3,858	3,858	3,858	3,858	3,858	3,858	3,858	3,858	3,858	3,858	
Local Category H1	PDC	-	2,051	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	
Local Category H2	PDC	-	-	772	772	772	772	772	772	772	772	772	772	
Expats	USD	-	18,041	79,167	79,167	79,167	15,000	15,000	15,000	15,000	15,000	15,000	4,500	
VAS	PDC	-	-	772	772	772	772	772	772	772	772	772	772	
Maintenance Labor														
Local Category L	PDC	-	592	3,549	3,549	3,549	3,549	3,549	3,549	3,549	3,549	3,549	3,549	
Local Category R	PDC	-	103	1,235	1,235	1,235	1,235	1,235	1,235	1,235	1,235	1,235	1,235	
Local Category H1	PDC	-	13	2,315	2,315	2,315	2,315	2,315	2,315	2,315	2,315	2,315	2,315	
Local Category H2	PDC	-	13	463	463	463	463	463	463	463	463	463	463	
Expats	USD	-	22,176	160,417	160,417	160,417	13,750	13,750	13,750	13,750	13,750	13,750	4,125	
VAS	PDC	-	-	617	617	617	617	617	617	617	617	617	617	
Admin labor														
Local Category L	PDC	26	4,784	16,975	16,975	16,975	16,975	16,975	16,975	16,975	16,975	16,975	16,975	
Local Category H1	PDC	51	1,723	3,549	3,549	3,549	3,549	3,549	3,549	3,549	3,549	3,549	3,549	
Local Category H2	PDC	-	373	926	926	926	926	926	926	926	926	926	926	
Expats	USD	13,014	85,392	81,946	81,946	81,946	39,446	39,446	39,446	39,446	39,446	39,446	11,834	
VAS	PDC	-	-	1,852	1,852	1,852	1,852	1,852	1,852	1,852	1,852	1,852	1,852	
General Maintenance labor														
Local Category L	PDC	-	900	3,395	3,395	3,395	3,395	3,395	3,395	3,395	3,395	3,395	3,395	
Local Category R	PDC	-	309	617	617	617	617	617	617	617	617	617	617	
Local Category H1	PDC	-	309	926	926	926	926	926	926	926	926	926	926	
Expats	USD	-	2,413	19,167	19,167	19,167	-	-	-	-	-	-	-	
VAS	PDC	-	-	463	463	463	463	463	463	463	463	463	463	
Military Security Guards														
Local Category L	PDC	-	8,951	12,037	12,037	12,037	12,037	12,037	12,037	12,037	12,037	12,037	12,037	
Local Category H1	PDC	-	977	1,235	1,235	1,235	1,235	1,235	1,235	1,235	1,235	1,235	1,235	

COST PER LABOR / LABOR MONTH (ALL IN USD, REAL)														
Mining labor														
Local Category L	USD	-	383	4,570	4,570	4,570	4,570	4,570	4,570	4,570	4,570	4,570	1,371	
Local Category R	USD	-	622	7,027	7,027	7,027	7,027	7,027	7,027	7,027	7,027	7,027	2,108	
Local Category H1	USD	-	752	9,008	9,008	9,008	9,008	9,008	9,008	9,008	9,008	9,008	2,702	
Local Category H2	USD	-	-	20,054	20,054	20,054	20,054	20,054	20,054	20,054	20,054	20,054	6,016	
Expats	USD	-	9,454	146,000	146,000	146,000	184,259	184,259	184,259	184,259	184,259	184,259	55,278	
VAS	USD	-	-	7,809	7,809	7,809	7,809	7,809	7,809	7,809	7,809	7,809	2,343	
Process plant labor														
Local Category L	USD	-	434	4,851	4,851	4,851	4,851	4,851	4,851	4,851	4,851	4,851	1,455	
Local Category R	USD	-	625	7,099	7,099	7,099	7,099	7,099	7,099	7,099	7,099	7,099	2,130	
Local Category H1	USD	-	699	8,843	8,843	8,843	8,843	8,843	8,843	8,843	8,843	8,843	2,653	
Local Category H2	USD	-	-	19,025	19,025	19,025	19,025	19,025	19,025	19,025	19,025	19,025	5,707	
Expats	USD	-	9,020	197,917	197,917	197,917	300,000	300,000	300,000	300,000	300,000	300,000	90,000	
VAS	USD	-	-	6,431	6,431	6,431	6,431	6,431	6,431	6,431	6,431	6,431	1,929	
Maintenance Labor														
Local Category L	USD	-	431	4,648	4,648	4,648	4,648	4,648	4,648	4,648	4,648	4,648	1,394	
Local Category R	USD	-	642	7,099	7,099	7,099	7,099	7,099	7,099	7,099	7,099	7,099	2,130	
Local Category H1	USD	-	716	9,285	9,285	9,285	9,285	9,285	9,285	9,285	9,285	9,285	2,786	
Local Category H2	USD	-	5,417	13,251	13,251	13,251	13,251	13,251	13,251	13,251	13,251	13,251	3,975	
Expats	USD	-	8,529	152,778	152,778	152,778	275,000	275,000	275,000	275,000	275,000	275,000	82,500	
VAS	USD	-	-	5,505	5,505	5,505	5,505	5,505	5,505	5,505	5,505	5,505	1,651	
General & Admin labor														
Local Category L	USD	397	353	4,076	4,076	4,076	4,076	4,076	4,076	4,076	4,076	4,076	1,223	
Local Category H1	USD	715	712	8,519	8,519	8,519	8,519	8,519	8,519	8,519	8,519	8,519	2,556	
Local Category H2	USD	-	1,305	23,663	23,663	23,663	23,663	23,663	23,663	23,663	23,663	23,663	7,099	
Expats	USD	16,267	13,342	204,864	204,864	204,864	262,971	262,971	262,971	262,971	262,971	262,971	78,891	
VAS	USD	-	-	6,620	6,620	6,620	6,620	6,620	6,620	6,620	6,620	6,620	1,986	
General Maintenance labor														
Local Category L	USD	-	419	4,627	4,627	4,627	4,627	4,627	4,627	4,627	4,627	4,627	1,388	
Local Category R	USD	-	642	7,099	7,099	7,099	7,099	7,099	7,099	7,099	7,099	7,099	2,130	
Local Category H1	USD	-	719	8,637	8,637	8,637	8,637	8,637	8,637	8,637	8,637	8,637	2,591	
Expats	USD	-	8,042	191,667	191,667	191,667	-	-	-	-	-	-	-	
VAS	USD	-	-	4,287	4,287	4,287	4,287	4,287	4,287	4,287	4,287	4,287	1,286	
Military Security Guards														
Local Category L	USD	-	394	954	954	954	954	954	954	954	954	954	286	
Local Category H1	USD	-	777	46,902	46,902	46,902	46,902	46,902	46,902	46,902	46,902	46,902	14,071	

LABOR COST (ALL IN USD, REAL)															
Labor Cost Sensitivity	-	%													
Mining labor															
Local Category L		USD		-	35,224	73,117	73,117	73,117	73,117	73,117	73,117	73,117	73,117	73,117	21,935
Local Category R		USD		-	365,664	836,235	836,235	836,235	836,235	836,235	836,235	836,235	836,235	836,235	250,870
Local Category H1		USD		-	171,396	486,407	486,407	486,407	486,407	486,407	486,407	486,407	486,407	486,407	145,922
Local Category H2		USD		-	-	160,432	160,432	160,432	160,432	160,432	160,432	160,432	160,432	160,432	48,130
Expats		USD		-	775,254	5,548,008	4,818,007	3,212,004	2,763,890	2,763,890	2,763,890	2,763,890	2,763,890	2,763,890	552,778
VAS		USD		-	-	117,130	117,130	117,130	117,130	117,130	117,130	117,130	117,130	117,130	35,139
Mining labor COST		USD		-	1,347,538	7,221,329	6,491,328	4,885,325	4,437,211	4,437,211	4,437,211	4,437,211	4,437,211	4,437,211	1,054,774
Process plant labor															
Local Category L		USD		-	26,040	116,420	116,420	116,420	116,420	116,420	116,420	116,420	116,420	116,420	34,926
Local Category R		USD		-	55,032	177,469	177,469	177,469	177,469	177,469	177,469	177,469	177,469	177,469	53,241
Local Category H1		USD		-	111,505	123,802	123,802	123,802	123,802	123,802	123,802	123,802	123,802	123,802	37,141
Local Category H2		USD		-	-	95,123	95,123	95,123	95,123	95,123	95,123	95,123	95,123	95,123	28,537
Expats		USD		-	360,814	1,583,335	1,583,335	1,583,335	300,000	300,000	300,000	300,000	300,000	300,000	90,000
VAS		USD		-	-	32,153	32,153	32,153	32,153	32,153	32,153	32,153	32,153	32,153	9,646
Process plant labor COST		USD		-	553,391	2,128,303	2,128,303	2,128,303	844,968	844,968	844,968	844,968	844,968	844,968	253,490
Maintenance Labor															
Local Category L		USD		-	19,820	106,907	106,907	106,907	106,907	106,907	106,907	106,907	106,907	106,907	32,072
Local Category R		USD		-	5,136	56,790	56,790	56,790	56,790	56,790	56,790	56,790	56,790	56,790	17,037
Local Category H1		USD		-	716	139,278	139,278	139,278	139,278	139,278	139,278	139,278	139,278	139,278	41,783
Local Category H2		USD		-	5,417	39,753	39,753	39,753	39,753	39,753	39,753	39,753	39,753	39,753	11,926
Expats		USD		-	443,525	3,208,333	3,208,333	3,208,333	275,000	275,000	275,000	275,000	275,000	275,000	82,500
VAS		USD		-	-	22,019	22,019	22,019	22,019	22,019	22,019	22,019	22,019	22,019	6,606
Maintenance Labor COST		USD		-	474,614	3,573,080	3,573,080	3,573,080	639,747	639,747	639,747	639,747	639,747	639,747	191,924
General & Admin labor															
Local Category L		USD		794	131,460	448,358	448,358	448,358	448,358	448,358	448,358	448,358	448,358	448,358	134,507
Local Category H1		USD		2,860	95,352	195,926	195,926	195,926	195,926	195,926	195,926	195,926	195,926	195,926	58,778
Local Category H2		USD		-	37,836	141,975	141,975	141,975	141,975	141,975	141,975	141,975	141,975	141,975	42,593
Expats		USD		260,278	1,707,834	1,638,912	1,638,912	1,638,912	788,912	788,912	788,912	788,912	788,912	788,912	236,674
VAS		USD		-	-	79,445	79,445	79,445	79,445	79,445	79,445	79,445	79,445	79,445	23,833
General & Admin labor COST		USD		263,932	1,972,482	2,504,616	2,504,616	2,504,616	1,654,616	1,654,616	1,654,616	1,654,616	1,654,616	1,654,616	496,385
General Maintenance labor															
Local Category L		USD		-	29,300	101,796	101,796	101,796	101,796	101,796	101,796	101,796	101,796	101,796	30,539
Local Category R		USD		-	15,408	28,395	28,395	28,395	28,395	28,395	28,395	28,395	28,395	28,395	8,519
Local Category H1		USD		-	17,244	51,821	51,821	51,821	51,821	51,821	51,821	51,821	51,821	51,821	15,546
Expats		USD		-	48,252	383,333	383,333	383,333	-	-	-	-	-	-	-
VAS		USD		-	-	12,862	12,862	12,862	12,862	12,862	12,862	12,862	12,862	12,862	3,859
General Maintenance labor COST		USD		-	110,204	578,207	578,207	578,207	194,874	194,874	194,874	194,874	194,874	194,874	58,462
Military Security Guards															
Local Category L		USD		-	273,960	74,405	74,405	74,405	74,405	74,405	74,405	74,405	74,405	74,405	22,322
Local Category H1		USD		-	59,072	375,214	375,214	375,214	375,214	375,214	375,214	375,214	375,214	375,214	112,564
Military Security Guards COST		USD		-	333,032	449,619	449,619	449,619	449,619	449,619	449,619	449,619	449,619	449,619	134,886

LABOR TAX (ALL IN USD, REAL)														
Mining labor														
Local Category L	USD		-	3,522	7,312	7,312	7,312	7,312	7,312	7,312	7,312	7,312	7,312	2,194
Local Category R	USD		-	109,699	250,870	250,870	250,870	250,870	250,870	250,870	250,870	250,870	250,870	75,261
Local Category H1	USD		-	51,419	145,922	145,922	145,922	145,922	145,922	145,922	145,922	145,922	145,922	43,777
Local Category H2	USD		-	-	48,130	48,130	48,130	48,130	48,130	48,130	48,130	48,130	48,130	14,439
Expats	USD		-	279,091	1,997,283	1,734,482	1,156,322	995,000	995,000	995,000	995,000	995,000	995,000	199,000
VAS	USD		-	-	11,713	11,713	11,713	11,713	11,713	11,713	11,713	11,713	11,713	3,514
Mining labor TAX	USD		-	443,732	2,461,230	2,198,429	1,620,268	1,458,947	1,458,947	1,458,947	1,458,947	1,458,947	1,458,947	338,184
Process plant labor														
Local Category L	USD		-	2,604	11,642	11,642	11,642	11,642	11,642	11,642	11,642	11,642	11,642	3,493
Local Category R	USD		-	16,510	53,241	53,241	53,241	53,241	53,241	53,241	53,241	53,241	53,241	15,972
Local Category H1	USD		-	33,452	37,141	37,141	37,141	37,141	37,141	37,141	37,141	37,141	37,141	11,142
Local Category H2	USD		-	-	28,537	28,537	28,537	28,537	28,537	28,537	28,537	28,537	28,537	8,561
Expats	USD		-	129,893	570,001	570,001	570,001	108,000	108,000	108,000	108,000	108,000	108,000	32,400
VAS	USD		-	-	3,215	3,215	3,215	3,215	3,215	3,215	3,215	3,215	3,215	965
Process plant labor TAX	USD		-	182,458	703,776	703,776	703,776	241,776	241,776	241,776	241,776	241,776	241,776	72,533
Maintenance Labor														
Local Category L	USD		-	1,982	10,691	10,691	10,691	10,691	10,691	10,691	10,691	10,691	10,691	3,207
Local Category R	USD		-	1,541	17,037	17,037	17,037	17,037	17,037	17,037	17,037	17,037	17,037	5,111
Local Category H1	USD		-	215	41,783	41,783	41,783	41,783	41,783	41,783	41,783	41,783	41,783	12,535
Local Category H2	USD		-	1,625	11,926	11,926	11,926	11,926	11,926	11,926	11,926	11,926	11,926	3,578
Expats	USD		-	159,669	1,155,000	1,155,000	1,155,000	99,000	99,000	99,000	99,000	99,000	99,000	29,700
VAS	USD		-	-	2,202	2,202	2,202	2,202	2,202	2,202	2,202	2,202	2,202	661
Maintenance Labor TAX	USD		-	165,032	1,238,639	1,238,639	1,238,639	182,639	182,639	182,639	182,639	182,639	182,639	54,792
Admin labor														
Local Category L	USD		79	13,146	44,836	44,836	44,836	44,836	44,836	44,836	44,836	44,836	44,836	13,451
Local Category H1	USD		858	28,606	58,778	58,778	58,778	58,778	58,778	58,778	58,778	58,778	58,778	17,633
Local Category H2	USD		-	11,351	42,593	42,593	42,593	42,593	42,593	42,593	42,593	42,593	42,593	12,778
Expats	USD		93,700	614,820	590,008	590,008	590,008	284,008	284,008	284,008	284,008	284,008	284,008	85,202
VAS	USD		-	-	7,944	7,944	7,944	7,944	7,944	7,944	7,944	7,944	7,944	2,383
Admin labor TAX	USD		94,637	667,923	744,159	744,159	744,159	438,159	438,159	438,159	438,159	438,159	438,159	131,448
General Maintenance labor														
Local Category L	USD		-	2,930	10,180	10,180	10,180	10,180	10,180	10,180	10,180	10,180	10,180	3,054
Local Category R	USD		-	4,622	8,519	8,519	8,519	8,519	8,519	8,519	8,519	8,519	8,519	2,556
Local Category H1	USD		-	5,173	15,546	15,546	15,546	15,546	15,546	15,546	15,546	15,546	15,546	4,664
Expats	USD		-	17,371	138,000	138,000	138,000	-	-	-	-	-	-	-
VAS	USD		-	-	1,286	1,286	1,286	1,286	1,286	1,286	1,286	1,286	1,286	386
General Maintenance labor TAX	USD		-	30,096	173,531	173,531	173,531	35,531	35,531	35,531	35,531	35,531	35,531	10,659
Military Security Guards														
Local Category L	USD		-	27,396	7,441	7,441	7,441	7,441	7,441	7,441	7,441	7,441	7,441	2,232
Local Category H1	USD		-	17,722	112,564	112,564	112,564	112,564	112,564	112,564	112,564	112,564	112,564	33,769
Military Security Guards TAX	USD		-	45,118	120,005	120,005	120,005	120,005	120,005	120,005	120,005	120,005	120,005	36,001

ACFPE COST (REAL)															
Mining labor															
Local Category L	USD	-	704	1,462	1,462	1,462	1,462	1,462	1,462	1,462	1,462	1,462	439		
Local Category R	USD	-	7,313	16,725	16,725	16,725	16,725	16,725	16,725	16,725	16,725	16,725	5,017		
Local Category H1	USD	-	3,428	9,728	9,728	9,728	9,728	9,728	9,728	9,728	9,728	9,728	2,918		
Local Category H2	USD	-	-	3,209	3,209	3,209	3,209	3,209	3,209	3,209	3,209	3,209	963		
Expats	USD	-	15,505	110,960	96,360	64,240	55,278	55,278	55,278	55,278	55,278	55,278	11,056		
VAS	USD	-	-	2,343	2,343	2,343	2,343	2,343	2,343	2,343	2,343	2,343	703		
Mining labor ACFPE	USD	-	26,951	144,427	129,827	97,707	88,744	88,744	88,744	88,744	88,744	88,744	21,095		
Process plant labor															
Local Category L	USD	-	521	2,328	2,328	2,328	2,328	2,328	2,328	2,328	2,328	2,328	699		
Local Category R	USD	-	1,101	3,549	3,549	3,549	3,549	3,549	3,549	3,549	3,549	3,549	1,065		
Local Category H1	USD	-	2,230	2,476	2,476	2,476	2,476	2,476	2,476	2,476	2,476	2,476	743		
Local Category H2	USD	-	-	1,902	1,902	1,902	1,902	1,902	1,902	1,902	1,902	1,902	571		
Expats	USD	-	7,216	31,667	31,667	31,667	6,000	6,000	6,000	6,000	6,000	6,000	1,800		
VAS	USD	-	-	643	643	643	643	643	643	643	643	643	193		
Process plant labor ACFPE	USD	-	11,068	42,566	42,566	42,566	16,899	16,899	16,899	16,899	16,899	16,899	5,070		
Maintenance Labor															
Local Category L	USD	-	396	2,138	2,138	2,138	2,138	2,138	2,138	2,138	2,138	2,138	641		
Local Category R	USD	-	103	1,136	1,136	1,136	1,136	1,136	1,136	1,136	1,136	1,136	341		
Local Category H1	USD	-	14	2,786	2,786	2,786	2,786	2,786	2,786	2,786	2,786	2,786	836		
Local Category H2	USD	-	108	795	795	795	795	795	795	795	795	795	239		
Expats	USD	-	8,871	64,167	64,167	64,167	5,500	5,500	5,500	5,500	5,500	5,500	1,650		
VAS	USD	-	-	440	440	440	440	440	440	440	440	440	132		
Maintenance Labor ACFPE	USD	-	9,492	71,462	71,462	71,462	12,795	12,795	12,795	12,795	12,795	12,795	3,838		
Admin labor															
Local Category L	USD	16	2,629	8,967	8,967	8,967	8,967	8,967	8,967	8,967	8,967	8,967	2,690		
Local Category H1	USD	57	1,907	3,919	3,919	3,919	3,919	3,919	3,919	3,919	3,919	3,919	1,176		
Local Category H2	USD	-	757	2,840	2,840	2,840	2,840	2,840	2,840	2,840	2,840	2,840	852		
Expats	USD	5,206	34,157	32,778	32,778	32,778	15,778	15,778	15,778	15,778	15,778	15,778	4,733		
VAS	USD	-	-	1,589	1,589	1,589	1,589	1,589	1,589	1,589	1,589	1,589	477		
Admin labor ACFPE	USD	5,279	39,450	50,092	50,092	50,092	33,092	33,092	33,092	33,092	33,092	33,092	9,928		
General Maintenance labor															
Local Category L	USD	-	586	2,036	2,036	2,036	2,036	2,036	2,036	2,036	2,036	2,036	611		
Local Category R	USD	-	308	568	568	568	568	568	568	568	568	568	170		
Local Category H1	USD	-	345	1,036	1,036	1,036	1,036	1,036	1,036	1,036	1,036	1,036	311		
Expats	USD	-	965	7,667	7,667	7,667	-	-	-	-	-	-	-		
VAS	USD	-	-	257	257	257	257	257	257	257	257	257	77		
General Maintenance labor ACFPE	USD	-	2,204	11,564	11,564	11,564	3,897	3,897	3,897	3,897	3,897	3,897	1,169		
Military Security Guards															
Local Category L	USD	-	5,479	1,488	1,488	1,488	1,488	1,488	1,488	1,488	1,488	1,488	446		
Local Category H1	USD	-	1,181	7,504	7,504	7,504	7,504	7,504	7,504	7,504	7,504	7,504	2,251		
Military Security Guards ACFPE	USD	-	6,661	8,992	8,992	8,992	8,992	8,992	8,992	8,992	8,992	8,992	2,698		

OCSS COST (ALL IN USD, REAL)														
Mining labor														
Local Category L	USD		-	6,693	13,892	13,892	13,892	13,892	13,892	13,892	13,892	13,892	13,892	4,168
Local Category R	USD		-	69,476	158,885	158,885	158,885	158,885	158,885	158,885	158,885	158,885	158,885	47,665
Local Category H1	USD		-	32,565	92,417	92,417	92,417	92,417	92,417	92,417	92,417	92,417	92,417	27,725
Local Category H2	USD		-	-	1,877	1,877	1,877	1,877	1,877	1,877	1,877	1,877	1,877	1,877
Expats	USD		-	1,603	8,914	7,741	5,160	3,519	3,519	3,519	3,519	3,519	3,519	2,346
VAS	USD		-	-	22,255	22,255	22,255	22,255	22,255	22,255	22,255	22,255	22,255	6,676
Mining labor OCSS	USD		-	110,337	298,239	297,066	294,486	292,844	292,844	292,844	292,844	292,844	292,844	90,457
Process plant labor														
Local Category L	USD		-	4,948	22,120	22,120	22,120	22,120	22,120	22,120	22,120	22,120	22,120	6,636
Local Category R	USD		-	10,456	33,719	33,719	33,719	33,719	33,719	33,719	33,719	33,719	33,719	10,116
Local Category H1	USD		-	21,186	23,522	23,522	23,522	23,522	23,522	23,522	23,522	23,522	23,522	7,057
Local Category H2	USD		-	-	1,173	1,173	1,173	1,173	1,173	1,173	1,173	1,173	1,173	1,173
Expats	USD		-	782	1,877	1,877	1,877	235	235	235	235	235	235	235
VAS	USD		-	-	6,109	6,109	6,109	6,109	6,109	6,109	6,109	6,109	6,109	1,833
Process plant labor OCSS	USD		-	37,372	88,520	88,520	88,520	86,878	86,878	86,878	86,878	86,878	86,878	27,049
Maintenance Labor														
Local Category L	USD		-	3,766	20,312	20,312	20,312	20,312	20,312	20,312	20,312	20,312	20,312	6,094
Local Category R	USD		-	976	10,790	10,790	10,790	10,790	10,790	10,790	10,790	10,790	10,790	3,237
Local Category H1	USD		-	136	26,463	26,463	26,463	26,463	26,463	26,463	26,463	26,463	26,463	7,939
Local Category H2	USD		-	20	704	704	704	704	704	704	704	704	704	704
Expats	USD		-	1,016	4,926	4,926	4,926	235	235	235	235	235	235	235
VAS	USD		-	-	4,184	4,184	4,184	4,184	4,184	4,184	4,184	4,184	4,184	1,255
Maintenance Labor OCSS	USD		-	5,914	67,379	67,379	67,379	62,687	62,687	62,687	62,687	62,687	62,687	19,463
Admin labor														
Local Category L	USD		151	24,977	85,188	85,188	85,188	85,188	85,188	85,188	85,188	85,188	85,188	25,556
Local Category H1	USD		543	18,117	37,226	37,226	37,226	37,226	37,226	37,226	37,226	37,226	37,226	11,168
Local Category H2	USD		-	567	1,407	1,407	1,407	1,407	1,407	1,407	1,407	1,407	1,407	1,407
Expats	USD		313	2,502	1,877	1,877	1,877	704	704	704	704	704	704	704
VAS	USD		-	-	15,095	15,095	15,095	15,095	15,095	15,095	15,095	15,095	15,095	4,528
Admin labor OCSS	USD		1,007	46,163	140,792	140,792	140,792	139,620	139,620	139,620	139,620	139,620	139,620	43,364
General Maintenance labor														
Local Category L	USD		-	5,567	19,341	19,341	19,341	19,341	19,341	19,341	19,341	19,341	19,341	5,802
Local Category R	USD		-	2,928	5,395	5,395	5,395	5,395	5,395	5,395	5,395	5,395	5,395	1,619
Local Category H1	USD		-	3,276	9,846	9,846	9,846	9,846	9,846	9,846	9,846	9,846	9,846	2,954
Expats	USD		-	117	469	469	469	-	-	-	-	-	-	-
VAS	USD		-	-	2,444	2,444	2,444	2,444	2,444	2,444	2,444	2,444	2,444	733
G&M labor OCSS	USD		-	11,888	37,495	37,495	37,495	37,026	37,026	37,026	37,026	37,026	37,026	11,108
Military Security Guards														
Local Category L	USD		-	52,052	14,137	14,137	14,137	14,137	14,137	14,137	14,137	14,137	14,137	4,241
Local Category H1	USD		-	11,224	71,291	71,291	71,291	71,291	71,291	71,291	71,291	71,291	71,291	21,387
Military Security Guards OCSS	USD		-	63,276	85,428	85,428	85,428	85,428	85,428	85,428	85,428	85,428	85,428	25,628

HEALTH CARE COST (ALL IN USD, REAL)														
Mining labor														
Local Category L	USD	-	237	494	494	494	494	494	494	494	494	494	494	
Local Category R	USD	-	1,512	3,673	3,673	3,673	3,673	3,673	3,673	3,673	3,673	3,673	3,673	
Local Category H1	USD	-	586	1,667	1,667	1,667	1,667	1,667	1,667	1,667	1,667	1,667	1,667	
Local Category H2	USD	-	-	247	247	247	247	247	247	247	247	247	247	
Expats	USD	-	7,753	55,480	48,180	32,120	27,639	27,639	27,639	27,639	27,639	5,528		
VAS	USD	-	-	463	463	463	463	463	463	463	463	463	463	
Mining labor Health Care Cost	USD	-	10,088	62,023	54,723	38,663	34,182	34,182	34,182	34,182	34,182	12,071		
Process plant labor														
Local Category L	USD	-	154	741	741	741	741	741	741	741	741	741	741	
Local Category R	USD	-	226	772	772	772	772	772	772	772	772	772	772	
Local Category H1	USD	-	410	432	432	432	432	432	432	432	432	432	432	
Local Category H2	USD	-	-	154	154	154	154	154	154	154	154	154	154	
Expats	USD	-	3,608	15,833	15,833	15,833	3,000	3,000	3,000	3,000	3,000	900		
VAS	USD	-	-	154	154	154	154	154	154	154	154	154	154	
Process plant labor Health Care Cost	USD	-	4,399	18,086	18,086	18,086	5,253	5,253	5,253	5,253	5,253	3,153		
Maintenance Labor														
Local Category L	USD	-	118	710	710	710	710	710	710	710	710	710	710	
Local Category R	USD	-	21	247	247	247	247	247	247	247	247	247	247	
Local Category H1	USD	-	3	463	463	463	463	463	463	463	463	463	463	
Local Category H2	USD	-	3	93	93	93	93	93	93	93	93	93	93	
Expats	USD	-	4,435	32,083	32,083	32,083	2,750	2,750	2,750	2,750	2,750	825		
VAS	USD	-	-	123	123	123	123	123	123	123	123	123	123	
Maintenance Labor Health Care Cost	USD	-	4,579	33,719	33,719	33,719	4,386	4,386	4,386	4,386	4,386	2,461		
Admin labor														
Local Category L	USD	5	957	3,395	3,395	3,395	3,395	3,395	3,395	3,395	3,395	3,395	3,395	
Local Category H1	USD	10	345	710	710	710	710	710	710	710	710	710	710	
Local Category H2	USD	-	75	185	185	185	185	185	185	185	185	185	185	
Expats	USD	2,603	17,078	16,389	16,389	16,389	7,889	7,889	7,889	7,889	7,889	2,367		
VAS	USD	-	-	370	370	370	370	370	370	370	370	370	370	
Admin labor Health Care Cost	USD	2,618	18,454	21,050	21,050	21,050	12,550	12,550	12,550	12,550	12,550	7,027		
General Maintenance labor														
Local Category L	USD	-	180	679	679	679	679	679	679	679	679	679	679	
Local Category R	USD	-	62	123	123	123	123	123	123	123	123	123	123	
Local Category H1	USD	-	62	185	185	185	185	185	185	185	185	185	185	
Expats	USD	-	483	3,833	3,833	3,833	-	-	-	-	-	-		
VAS	USD	-	-	93	93	93	93	93	93	93	93	93	93	
General Maintenance labor Health Care Cost	USD	-	786	4,914	4,914	4,914	1,080	1,080	1,080	1,080	1,080	1,080		
Military Security Guards														
Local Category L	USD	-	1,790	2,407	2,407	2,407	2,407	2,407	2,407	2,407	2,407	2,407	2,407	
Local Category H1	USD	-	195	247	247	247	247	247	247	247	247	247	247	
Military Security Guards Health Care Cost	USD	-	1,986	2,654	2,654	2,654	2,654	2,654	2,654	2,654	2,654	2,654		

LABOR OPERATING COST, CATEGORIZED (USD, REAL)																
Total Ore Processed	-	Ton	23,510,512	#	-	-	2,850,470	2,832,672	2,757,104	2,994,019	2,742,889	2,882,357	3,112,460	2,658,397	680,144
MINING																
Mining labor COST	-	USD	-	#	-	1,347,538	7,221,329	6,491,328	4,885,325	4,437,211	4,437,211	4,437,211	4,437,211	4,437,211	1,054,774
Mining labor ACFPE	-	USD	-	#	-	26,951	144,427	129,827	97,707	88,744	88,744	88,744	88,744	88,744	21,095
Mining labor OCSS	-	USD	-	#	-	110,337	298,239	297,066	294,486	292,844	292,844	292,844	292,844	292,844	90,457
Mining labor Health Care Cost	-	USD	-	#	-	10,088	62,023	54,723	38,663	34,182	34,182	34,182	34,182	34,182	12,071
Mining Labor		USD			-	1,494,914	7,726,017	6,972,944	5,316,181	4,852,981	4,852,981	4,852,981	4,852,981	4,852,981	1,178,398
Mining Labor	-	USD	-	#	-	1,494,914	7,726,017	6,972,944	5,316,181	4,852,981	4,852,981	4,852,981	4,852,981	4,852,981	1,178,398
Total Ore Processed	-	Ton	23,510,512	#	-	-	2,850,470	2,832,672	2,757,104	2,994,019	2,742,889	2,882,357	3,112,460	2,658,397	680,144
Mining Labor		USD/t			-	-	2.71	2.46	1.93	1.62	1.77	1.68	1.56	1.83	1.73
Mining labor TAX	-	USD	-	#	-	443,732	2,461,230	2,198,429	1,620,268	1,458,947	1,458,947	1,458,947	1,458,947	1,458,947	338,184
Total Ore Processed	-	Ton	23,510,512	#	-	-	2,850,470	2,832,672	2,757,104	2,994,019	2,742,889	2,882,357	3,112,460	2,658,397	680,144
Mining Labor Tax		USD/t			-	-	0.86	0.78	0.59	0.49	0.53	0.51	0.47	0.55	0.50
Plant (Processing)																
Process plant labor COST	-	USD	-	#	-	553,391	2,128,303	2,128,303	2,128,303	844,968	844,968	844,968	844,968	844,968	253,490
Maintenance Labor COST	-	USD	-	#	-	474,614	3,573,080	3,573,080	3,573,080	639,747	639,747	639,747	639,747	639,747	191,924
Process plant labor ACFPE	-	USD	-	#	-	11,068	42,566	42,566	42,566	16,899	16,899	16,899	16,899	16,899	5,070
Maintenance Labor ACFPE	-	USD	-	#	-	9,492	71,462	71,462	71,462	12,795	12,795	12,795	12,795	12,795	3,838
Process plant labor OCSS	-	USD	-	#	-	37,372	88,520	88,520	88,520	86,878	86,878	86,878	86,878	86,878	27,049
Maintenance Labor OCSS	-	USD	-	#	-	5,914	67,379	67,379	67,379	62,687	62,687	62,687	62,687	62,687	19,463
Process plant labor Health Care Cost	-	USD	-	#	-	4,399	18,086	18,086	18,086	5,253	5,253	5,253	5,253	5,253	3,153
Maintenance Labor Health Care Cost	-	USD	-	#	-	4,579	33,719	33,719	33,719	4,386	4,386	4,386	4,386	4,386	2,461
Plant (Processing) Labor		USD			-	1,100,829	6,023,115	6,023,115	6,023,115	1,673,613	1,673,613	1,673,613	1,673,613	1,673,613	506,448
Plant (Processing) Labor	-	USD	-	#	-	1,100,829	6,023,115	6,023,115	6,023,115	1,673,613	1,673,613	1,673,613	1,673,613	1,673,613	506,448
Total Ore Processed	-	Ton	23,510,512	#	-	-	2,850,470	2,832,672	2,757,104	2,994,019	2,742,889	2,882,357	3,112,460	2,658,397	680,144
Plant (Processing) Labor		USD/t			-	-	2.11	2.13	2.18	0.56	0.61	0.58	0.54	0.63	0.74
Process plant labor TAX	-	USD	-	#	-	182,458	703,776	703,776	703,776	241,776	241,776	241,776	241,776	241,776	72,533
Maintenance Labor TAX	-	USD	-	#	-	165,032	1,238,639	1,238,639	1,238,639	182,639	182,639	182,639	182,639	182,639	54,792
Plant (Processing) Labor Tax		USD			-	347,490	1,942,415	1,942,415	1,942,415	424,415	424,415	424,415	424,415	424,415	127,324
Plant (Processing) Labor Tax	-	USD	-	#	-	347,490	1,942,415	1,942,415	1,942,415	424,415	424,415	424,415	424,415	424,415	127,324
Total Ore Processed	-	Ton	23,510,512	#	-	-	2,850,470	2,832,672	2,757,104	2,994,019	2,742,889	2,882,357	3,112,460	2,658,397	680,144
Plant (Processing) Labor Tax		USD/t			-	-	0.68	0.69	0.70	0.14	0.15	0.15	0.14	0.16	0.19

G & A																
General & Admin labor COST	-	USD	-	#	263,932	1,972,482	2,504,616	2,504,616	2,504,616	1,654,616	1,654,616	1,654,616	1,654,616	1,654,616	496,385	
General Maintenance labor COST	-	USD	-	#	-	110,204	578,207	578,207	578,207	194,874	194,874	194,874	194,874	194,874	58,462	
Military Security Guards COST	-	USD	-	#	-	333,032	449,619	449,619	449,619	449,619	449,619	449,619	449,619	449,619	134,886	
Admin labor ACFPE	-	USD	-	#	5,279	39,450	50,092	50,092	50,092	33,092	33,092	33,092	33,092	33,092	9,928	
General Maintenance labor ACFPE	-	USD	-	#	-	2,204	11,564	11,564	11,564	3,897	3,897	3,897	3,897	3,897	1,169	
Military Security Guards ACFPE	-	USD	-	#	-	6,661	8,992	8,992	8,992	8,992	8,992	8,992	8,992	8,992	2,698	
Admin labor OCSS	-	USD	-	#	1,007	46,163	140,792	140,792	140,792	139,620	139,620	139,620	139,620	139,620	43,364	
G&M labor OCSS	-	USD	-	#	-	11,888	37,495	37,495	37,495	37,026	37,026	37,026	37,026	37,026	11,108	
Military Security Guards OCSS	-	USD	-	#	-	63,276	85,428	85,428	85,428	85,428	85,428	85,428	85,428	85,428	25,628	
Admin labor Health Care Cost	-	USD	-	#	2,618	18,454	21,050	21,050	21,050	12,550	12,550	12,550	12,550	12,550	7,027	
General Maintenance labor Health Care Cost	-	USD	-	#	-	786	4,914	4,914	4,914	1,080	1,080	1,080	1,080	1,080	1,080	
Military Security Guards Health Care Cost	-	USD	-	#	-	1,986	2,654	2,654	2,654	2,654	2,654	2,654	2,654	2,654	2,654	
G&A Labor		USD			272,836	2,606,586	3,895,424	3,895,424	3,895,424	2,623,449	2,623,449	2,623,449	2,623,449	2,623,449	794,389	
G&A Labor	-	USD	-	#	272,836	2,606,586	3,895,424	3,895,424	3,895,424	2,623,449	2,623,449	2,623,449	2,623,449	2,623,449	794,389	
Total Ore Processed	-	Ton	23,510,512	#	-	-	2,850,470	2,832,672	2,757,104	2,994,019	2,742,889	2,882,357	3,112,460	2,658,397	680,144	
G&A Labor		USD/t			-	-	1.37	1.38	1.41	0.88	0.96	0.91	0.84	0.99	1.17	
Admin labor TAX	-	USD	-	#	94,637	667,923	744,159	744,159	744,159	438,159	438,159	438,159	438,159	438,159	131,448	
General Maintenance labor TAX	-	USD	-	#	-	30,096	173,531	173,531	173,531	35,531	35,531	35,531	35,531	35,531	10,659	
Military Security Guards TAX	-	USD	-	#	-	45,118	120,005	120,005	120,005	120,005	120,005	120,005	120,005	120,005	36,001	
G&A Labor Tax		USD			94,637	743,137	1,037,694	1,037,694	1,037,694	593,694	593,694	593,694	593,694	593,694	178,108	
G&A Labor Tax	-	USD	-	#	94,637	743,137	1,037,694	1,037,694	1,037,694	593,694	593,694	593,694	593,694	593,694	178,108	
Total Ore Processed	-	Ton	23,510,512	#	-	-	2,850,470	2,832,672	2,757,104	2,994,019	2,742,889	2,882,357	3,112,460	2,658,397	680,144	
G&A Labor Tax		USD/t			-	-	0.36	0.37	0.38	0.20	0.22	0.21	0.19	0.22	0.26	

COST PER LABOR / LABOR MONTH (NOMINAL)														
Mining labor														
Local Category L	PDC	-	2,020	25,432	26,830	28,306	29,863	31,505	33,238	35,066	36,995	11,709		
Local Category R	PDC	-	3,280	39,107	41,258	43,527	45,921	48,447	51,111	53,923	56,888	18,005		
Local Category H1	PDC	-	3,965	50,128	52,885	55,794	58,863	62,100	65,515	69,119	72,920	23,079		
Local Category H2	PDC	-	-	111,603	117,741	124,217	131,049	138,257	145,861	153,883	162,347	51,383		
Expats	USD	-	9,639	151,750	154,709	157,726	202,939	206,896	210,931	215,044	219,237	67,054		
VAS	PDC	-	-	43,456	45,846	48,368	51,028	53,834	56,795	59,919	63,215	20,007		
Process plant labor														
Local Category L	PDC	-	2,289	26,995	28,480	30,047	31,699	33,443	35,282	37,222	39,270	12,429		
Local Category R	PDC	-	3,299	39,506	41,678	43,971	46,389	48,940	51,632	54,472	57,468	18,189		
Local Category H1	PDC	-	3,688	49,213	51,919	54,775	57,787	60,966	64,319	67,856	71,589	22,658		
Local Category H2	PDC	-	-	105,875	111,698	117,841	124,323	131,160	138,374	145,985	154,014	48,745		
Expats	USD	-	9,196	205,711	209,722	213,812	330,413	336,856	343,425	350,122	356,949	109,173		
VAS	PDC	-	-	35,787	37,755	39,832	42,023	44,334	46,772	49,345	52,059	16,477		
Maintenance Labor														
Local Category L	PDC	-	2,273	25,868	27,290	28,791	30,375	32,045	33,808	35,667	37,629	11,910		
Local Category R	PDC	-	3,387	39,506	41,678	43,971	46,389	48,940	51,632	54,472	57,468	18,189		
Local Category H1	PDC	-	3,777	51,673	54,515	57,514	60,677	64,014	67,535	71,249	75,168	23,791		
Local Category H2	PDC	-	28,575	73,744	77,800	82,079	86,593	91,355	96,380	101,681	107,273	33,952		
Expats	USD	-	8,696	158,794	161,891	165,048	302,879	308,785	314,806	320,945	327,203	100,075		
VAS	PDC	-	-	30,635	32,320	34,097	35,972	37,951	40,038	42,240	44,564	14,104		
General & Admin labor														
Local Category L	PDC	1,985	1,864	22,683	23,931	25,247	26,636	28,101	29,646	31,277	32,997	10,444		
Local Category H1	PDC	3,575	3,754	47,407	50,014	52,765	55,667	58,728	61,959	65,366	68,961	21,826		
Local Category H2	PDC	-	6,882	131,685	138,928	146,569	154,630	163,135	172,107	181,573	191,560	60,629		
Expats	USD	16,267	13,603	212,932	217,084	221,317	289,630	295,278	301,036	306,906	312,891	95,698		
VAS	PDC	-	-	36,843	38,870	41,008	43,263	45,642	48,153	50,801	53,595	16,963		
General Maintenance labor														
Local Category L	PDC	-	2,208	25,750	27,167	28,661	30,237	31,900	33,655	35,506	37,459	11,856		
Local Category R	PDC	-	3,387	39,506	41,678	43,971	46,389	48,940	51,632	54,472	57,468	18,189		
Local Category H1	PDC	-	3,790	48,065	50,709	53,498	56,440	59,544	62,819	66,274	69,919	22,129		
Expats	USD	-	8,199	199,214	203,099	207,059	-	-	-	-	-	-		
VAS	PDC	-	-	23,860	25,172	26,556	28,017	29,558	31,183	32,899	34,708	10,985		
Military Security Guards														
Local Category L	PDC	-	2,076	5,309	5,601	5,909	6,234	6,576	6,938	7,320	7,722	2,444		
Local Category H1	PDC	-	4,100	261,014	275,370	290,515	306,494	323,351	341,135	359,897	379,692	120,172		

LABOR COST (NOMINAL)														
Mining labor														
Local Category L	PDC	-	185,807	406,907	429,287	452,897	477,807	504,086	531,811	561,061	591,919	187,342		
Local Category R	PDC	-	1,928,878	4,653,750	4,909,706	5,179,740	5,464,626	5,765,180	6,082,265	6,416,790	6,769,713	2,142,614		
Local Category H1	PDC	-	904,114	2,706,918	2,855,799	3,012,867	3,178,575	3,353,397	3,537,834	3,732,414	3,937,697	1,246,281		
Local Category H2	PDC	-	-	892,825	941,930	993,736	1,048,392	1,106,053	1,166,886	1,231,065	1,298,773	411,062		
Expats	USD	-	790,371	5,766,490	5,105,392	3,469,965	3,044,086	3,103,446	3,163,963	3,225,660	3,288,560	670,537		
VAS	PDC	-	-	651,841	687,692	725,515	765,419	807,517	851,930	898,786	948,220	300,111		
Process plant labor														
Local Category L	PDC	-	137,361	647,890	683,524	721,118	760,780	802,623	846,767	893,339	942,473	298,293		
Local Category R	PDC	-	290,294	987,638	1,041,958	1,099,266	1,159,725	1,223,510	1,290,803	1,361,797	1,436,696	454,714		
Local Category H1	PDC	-	588,189	688,976	726,870	766,848	809,024	853,521	900,464	949,990	1,002,239	317,209		
Local Category H2	PDC	-	-	529,374	558,489	589,206	621,613	655,801	691,871	729,923	770,069	243,727		
Expats	USD	-	367,850	1,645,687	1,677,778	1,710,495	330,413	336,856	343,425	350,122	356,949	109,173		
VAS	PDC	-	-	178,935	188,777	199,160	210,113	221,670	233,861	246,724	260,294	82,383		
Maintenance Labor														
Local Category L	PDC	-	104,551	594,953	627,676	662,198	698,619	737,043	777,580	820,347	865,466	273,920		
Local Category R	PDC	-	27,092	316,044	333,427	351,765	371,112	391,523	413,057	435,775	459,743	145,509		
Local Category H1	PDC	-	3,777	775,098	817,729	862,704	910,152	960,211	1,013,022	1,068,739	1,127,519	356,860		
Local Category H2	PDC	-	28,575	221,231	233,399	246,236	259,778	274,066	289,140	305,043	321,820	101,856		
Expats	USD	-	452,174	3,334,678	3,399,704	3,465,998	302,879	308,785	314,806	320,945	327,203	100,075		
VAS	PDC	-	-	122,538	129,278	136,388	143,890	151,804	160,153	168,961	178,254	56,417		
Admin labor														
Local Category L	PDC	3,970	693,452	2,495,168	2,632,403	2,777,185	2,929,930	3,091,076	3,261,085	3,440,445	3,629,670	1,148,790		
Local Category H1	PDC	14,300	502,982	1,090,352	1,150,322	1,213,589	1,280,337	1,350,755	1,425,047	1,503,424	1,586,113	502,005		
Local Category H2	PDC	-	199,585	790,110	833,566	879,413	927,780	978,808	1,032,643	1,089,438	1,149,357	363,772		
Expats	USD	260,278	1,741,137	1,703,453	1,736,670	1,770,535	868,890	885,833	903,107	920,718	938,672	287,093		
VAS	PDC	-	-	442,121	466,437	492,091	519,156	547,710	577,834	609,615	643,144	203,555		
General Maintenance labor														
Local Category L	PDC	-	154,558	566,509	597,667	630,539	665,218	701,805	740,405	781,127	824,089	260,824		
Local Category R	PDC	-	81,277	158,022	166,713	175,883	185,556	195,762	206,529	217,888	229,871	72,754		
Local Category H1	PDC	-	90,962	288,390	304,252	320,986	338,640	357,265	376,915	397,645	419,515	132,777		
Expats	USD	-	49,193	398,429	406,198	414,119	-	-	-	-	-	-		
VAS	PDC	-	-	71,579	75,515	79,669	84,051	88,673	93,550	98,696	104,124	32,955		
Military Security Guards														
Local Category L	PDC	-	1,445,139	414,073	436,847	460,874	486,222	512,964	541,177	570,942	602,344	190,642		
Local Category H1	PDC	-	311,605	2,088,113	2,202,959	2,324,122	2,451,948	2,586,806	2,729,080	2,879,179	3,037,534	961,380		

LABOR TAX (NOMINAL)													
Mining labor													
Local Category L	PDC	-	18,581	40,691	42,929	45,290	47,781	50,409	53,181	56,106	59,192	18,734	
Local Category R	PDC	-	578,663	1,396,125	1,472,912	1,553,922	1,639,388	1,729,554	1,824,679	1,925,037	2,030,914	642,784	
Local Category H1	PDC	-	271,234	812,075	856,740	903,860	953,573	1,006,019	1,061,350	1,119,724	1,181,309	373,884	
Local Category H2	PDC	-	-	267,847	282,579	298,121	314,518	331,816	350,066	369,319	389,632	123,319	
Expats	USD	-	284,534	2,075,936	1,837,941	1,249,187	1,095,871	1,117,240	1,139,027	1,161,238	1,183,882	241,393	
VAS	PDC	-	-	65,184	68,769	72,552	76,542	80,752	85,193	89,879	94,822	30,011	
Process plant labor													
Local Category L	PDC	-	13,736	64,789	68,352	72,112	76,078	80,262	84,677	89,334	94,247	29,829	
Local Category R	PDC	-	87,088	296,291	312,587	329,780	347,918	367,053	387,241	408,539	431,009	136,414	
Local Category H1	PDC	-	176,457	206,693	218,061	230,054	242,707	256,056	270,139	284,997	300,672	95,163	
Local Category H2	PDC	-	-	158,812	167,547	176,762	186,484	196,740	207,561	218,977	231,021	73,118	
Expats	USD	-	132,426	592,447	604,000	615,778	118,949	121,268	123,633	126,044	128,502	39,302	
VAS	PDC	-	-	17,894	18,878	19,916	21,011	22,167	23,386	24,672	26,029	8,238	
Maintenance Labor													
Local Category L	PDC	-	10,455	59,495	62,768	66,220	69,862	73,704	77,758	82,035	86,547	27,392	
Local Category R	PDC	-	8,128	94,813	100,028	105,530	111,334	117,457	123,917	130,733	137,923	43,653	
Local Category H1	PDC	-	1,133	232,529	245,319	258,811	273,046	288,063	303,907	320,622	338,256	107,058	
Local Category H2	PDC	-	8,572	66,369	70,020	73,871	77,934	82,220	86,742	91,513	96,546	30,557	
Expats	USD	-	162,783	1,200,484	1,223,894	1,247,759	109,036	111,163	113,330	115,540	117,793	36,027	
VAS	PDC	-	-	12,254	12,928	13,639	14,389	15,180	16,015	16,896	17,825	5,642	
Admin labor													
Local Category L	PDC	397	69,345	249,517	263,240	277,718	292,993	309,108	326,109	344,045	362,967	114,879	
Local Category H1	PDC	4,290	150,895	327,106	345,096	364,077	384,101	405,227	427,514	451,027	475,834	150,601	
Local Category H2	PDC	-	59,875	237,033	250,070	263,824	278,334	293,642	309,793	326,831	344,807	109,131	
Expats	USD	93,700	626,809	613,243	625,201	637,393	312,800	318,900	325,118	331,458	337,922	103,353	
VAS	PDC	-	-	44,212	46,644	49,209	51,916	54,771	57,783	60,961	64,314	20,355	
General Maintenance labor													
Local Category L	PDC	-	15,456	56,651	59,767	63,054	66,522	70,181	74,040	78,113	82,409	26,082	
Local Category R	PDC	-	24,383	47,407	50,014	52,765	55,667	58,728	61,959	65,366	68,961	21,826	
Local Category H1	PDC	-	27,289	86,517	91,276	96,296	101,592	107,179	113,074	119,293	125,855	39,833	
Expats	USD	-	17,709	143,434	146,231	149,083	-	-	-	-	-	-	
VAS	PDC	-	-	7,158	7,552	7,967	8,405	8,867	9,355	9,870	10,412	3,296	
Military Security Guards													
Local Category L	PDC	-	144,514	41,407	43,685	46,087	48,622	51,296	54,118	57,094	60,234	19,064	
Local Category H1	PDC	-	93,481	626,434	660,888	697,237	735,585	776,042	818,724	863,754	911,260	288,414	

ACFPE COST (NOMINAL)														
Mining labor														
Local Category L	PDC	-	3,716	8,138	8,586	9,058	9,556	10,082	10,636	11,221	11,838	3,747		
Local Category R	PDC	-	38,578	93,075	98,194	103,595	109,293	115,304	121,645	128,336	135,394	42,852		
Local Category H1	PDC	-	18,082	54,138	57,116	60,257	63,572	67,068	70,757	74,648	78,754	24,926		
Local Category H2	PDC	-	-	17,856	18,839	19,875	20,968	22,121	23,338	24,621	25,975	8,221		
Expats	USD	-	15,807	115,330	102,108	69,399	60,882	62,069	63,279	64,513	65,771	13,411		
VAS	PDC	-	-	13,037	13,754	14,510	15,308	16,150	17,039	17,976	18,964	6,002		
Process plant labor														
Local Category L	PDC	-	2,747	12,958	13,670	14,422	15,216	16,052	16,935	17,867	18,849	5,966		
Local Category R	PDC	-	5,806	19,753	20,839	21,985	23,195	24,470	25,816	27,236	28,734	9,094		
Local Category H1	PDC	-	11,764	13,780	14,537	15,337	16,180	17,070	18,009	19,000	20,045	6,344		
Local Category H2	PDC	-	-	10,587	11,170	11,784	12,432	13,116	13,837	14,598	15,401	4,875		
Expats	USD	-	7,357	32,914	33,556	34,210	6,608	6,737	6,868	7,002	7,139	2,183		
VAS	PDC	-	-	3,579	3,776	3,983	4,202	4,433	4,677	4,934	5,206	1,648		
Maintenance Labor														
Local Category L	PDC	-	2,091	11,899	12,554	13,244	13,972	14,741	15,552	16,407	17,309	5,478		
Local Category R	PDC	-	542	6,321	6,669	7,035	7,422	7,830	8,261	8,716	9,195	2,910		
Local Category H1	PDC	-	76	15,502	16,355	17,254	18,203	19,204	20,260	21,375	22,550	7,137		
Local Category H2	PDC	-	571	4,425	4,668	4,925	5,196	5,481	5,783	6,101	6,436	2,037		
Expats	USD	-	9,043	66,694	67,994	69,320	6,058	6,176	6,296	6,419	6,544	2,002		
VAS	PDC	-	-	2,451	2,586	2,728	2,878	3,036	3,203	3,379	3,565	1,128		
Admin labor														
Local Category L	PDC	79	13,869	49,903	52,648	55,544	58,599	61,822	65,222	68,809	72,593	22,976		
Local Category H1	PDC	286	10,060	21,807	23,006	24,272	25,607	27,015	28,501	30,068	31,722	10,040		
Local Category H2	PDC	-	3,992	15,802	16,671	17,588	18,556	19,576	20,653	21,789	22,987	7,275		
Expats	USD	5,206	34,823	34,069	34,733	35,411	17,378	17,717	18,062	18,414	18,773	5,742		
VAS	PDC	-	-	8,842	9,329	9,842	10,383	10,954	11,557	12,192	12,863	4,071		
General Maintenance labor														
Local Category L	PDC	-	3,091	11,330	11,953	12,611	13,304	14,036	14,808	15,623	16,482	5,216		
Local Category R	PDC	-	1,626	3,160	3,334	3,518	3,711	3,915	4,131	4,358	4,597	1,455		
Local Category H1	PDC	-	1,819	5,768	6,085	6,420	6,773	7,145	7,538	7,953	8,390	2,656		
Expats	USD	-	984	7,969	8,124	8,282	-	-	-	-	-	-		
VAS	PDC	-	-	1,432	1,510	1,593	1,681	1,773	1,871	1,974	2,082	659		
Military Security Guards														
Local Category L	PDC	-	28,903	8,281	8,737	9,217	9,724	10,259	10,824	11,419	12,047	3,813		
Local Category H1	PDC	-	6,232	41,762	44,059	46,482	49,039	51,736	54,582	57,584	60,751	19,228		

OCSS COST (NOMINAL)														
Mining labor														
Local Category L	PDC		-	35,303	77,312	81,564	86,051	90,783	95,776	101,044	106,602	112,465	35,595	
Local Category R	PDC		-	366,487	884,212	932,844	984,151	1,038,279	1,095,384	1,155,630	1,219,190	1,286,245	407,097	
Local Category H1	PDC		-	171,782	514,314	542,602	572,445	603,929	637,145	672,188	709,159	748,162	236,793	
Local Category H2	PDC		-	-	10,443	11,018	11,624	12,263	12,937	13,649	14,400	15,192	16,027	
Expats	PDC		-	8,455	49,605	45,447	31,965	22,993	24,257	25,592	26,999	28,484	20,034	
VAS	PDC		-	-	123,850	130,662	137,848	145,430	153,428	161,867	170,769	180,162	57,021	
Process plant labor														
Local Category L	PDC		-	26,099	123,099	129,870	137,012	144,548	152,498	160,886	169,734	179,070	56,676	
Local Category R	PDC		-	55,156	187,651	197,972	208,860	220,348	232,467	245,253	258,742	272,972	86,396	
Local Category H1	PDC		-	111,756	130,905	138,105	145,701	153,715	162,169	171,088	180,498	190,425	60,270	
Local Category H2	PDC		-	-	6,527	6,886	7,265	7,664	8,086	8,531	9,000	9,495	10,017	
Expats	PDC		-	4,124	10,443	11,018	11,624	1,533	1,617	1,706	1,800	1,899	2,003	
VAS	PDC		-	-	33,998	35,868	37,840	39,922	42,117	44,434	46,878	49,456	15,653	
Maintenance Labor														
Local Category L	PDC		-	19,865	113,041	119,258	125,818	132,738	140,038	147,740	155,866	164,439	52,045	
Local Category R	PDC		-	5,148	60,048	63,351	66,835	70,511	74,389	78,481	82,797	87,351	27,647	
Local Category H1	PDC		-	718	147,269	155,368	163,914	172,929	182,440	192,474	203,060	214,229	67,803	
Local Category H2	PDC		-	103	3,916	4,132	4,359	4,599	4,851	5,118	5,400	5,697	6,010	
Expats	PDC		-	5,362	27,413	28,921	30,512	1,533	1,617	1,706	1,800	1,899	2,003	
VAS	PDC		-	-	23,282	24,563	25,914	27,339	28,843	30,429	32,103	33,868	10,719	
Admin labor														
Local Category L	PDC		754	131,756	474,082	500,157	527,665	556,687	587,304	619,606	653,685	689,637	218,270	
Local Category H1	PDC		2,717	95,567	207,167	218,561	230,582	243,264	256,644	270,759	285,651	301,361	95,381	
Local Category H2	PDC		-	2,990	7,832	8,263	8,718	9,197	9,703	10,237	10,800	11,394	12,020	
Expats	PDC		1,564	13,198	10,443	11,018	11,624	4,599	4,851	5,118	5,400	5,697	6,010	
VAS	PDC		-	-	84,003	88,623	93,497	98,640	104,065	109,788	115,827	122,197	38,675	
General Maintenance labor														
Local Category L	PDC		-	29,366	107,637	113,557	119,802	126,392	133,343	140,677	148,414	156,577	49,557	
Local Category R	PDC		-	15,443	30,024	31,676	33,418	35,256	37,195	39,240	41,399	43,676	13,823	
Local Category H1	PDC		-	17,283	54,794	57,808	60,987	64,342	67,880	71,614	75,553	79,708	25,228	
Expats	PDC		-	619	2,611	2,754	2,906	-	-	-	-	-	-	
VAS	PDC		-	-	13,600	14,348	15,137	15,970	16,848	17,775	18,752	19,784	6,261	
Military Security Guards														
Local Category L	PDC		-	274,576	78,674	83,001	87,566	92,382	97,463	102,824	108,479	114,445	36,222	
Local Category H1	PDC		-	59,205	396,741	418,562	441,583	465,870	491,493	518,525	547,044	577,131	182,662	

HEALTH CARE COST (NOMINAL)														
Mining labor														
Local Category L	PDC	-	1,248	2,748	2,899	3,059	3,227	3,405	3,592	3,789	3,998	4,218		
Local Category R	PDC	-	7,978	20,440	21,564	22,750	24,001	25,321	26,714	28,183	29,733	31,369		
Local Category H1	PDC	-	3,093	9,275	9,785	10,324	10,891	11,490	12,122	12,789	13,492	14,235		
Local Category H2	PDC	-	-	1,374	1,450	1,529	1,614	1,702	1,796	1,895	1,999	2,109		
Expats	USD	-	39,519	288,324	255,270	173,498	152,204	155,172	158,198	161,283	164,428	33,527		
VAS	PDC	-	-	2,576	2,718	2,868	3,025	3,192	3,367	3,553	3,748	3,954		
Process plant labor														
Local Category L	PDC	-	814	4,122	4,349	4,588	4,841	5,107	5,388	5,684	5,997	6,326		
Local Category R	PDC	-	1,194	4,294	4,530	4,779	5,042	5,320	5,612	5,921	6,247	6,590		
Local Category H1	PDC	-	2,164	2,405	2,537	2,676	2,824	2,979	3,143	3,316	3,498	3,690		
Local Category H2	PDC	-	-	859	906	956	1,008	1,064	1,122	1,184	1,249	1,318		
Expats	USD	-	18,392	82,284	83,889	85,525	16,521	16,843	17,171	17,506	17,847	5,459		
VAS	PDC	-	-	859	906	956	1,008	1,064	1,122	1,184	1,249	1,318		
Maintenance Labor														
Local Category L	PDC	-	624	3,951	4,168	4,397	4,639	4,894	5,163	5,447	5,747	6,063		
Local Category R	PDC	-	109	1,374	1,450	1,529	1,614	1,702	1,796	1,895	1,999	2,109		
Local Category H1	PDC	-	14	2,576	2,718	2,868	3,025	3,192	3,367	3,553	3,748	3,954		
Local Category H2	PDC	-	14	515	544	574	605	638	673	711	750	791		
Expats	USD	-	22,609	166,734	169,985	173,300	15,144	15,439	15,740	16,047	16,360	5,004		
VAS	PDC	-	-	687	725	765	807	851	898	947	999	1,054		
Admin labor														
Local Category L	PDC	26	5,047	18,894	19,933	21,029	22,186	23,406	24,694	26,052	27,485	28,996		
Local Category H1	PDC	51	1,818	3,951	4,168	4,397	4,639	4,894	5,163	5,447	5,747	6,063		
Local Category H2	PDC	-	393	1,031	1,087	1,147	1,210	1,277	1,347	1,421	1,499	1,582		
Expats	USD	13,014	87,057	85,173	86,834	88,527	43,444	44,292	45,155	46,036	46,934	14,355		
VAS	PDC	-	-	2,061	2,175	2,294	2,420	2,553	2,694	2,842	2,998	3,163		
General Maintenance labor														
Local Category L	PDC	-	950	3,779	3,987	4,206	4,437	4,681	4,939	5,210	5,497	5,799		
Local Category R	PDC	-	326	687	725	765	807	851	898	947	999	1,054		
Local Category H1	PDC	-	326	1,031	1,087	1,147	1,210	1,277	1,347	1,421	1,499	1,582		
Expats	USD	-	2,460	19,921	20,310	20,706	-	-	-	-	-	-		
VAS	PDC	-	-	515	544	574	605	638	673	711	750	791		
Military Security Guards														
Local Category L	PDC	-	9,443	13,398	14,134	14,912	15,732	16,597	17,510	18,473	19,489	20,561		
Local Category H1	PDC	-	1,031	1,374	1,450	1,529	1,614	1,702	1,796	1,895	1,999	2,109		

COST PER LABOR / LABOR MONTH (ALL IN USD, NOMINAL)													
Mining labor													
Local Category L	USD	-	390	4,750	4,842	4,937	5,033	5,131	5,231	5,333	5,437	1,663	
Local Category R	USD	-	634	7,304	7,446	7,592	7,740	7,891	8,044	8,201	8,361	2,557	
Local Category H1	USD	-	766	9,362	9,545	9,731	9,921	10,114	10,311	10,512	10,717	3,278	
Local Category H2	USD	-	-	20,844	21,250	21,665	22,087	22,518	22,957	23,404	23,861	7,298	
Expats	USD	-	9,639	151,750	154,709	157,726	202,939	206,896	210,931	215,044	219,237	67,054	
VAS	USD	-	-	8,116	8,274	8,436	8,600	8,768	8,939	9,113	9,291	2,842	
Process plant labor													
Local Category L	USD	-	442	5,042	5,140	5,240	5,343	5,447	5,553	5,661	5,772	1,765	
Local Category R	USD	-	638	7,378	7,522	7,669	7,818	7,971	8,126	8,285	8,446	2,583	
Local Category H1	USD	-	713	9,191	9,371	9,553	9,740	9,929	10,123	10,320	10,522	3,218	
Local Category H2	USD	-	-	19,774	20,159	20,553	20,953	21,362	21,779	22,203	22,636	6,923	
Expats	USD	-	9,196	205,711	209,722	213,812	330,413	336,856	343,425	350,122	356,949	109,173	
VAS	USD	-	-	6,684	6,814	6,947	7,083	7,221	7,361	7,505	7,651	2,340	
Maintenance Labor													
Local Category L	USD	-	439	4,831	4,925	5,021	5,119	5,219	5,321	5,425	5,531	1,692	
Local Category R	USD	-	655	7,378	7,522	7,669	7,818	7,971	8,126	8,285	8,446	2,583	
Local Category H1	USD	-	730	9,651	9,839	10,031	10,226	10,426	10,629	10,836	11,048	3,379	
Local Category H2	USD	-	5,523	13,773	14,041	14,315	14,594	14,879	15,169	15,465	15,766	4,822	
Expats	USD	-	8,696	158,794	161,891	165,048	302,879	308,785	314,806	320,945	327,203	100,075	
VAS	USD	-	-	5,722	5,833	5,947	6,063	6,181	6,302	6,424	6,550	2,003	
General & Admin labor													
Local Category L	USD	397	360	4,236	4,319	4,403	4,489	4,577	4,666	4,757	4,850	1,483	
Local Category H1	USD	715	725	8,854	9,027	9,203	9,382	9,565	9,752	9,942	10,136	3,100	
Local Category H2	USD	-	1,330	24,594	25,074	25,563	26,061	26,570	27,088	27,616	28,154	8,611	
Expats	USD	16,267	13,603	212,932	217,084	221,317	289,630	295,278	301,036	306,906	312,891	95,698	
VAS	USD	-	-	6,881	7,015	7,152	7,292	7,434	7,579	7,726	7,877	2,409	
General Maintenance labor													
Local Category L	USD	-	427	4,809	4,903	4,999	5,096	5,196	5,297	5,400	5,505	1,684	
Local Category R	USD	-	655	7,378	7,522	7,669	7,818	7,971	8,126	8,285	8,446	2,583	
Local Category H1	USD	-	733	8,977	9,152	9,330	9,512	9,698	9,887	10,080	10,276	3,143	
Expats	USD	-	8,199	199,214	203,099	207,059	-	-	-	-	-	-	
VAS	USD	-	-	4,456	4,543	4,632	4,722	4,814	4,908	5,004	5,101	1,560	
Military Security Guards													
Local Category L	USD	-	401	991	1,011	1,031	1,051	1,071	1,092	1,113	1,135	347	
Local Category H1	USD	-	792	48,749	49,699	50,668	51,657	52,664	53,691	54,738	55,805	17,068	

LABOR COST (ALL IN USD, NOMINAL)													
Mining labor													
Local Category L	USD	-	35,911	75,997	77,479	78,989	80,530	82,100	83,701	85,333	86,997	26,608	
Local Category R	USD	-	372,794	869,166	886,114	903,394	921,010	938,970	957,279	975,946	994,977	304,314	
Local Category H1	USD	-	174,738	505,562	515,421	525,471	535,718	546,165	556,815	567,673	578,742	177,008	
Local Category H2	USD	-	-	166,750	170,002	173,317	176,696	180,142	183,655	187,236	190,887	58,383	
Expats	USD	-	790,371	5,766,490	5,105,392	3,469,965	3,044,086	3,103,446	3,163,963	3,225,660	3,288,560	670,537	
VAS	USD	-	-	121,742	124,116	126,536	129,004	131,520	134,084	136,699	139,364	42,625	
Mining labor COST	USD	-	1,373,815	7,505,706	6,878,523	5,277,672	4,887,044	4,982,341	5,079,497	5,178,547	5,279,529	1,279,475	
Process plant labor													
Local Category L	USD	-	26,548	121,004	123,364	125,770	128,222	130,722	133,271	135,870	138,520	42,366	
Local Category R	USD	-	56,105	184,458	188,055	191,722	195,460	199,272	203,158	207,119	211,158	64,583	
Local Category H1	USD	-	113,679	128,678	131,187	133,745	136,353	139,012	141,723	144,486	147,304	45,053	
Local Category H2	USD	-	-	98,869	100,797	102,763	104,767	106,810	108,893	111,016	113,181	34,616	
Expats	USD	-	367,850	1,645,687	1,677,778	1,710,495	330,413	336,856	343,425	350,122	356,949	109,173	
VAS	USD	-	-	33,419	34,071	34,735	35,413	36,103	36,807	37,525	38,257	11,701	
Process plant labor COST	USD	-	564,182	2,212,116	2,255,252	2,299,230	930,628	948,776	967,277	986,139	1,005,368	307,492	
Maintenance Labor													
Local Category L	USD	-	20,206	111,117	113,284	115,493	117,745	120,041	122,382	124,769	127,202	38,905	
Local Category R	USD	-	5,236	59,027	60,178	61,351	62,547	63,767	65,010	66,278	67,571	20,666	
Local Category H1	USD	-	730	144,763	147,585	150,463	153,397	156,389	159,438	162,547	165,717	50,685	
Local Category H2	USD	-	5,523	41,319	42,124	42,946	43,783	44,637	45,507	46,395	47,299	14,467	
Expats	USD	-	452,174	3,334,678	3,399,704	3,465,998	302,879	308,785	314,806	320,945	327,203	100,075	
VAS	USD	-	-	22,886	23,332	23,787	24,251	24,724	25,206	25,698	26,199	8,013	
Maintenance Labor COST	USD	-	483,869	3,713,789	3,786,208	3,860,039	704,603	718,343	732,351	746,632	761,191	232,810	
General & Admin labor													
Local Category L	USD	794	134,023	466,014	475,102	484,366	493,811	503,441	513,258	523,266	533,470	163,162	
Local Category H1	USD	2,860	97,211	203,642	207,613	211,661	215,788	219,996	224,286	228,660	233,119	71,299	
Local Category H2	USD	-	38,574	147,566	150,444	153,378	156,368	159,418	162,526	165,695	168,927	51,666	
Expats	USD	260,278	1,741,137	1,703,453	1,736,670	1,770,535	868,890	885,833	903,107	920,718	938,672	287,093	
VAS	USD	-	-	82,573	84,184	85,825	87,499	89,205	90,945	92,718	94,526	28,911	
General & Admin labor COST	USD	263,932	2,010,945	2,603,249	2,654,012	2,705,765	1,822,357	1,857,893	1,894,122	1,931,057	1,968,713	602,131	
General Maintenance labor													
Local Category L	USD	-	29,871	105,805	107,868	109,972	112,116	114,302	116,531	118,804	121,120	37,045	
Local Category R	USD	-	15,708	29,513	30,089	30,676	31,274	31,884	32,505	33,139	33,785	10,333	
Local Category H1	USD	-	17,580	53,862	54,912	55,983	57,074	58,187	59,322	60,479	61,658	18,858	
Expats	USD	-	49,193	398,429	406,198	414,119	-	-	-	-	-	-	
VAS	USD	-	-	13,369	13,629	13,895	14,166	14,442	14,724	15,011	15,304	4,681	
General Maintenance labor COST	USD	-	112,353	600,977	612,696	624,644	214,630	218,815	223,082	227,432	231,867	70,917	
Military Security Guards													
Local Category L	USD	-	279,302	77,335	78,843	80,381	81,948	83,546	85,175	86,836	88,529	27,077	
Local Category H1	USD	-	60,224	389,990	397,595	405,348	413,252	421,311	429,526	437,902	446,441	136,544	
Military Security Guards COST	USD	-	339,526	467,325	476,438	485,728	495,200	504,857	514,701	524,738	534,970	163,621	

LABOR TAX (ALL IN USD, NOMINAL)													
Mining labor													
Local Category L	USD	-	3,591	7,600	7,748	7,899	8,053	8,210	8,370	8,533	8,700	2,661	
Local Category R	USD	-	111,838	260,750	265,834	271,018	276,303	281,691	287,184	292,784	298,493	91,294	
Local Category H1	USD	-	52,421	151,669	154,626	157,641	160,715	163,849	167,044	170,302	173,623	53,103	
Local Category H2	USD	-	-	50,025	51,000	51,995	53,009	54,043	55,096	56,171	57,266	17,515	
Expats	USD	-	284,534	2,075,936	1,837,941	1,249,187	1,095,871	1,117,240	1,139,027	1,161,238	1,183,882	241,393	
VAS	USD	-	-	12,174	12,412	12,654	12,900	13,152	13,408	13,670	13,936	4,262	
Mining labor TAX	USD	-	452,385	2,558,153	2,329,562	1,750,394	1,606,852	1,638,185	1,670,130	1,702,697	1,735,900	410,228	
Process plant labor													
Local Category L	USD	-	2,655	12,100	12,336	12,577	12,822	13,072	13,327	13,587	13,852	4,237	
Local Category R	USD	-	16,832	55,337	56,416	57,517	58,638	59,782	60,947	62,136	63,347	19,375	
Local Category H1	USD	-	34,104	38,603	39,356	40,124	40,906	41,704	42,517	43,346	44,191	13,516	
Local Category H2	USD	-	-	29,661	30,239	30,829	31,430	32,043	32,668	33,305	33,954	10,385	
Expats	USD	-	132,426	592,447	604,000	615,778	118,949	121,268	123,633	126,044	128,502	39,302	
VAS	USD	-	-	3,342	3,407	3,474	3,541	3,610	3,681	3,752	3,826	1,170	
Process plant labor TAX	USD	-	186,016	731,491	745,755	760,298	266,286	271,479	276,773	282,170	287,672	87,985	
Maintenance Labor													
Local Category L	USD	-	2,021	11,112	11,328	11,549	11,775	12,004	12,238	12,477	12,720	3,890	
Local Category R	USD	-	1,571	17,708	18,053	18,405	18,764	19,130	19,503	19,883	20,271	6,200	
Local Category H1	USD	-	219	43,429	44,276	45,139	46,019	46,917	47,831	48,764	49,715	15,205	
Local Category H2	USD	-	1,657	12,396	12,637	12,884	13,135	13,391	13,652	13,918	14,190	4,340	
Expats	USD	-	162,783	1,200,484	1,223,894	1,247,759	109,036	111,163	113,330	115,540	117,793	36,027	
VAS	USD	-	-	2,289	2,333	2,379	2,425	2,472	2,521	2,570	2,620	801	
Maintenance Labor TAX	USD	-	168,250	1,287,417	1,312,521	1,338,116	201,154	205,077	209,076	213,153	217,309	66,464	
Admin labor													
Local Category L	USD	79	13,402	46,601	47,510	48,437	49,381	50,344	51,326	52,327	53,347	16,316	
Local Category H1	USD	858	29,163	61,092	62,284	63,498	64,737	65,999	67,286	68,598	69,936	21,390	
Local Category H2	USD	-	11,572	44,270	45,133	46,013	46,911	47,825	48,758	49,709	50,678	15,500	
Expats	USD	93,700	626,809	613,243	625,201	637,393	312,800	318,900	325,118	331,458	337,922	103,353	
VAS	USD	-	-	8,257	8,418	8,583	8,750	8,921	9,094	9,272	9,453	2,891	
Admin labor TAX	USD	94,637	680,947	773,464	788,547	803,923	482,578	491,989	501,582	511,363	521,335	159,450	
General Maintenance labor													
Local Category L	USD	-	2,987	10,581	10,787	10,997	11,212	11,430	11,653	11,880	12,112	3,704	
Local Category R	USD	-	4,713	8,854	9,027	9,203	9,382	9,565	9,752	9,942	10,136	3,100	
Local Category H1	USD	-	5,274	16,159	16,474	16,795	17,122	17,456	17,797	18,144	18,497	5,657	
Expats	USD	-	17,709	143,434	146,231	149,083	-	-	-	-	-	-	
VAS	USD	-	-	1,337	1,363	1,389	1,417	1,444	1,472	1,501	1,530	468	
General Maintenance labor TAX	USD	-	30,683	180,364	183,881	187,467	39,133	39,896	40,674	41,467	42,275	12,930	
Military Security Guards													
Local Category L	USD	-	27,930	7,734	7,884	8,038	8,195	8,355	8,518	8,684	8,853	2,708	
Local Category H1	USD	-	18,067	116,997	119,278	121,604	123,976	126,393	128,858	131,371	133,932	40,963	
Military Security Guards TAX	USD	-	45,997	124,731	127,163	129,642	132,170	134,748	137,375	140,054	142,785	43,671	

ACFPE COST (ALL IN USD, NOMINAL)													
Mining labor													
Local Category L	USD	-	718	1,520	1,550	1,580	1,611	1,642	1,674	1,707	1,740	532	
Local Category R	USD	-	7,456	17,383	17,722	18,068	18,420	18,779	19,146	19,519	19,900	6,086	
Local Category H1	USD	-	3,495	10,111	10,308	10,509	10,714	10,923	11,136	11,353	11,575	3,540	
Local Category H2	USD	-	-	3,335	3,400	3,466	3,534	3,603	3,673	3,745	3,818	1,168	
Expats	USD	-	15,807	115,330	102,108	69,399	60,882	62,069	63,279	64,513	65,771	13,411	
VAS	USD	-	-	2,435	2,482	2,531	2,580	2,630	2,682	2,734	2,787	852	
Mining labor ACFPE	USD	-	27,476	150,114	137,570	105,553	97,741	99,647	101,590	103,571	105,591	25,590	
Process plant labor													
Local Category L	USD	-	531	2,420	2,467	2,515	2,564	2,614	2,665	2,717	2,770	847	
Local Category R	USD	-	1,122	3,689	3,761	3,834	3,909	3,985	4,063	4,142	4,223	1,292	
Local Category H1	USD	-	2,274	2,574	2,624	2,675	2,727	2,780	2,834	2,890	2,946	901	
Local Category H2	USD	-	-	1,977	2,016	2,055	2,095	2,136	2,178	2,220	2,264	692	
Expats	USD	-	7,357	32,914	33,556	34,210	6,608	6,737	6,868	7,002	7,139	2,183	
VAS	USD	-	-	668	681	695	708	722	736	750	765	234	
Process plant labor ACFPE	USD	-	11,284	44,242	45,105	45,985	18,613	18,976	19,346	19,723	20,107	6,150	
Maintenance Labor													
Local Category L	USD	-	404	2,222	2,266	2,310	2,355	2,401	2,448	2,495	2,544	778	
Local Category R	USD	-	105	1,181	1,204	1,227	1,251	1,275	1,300	1,326	1,351	413	
Local Category H1	USD	-	15	2,895	2,952	3,009	3,068	3,128	3,189	3,251	3,314	1,014	
Local Category H2	USD	-	110	826	842	859	876	893	910	928	946	289	
Expats	USD	-	9,043	66,694	67,994	69,320	6,058	6,176	6,296	6,419	6,544	2,002	
VAS	USD	-	-	458	467	476	485	494	504	514	524	160	
Maintenance Labor ACFPE	USD	-	9,677	74,276	75,724	77,201	14,092	14,367	14,647	14,933	15,224	4,656	
Admin labor													
Local Category L	USD	16	2,680	9,320	9,502	9,687	9,876	10,069	10,265	10,465	10,669	3,263	
Local Category H1	USD	57	1,944	4,073	4,152	4,233	4,316	4,400	4,486	4,573	4,662	1,426	
Local Category H2	USD	-	771	2,951	3,009	3,068	3,127	3,188	3,251	3,314	3,379	1,033	
Expats	USD	5,206	34,823	34,069	34,733	35,411	17,378	17,717	18,062	18,414	18,773	5,742	
VAS	USD	-	-	1,651	1,684	1,717	1,750	1,784	1,819	1,854	1,891	578	
Admin labor ACFPE	USD	5,279	40,219	52,065	53,080	54,115	36,447	37,158	37,882	38,621	39,374	12,043	
General Maintenance labor													
Local Category L	USD	-	597	2,116	2,157	2,199	2,242	2,286	2,331	2,376	2,422	741	
Local Category R	USD	-	314	590	602	614	625	638	650	663	676	207	
Local Category H1	USD	-	352	1,077	1,098	1,120	1,141	1,164	1,186	1,210	1,233	377	
Expats	USD	-	984	7,969	8,124	8,282	-	-	-	-	-	-	
VAS	USD	-	-	267	273	278	283	289	294	300	306	94	
General Maintenance labor ACFPE	USD	-	2,247	12,020	12,254	12,493	4,293	4,376	4,462	4,549	4,637	1,418	
Military Security Guards													
Local Category L	USD	-	5,586	1,547	1,577	1,608	1,639	1,671	1,704	1,737	1,771	542	
Local Category H1	USD	-	1,204	7,800	7,952	8,107	8,265	8,426	8,591	8,758	8,929	2,731	
Military Security Guards ACFPE	USD	-	6,791	9,347	9,529	9,715	9,904	10,097	10,294	10,495	10,699	3,272	

OCSS COST (ALL IN USD, NOMINAL)														
Mining labor														
Local Category L	USD		-	6,823	14,439	14,721	15,008	15,301	15,599	15,903	16,213	16,529	5,056	
Local Category R	USD		-	70,831	165,141	168,362	171,645	174,992	178,404	181,883	185,430	189,046	57,820	
Local Category H1	USD		-	33,200	96,057	97,930	99,840	101,786	103,771	105,795	107,858	109,961	33,632	
Local Category H2	USD		-	-	1,950	1,988	2,027	2,067	2,107	2,148	2,190	2,233	2,276	
Expats	USD		-	1,634	9,265	8,202	5,575	3,875	3,951	4,028	4,106	4,186	2,845	
VAS	USD		-	-	23,131	23,582	24,042	24,511	24,989	25,476	25,973	26,479	8,099	
Mining labor OCSS	USD		-	112,488	309,984	314,786	318,136	322,532	328,821	335,233	341,770	348,435	109,727	
Process plant labor														
Local Category L	USD		-	5,044	22,991	23,439	23,896	24,362	24,837	25,322	25,815	26,319	8,050	
Local Category R	USD		-	10,660	35,047	35,730	36,427	37,137	37,862	38,600	39,353	40,120	12,271	
Local Category H1	USD		-	21,599	24,449	24,926	25,412	25,907	26,412	26,927	27,452	27,988	8,560	
Local Category H2	USD		-	-	1,219	1,243	1,267	1,292	1,317	1,343	1,369	1,395	1,423	
Expats	USD		-	797	1,950	1,988	2,027	258	263	269	274	279	285	
VAS	USD		-	-	6,350	6,473	6,600	6,728	6,860	6,993	7,130	7,269	2,223	
Process plant labor OCSS	USD		-	38,100	92,006	93,800	95,629	95,685	97,551	99,453	101,393	103,370	32,811	
Maintenance Labor														
Local Category L	USD		-	3,839	21,112	21,524	21,944	22,372	22,808	23,253	23,706	24,168	7,392	
Local Category R	USD		-	995	11,215	11,434	11,657	11,884	12,116	12,352	12,593	12,838	3,927	
Local Category H1	USD		-	139	27,505	28,041	28,588	29,146	29,714	30,293	30,884	31,486	9,630	
Local Category H2	USD		-	20	731	746	760	775	790	806	821	837	854	
Expats	USD		-	1,036	5,120	5,220	5,322	258	263	269	274	279	285	
VAS	USD		-	-	4,348	4,433	4,520	4,608	4,698	4,789	4,883	4,978	1,522	
Maintenance Labor OCSS	USD		-	6,029	70,032	71,398	72,790	69,042	70,389	71,761	73,160	74,587	23,609	
Admin labor														
Local Category L	USD		151	25,464	88,543	90,269	92,030	93,824	95,654	97,519	99,421	101,359	31,001	
Local Category H1	USD		543	18,470	38,692	39,446	40,216	41,000	41,799	42,614	43,445	44,293	13,547	
Local Category H2	USD		-	578	1,463	1,491	1,520	1,550	1,580	1,611	1,643	1,675	1,707	
Expats	USD		313	2,551	1,950	1,988	2,027	775	790	806	821	837	854	
VAS	USD		-	-	15,689	15,995	16,307	16,625	16,949	17,279	17,616	17,960	5,493	
Admin labor OCSS	USD		1,007	47,063	146,337	149,190	152,100	153,774	156,772	159,830	162,946	166,124	52,602	
General Maintenance labor														
Local Category L	USD		-	5,676	20,103	20,495	20,895	21,302	21,717	22,141	22,573	23,013	7,038	
Local Category R	USD		-	2,985	5,608	5,717	5,828	5,942	6,058	6,176	6,296	6,419	1,963	
Local Category H1	USD		-	3,340	10,234	10,433	10,637	10,844	11,056	11,271	11,491	11,715	3,583	
Expats	USD		-	120	488	497	507	-	-	-	-	-	-	
VAS	USD		-	-	2,540	2,590	2,640	2,692	2,744	2,798	2,852	2,908	889	
G&M labor OCSS	USD		-	12,120	38,972	39,732	40,507	40,780	41,575	42,386	43,212	44,055	13,474	
Military Security Guards														
Local Category L	USD		-	53,067	14,694	14,980	15,272	15,570	15,874	16,183	16,499	16,821	5,145	
Local Category H1	USD		-	11,443	74,098	75,543	77,016	78,518	80,049	81,610	83,201	84,824	25,943	
Military Security Guards OCSS	USD		-	64,510	88,792	90,523	92,288	94,088	95,923	97,793	99,700	101,644	31,088	

HEALTH CARE COST (ALL IN USD, NOMINAL)													
Mining labor													
Local Category L	USD	-	241	513	523	533	544	554	565	576	588	599	
Local Category R	USD	-	1,542	3,817	3,892	3,968	4,045	4,124	4,204	4,286	4,370	4,455	
Local Category H1	USD	-	598	1,732	1,766	1,801	1,836	1,871	1,908	1,945	1,983	2,022	
Local Category H2	USD	-	-	257	262	267	272	277	283	288	294	300	
Expats	USD	-	39,519	288,324	255,270	173,498	152,204	155,172	158,198	161,283	164,428	33,527	
VAS	USD	-	-	481	491	500	510	520	530	540	551	562	
Mining labor Health Care Cost	USD	-	41,900	295,125	262,203	180,567	159,411	162,519	165,688	168,919	172,213	41,464	
Process plant labor													
Local Category L	USD	-	157	770	785	800	816	832	848	864	881	899	
Local Category R	USD	-	231	802	818	834	850	866	883	901	918	936	
Local Category H1	USD	-	418	449	458	467	476	485	495	504	514	524	
Local Category H2	USD	-	-	160	164	167	170	173	177	180	184	187	
Expats	USD	-	18,392	82,284	83,889	85,525	16,521	16,843	17,171	17,506	17,847	5,459	
VAS	USD	-	-	160	164	167	170	173	177	180	184	187	
Process plant labor Health Care Cost	USD	-	19,199	84,626	86,276	87,959	19,002	19,373	19,750	20,136	20,528	8,192	
Maintenance Labor													
Local Category L	USD	-	121	738	752	767	782	797	813	828	845	861	
Local Category R	USD	-	21	257	262	267	272	277	283	288	294	300	
Local Category H1	USD	-	3	481	491	500	510	520	530	540	551	562	
Local Category H2	USD	-	3	96	98	100	102	104	106	108	110	112	
Expats	USD	-	22,609	166,734	169,985	173,300	15,144	15,439	15,740	16,047	16,360	5,004	
VAS	USD	-	-	128	131	133	136	139	141	144	147	150	
Maintenance Labor Health Care Cost	USD	-	22,756	168,434	171,719	175,067	16,946	17,276	17,613	17,956	18,306	6,988	
Admin labor													
Local Category L	USD	5	975	3,529	3,598	3,668	3,739	3,812	3,886	3,962	4,040	4,118	
Local Category H1	USD	10	351	738	752	767	782	797	813	828	845	861	
Local Category H2	USD	-	76	192	196	200	204	208	212	216	220	225	
Expats	USD	13,014	87,057	85,173	86,834	88,527	43,444	44,292	45,155	46,036	46,934	14,355	
VAS	USD	-	-	385	392	400	408	416	424	432	441	449	
Admin labor Health Care Cost	USD	13,029	88,460	90,017	91,772	93,562	48,577	49,525	50,490	51,475	52,479	20,008	
General Maintenance labor													
Local Category L	USD	-	184	706	720	734	748	762	777	792	808	824	
Local Category R	USD	-	63	128	131	133	136	139	141	144	147	150	
Local Category H1	USD	-	63	192	196	200	204	208	212	216	220	225	
Expats	USD	-	2,460	19,921	20,310	20,706	-	-	-	-	-	-	
VAS	USD	-	-	96	98	100	102	104	106	108	110	112	
General Maintenance labor Health Care Cost	USD	-	2,769	21,044	21,455	21,873	1,190	1,213	1,237	1,261	1,285	1,310	
Military Security Guards													
Local Category L	USD	-	1,825	2,502	2,551	2,601	2,651	2,703	2,756	2,810	2,864	2,920	
Local Category H1	USD	-	199	257	262	267	272	277	283	288	294	300	
Military Security Guards Health Care Cost	USD	-	2,024	2,759	2,813	2,867	2,923	2,980	3,039	3,098	3,158	3,220	

LABOR OPERATING COST, CATEGORIZED (USD, NOMINAL)																
Total Ore Processed	-	Ton	23,510,512	#	-	-	2,850,470	2,832,672	2,757,104	2,994,019	2,742,889	2,882,357	3,112,460	2,658,397	680,144
MINING																
Mining labor COST	-	USD	-	#	-	1,373,815	7,505,706	6,878,523	5,277,672	4,887,044	4,982,341	5,079,497	5,178,547	5,279,529	1,279,475
Mining labor ACFPE	-	USD	-	#	-	27,476	150,114	137,570	105,553	97,741	99,647	101,590	103,571	105,591	25,590
Mining labor OCSS	-	USD	-	#	-	112,488	309,984	314,786	318,136	322,532	328,821	335,233	341,770	348,435	109,727
Mining labor Health Care Cost	-	USD	-	#	-	41,900	295,125	262,203	180,567	159,411	162,519	165,688	168,919	172,213	41,464
Mining Labor		USD			-	1,555,679	8,260,930	7,593,083	5,881,929	5,466,727	5,573,328	5,682,008	5,792,807	5,905,767	1,456,256
Mining Labor	-	USD	-	#	-	1,555,679	8,260,930	7,593,083	5,881,929	5,466,727	5,573,328	5,682,008	5,792,807	5,905,767	1,456,256
Total Ore Processed	-	Ton	23,510,512	#	-	-	2,850,470	2,832,672	2,757,104	2,994,019	2,742,889	2,882,357	3,112,460	2,658,397	680,144
Mining Labor		USD/t			-	-	2.90	2.68	2.13	1.83	2.03	1.97	1.86	2.22	2.14
Mining labor TAX	-	USD	-	#	-	452,385	2,558,153	2,329,562	1,750,394	1,606,852	1,638,185	1,670,130	1,702,697	1,735,900	410,228
Total Ore Processed	-	Ton	23,510,512	#	-	-	2,850,470	2,832,672	2,757,104	2,994,019	2,742,889	2,882,357	3,112,460	2,658,397	680,144
Mining labor TAX		USD/t			-	-	0.90	0.82	0.63	0.54	0.60	0.58	0.55	0.65	0.60
Plant (Processing)																
Process plant labor COST	-	USD	-	#	-	564,182	2,212,116	2,255,252	2,299,230	930,628	948,776	967,277	986,139	1,005,368	307,492
Maintenance Labor COST	-	USD	-	#	-	483,869	3,713,789	3,786,208	3,860,039	704,603	718,343	732,351	746,632	761,191	232,810
Process plant labor ACFPE	-	USD	-	#	-	11,284	44,242	45,105	45,985	18,613	18,976	19,346	19,723	20,107	6,150
Maintenance Labor ACFPE	-	USD	-	#	-	9,677	74,276	75,724	77,201	14,092	14,367	14,647	14,933	15,224	4,656
Process plant labor OCSS	-	USD	-	#	-	38,100	92,006	93,800	95,629	95,685	97,551	99,453	101,393	103,370	32,811
Maintenance Labor OCSS	-	USD	-	#	-	6,029	70,032	71,398	72,790	69,042	70,389	71,761	73,160	74,587	23,609
Process plant labor Health Care Cost	-	USD	-	#	-	19,199	84,626	86,276	87,959	19,002	19,373	19,750	20,136	20,528	8,192
Maintenance Labor Health Care Cost	-	USD	-	#	-	22,756	168,434	171,719	175,067	16,946	17,276	17,613	17,956	18,306	6,988
Plant (Processing) Labor		USD			-	1,155,096	6,459,521	6,585,482	6,713,899	1,868,612	1,905,050	1,942,198	1,980,071	2,018,682	622,708
Plant (Processing) Labor	-	USD	-	#	-	1,155,096	6,459,521	6,585,482	6,713,899	1,868,612	1,905,050	1,942,198	1,980,071	2,018,682	622,708
Total Ore Processed	-	Ton	23,510,512	#	-	-	2,850,470	2,832,672	2,757,104	2,994,019	2,742,889	2,882,357	3,112,460	2,658,397	680,144
Plant (Processing) Labor		USD/t			-	-	2.27	2.32	2.44	0.62	0.69	0.67	0.64	0.76	0.92
Process plant labor TAX	-	USD	-	#	-	186,016	731,491	745,755	760,298	266,286	271,479	276,773	282,170	287,672	87,985
Maintenance Labor TAX	-	USD	-	#	-	168,250	1,287,417	1,312,521	1,338,116	201,154	205,077	209,076	213,153	217,309	66,464
Plant (Processing) Labor Tax		USD			-	354,266	2,018,908	2,058,277	2,098,413	467,441	476,556	485,849	495,323	504,982	154,449
Plant (Processing) Labor Tax	-	USD	-	#	-	354,266	2,018,908	2,058,277	2,098,413	467,441	476,556	485,849	495,323	504,982	154,449
Total Ore Processed	-	Ton	23,510,512	#	-	-	2,850,470	2,832,672	2,757,104	2,994,019	2,742,889	2,882,357	3,112,460	2,658,397	680,144
Plant (Processing) Labor Tax		USD/t			-	-	0.71	0.73	0.76	0.16	0.17	0.17	0.16	0.19	0.23

G & A																
General & Admin labor COST	-	USD	-	#	263,932	2,010,945	2,603,249	2,654,012	2,705,765	1,822,357	1,857,893	1,894,122	1,931,057	1,968,713	602,131
General Maintenance labor COST	-	USD	-	#	-	112,353	600,977	612,696	624,644	214,630	218,815	223,082	227,432	231,867	70,917
Military Security Guards COST	-	USD	-	#	-	339,526	467,325	476,438	485,728	495,200	504,857	514,701	524,738	534,970	163,621
Admin labor ACFPE	-	USD	-	#	5,279	40,219	52,065	53,080	54,115	36,447	37,158	37,882	38,621	39,374	12,043
General Maintenance labor ACFPE	-	USD	-	#	-	2,247	12,020	12,254	12,493	4,293	4,376	4,462	4,549	4,637	1,418
Military Security Guards ACFPE	-	USD	-	#	-	6,791	9,347	9,529	9,715	9,904	10,097	10,294	10,495	10,699	3,272
Admin labor OCSS	-	USD	-	#	1,007	47,063	146,337	149,190	152,100	153,774	156,772	159,830	162,946	166,124	52,602
G&M labor OCSS	-	USD	-	#	-	12,120	38,972	39,732	40,507	40,780	41,575	42,386	43,212	44,055	13,474
Military Security Guards OCSS	-	USD	-	#	-	64,510	88,792	90,523	92,288	94,088	95,923	97,793	99,700	101,644	31,088
Admin labor Health Care Cost	-	USD	-	#	13,029	88,460	90,017	91,772	93,562	48,577	49,525	50,490	51,475	52,479	20,008
General Maintenance labor Health Care Cost	-	USD	-	#	-	2,769	21,044	21,455	21,873	1,190	1,213	1,237	1,261	1,285	1,310
Military Security Guards Health Care Cost	-	USD	-	#	-	2,024	2,759	2,813	2,867	2,923	2,980	3,039	3,098	3,158	3,220
G&A Labor		USD			283,247	2,729,027	4,132,902	4,213,494	4,295,657	2,924,163	2,981,184	3,039,317	3,098,584	3,159,007	975,103
G&A Labor	-	USD	-	#	283,247	2,729,027	4,132,902	4,213,494	4,295,657	2,924,163	2,981,184	3,039,317	3,098,584	3,159,007	975,103
Total Ore Processed	-	Ton	23,510,512	#	-	-	2,850,470	2,832,672	2,757,104	2,994,019	2,742,889	2,882,357	3,112,460	2,658,397	680,144
G&A Labor		USD/t			-	-	1.45	1.49	1.56	0.98	1.09	1.05	1.00	1.19	1.43
Admin labor TAX	-	USD	-	#	94,637	680,947	773,464	788,547	803,923	482,578	491,989	501,582	511,363	521,335	159,450
General Maintenance labor TAX	-	USD	-	#	-	30,683	180,364	183,881	187,467	39,133	39,896	40,674	41,467	42,275	12,930
Military Security Guards TAX	-	USD	-	#	-	45,997	124,731	127,163	129,642	132,170	134,748	137,375	140,054	142,785	43,671
G&A Labor Tax		USD			94,637	757,628	1,078,559	1,099,591	1,121,033	653,881	666,632	679,632	692,884	706,396	216,051
G&A Labor Tax	-	USD	-	#	94,637	757,628	1,078,559	1,099,591	1,121,033	653,881	666,632	679,632	692,884	706,396	216,051
Total Ore Processed	-	Ton	23,510,512	#	-	-	2,850,470	2,832,672	2,757,104	2,994,019	2,742,889	2,882,357	3,112,460	2,658,397	680,144
G&A Labor Tax		USD/t			-	-	0.38	0.39	0.41	0.22	0.24	0.24	0.22	0.27	0.32