

J. Mothomogolo

## DEVELOPMENT OF INNOVATIVE FUNDING MECHANISMS FOR MINING START-UPS: A SOUTH AFRICAN CASE

J. Mothomogolo      Wesizwe Platinum Limited

### Abstract

Mining projects are capital-intensive and are also characterized by high technical and economic risks. These factors pose challenges to mining entrepreneurs when they seek to raise seed capital for mining start-ups. There are limited sources of mining investment funds in South Africa and each has shortcomings due to one reason or another. Another impediment is South Africa's status as a developing economy, in which the standards of living – which in turn influences the savings culture – the limited GDPs and budget, the socio-political environment, and banking, mining, treasury and other regulations, determine the size of investments, particularly in mining ventures.

The proposed funding mechanism was developed with the aim of filling the gaps identified in existing funding mechanisms that were developed by the government with the introduction of the Minerals and Petroleum Resources Development Act (MPRDA), 2002. The shortcomings identified were presented to the study participants as questions to obtain views that were used to define innovative ways of raising mining start-up capital.

Most participants in the study supported the derived hypotheses and proposals, and these were used to refine the proposed mechanism for mining investment in South Africa. The proposed funding framework is aimed at encouraging interaction between mining entrepreneurs, government, and the investors to align goals and expectations when undertaking a mining investment.

*Keywords:* Funding mechanisms, mining start-ups, innovative

### Introduction

'Minerals are a valuable natural resource being the vital raw material for infrastructure, capital goods and basic industries. As a major resource for development, the extraction and management of minerals has to be integrated into the overall strategy of the country's economic development'. (Preamble: *National Mineral Policy, 2008*; Government of India).

The countries of Brazil, Russia, India, and China, known as the BRIC bloc, as well as South Africa, are all developing economies; they have entered into trade relations to open up their economies and to fast-track growth initiatives by means of bilateral agreements. These countries all have huge mineral resource bases that have always made a large contribution to the respective GDPs and are still major sources of foreign direct investments (FDI).

The BRIC countries and South Africa have recently started revising their mineral resource development policies to make them more investor-friendly. They aim to achieve this by, among other initiatives, making the issuing of mining rights, taxes, and royalties, as well security of tenure, more transparent processes. It is a known fact that any investor would want to be assured of these issues when they look to invest in any country. The new minerals policies of Brazil, Russia, India, and China entail moving away from too much state involvement in the mining industry and aiming to encourage private participation in the minerals sectors to unlock value for these economies.

### **Study objectives**

The objective was to develop an innovative project-funding mechanism for South African mining start-ups. This was done by looking at the structure of the country's minerals industry, the main role players, and current legislation, as well as abroad to the BRIC countries, to formulate a scheme that encourages the government, entrepreneurs, and investors to work together to develop the mineral resource sector.

An examination of the existing funding mechanisms for mining start-ups in South Africa, as well as the new mineral industry investment environment in other BRIC countries, reveals the following.

- The venture capital business is under-developed in South Africa and in most developing economies
- The local capital market and stock exchange have strict criteria for floating and raising capital for mining start-ups
- The banking sector in South Africa country is very conservative and invests very little in the mineral sector. This conclusion is borne out by the small scale of investment amounts in the minerals sector by local banks
- The tax laws, including incentives and royalties, are not fully supported by some stakeholders in the industry, including the major mining entities operating in the country and some financing institutions.
- Investment companies and individual investors would rather invest in listed companies than in the small private business sector
- Foreign investors are easily deterred by government regulations if they feel these do not offer sufficient protection
- There is a lack of technical and business knowledge regarding how the mining industry operates. This is mainly apparent in the historically-disadvantaged South African (HDSA) group, which has recently gained increasing participation in the minerals sector.

### **Importance of the study**

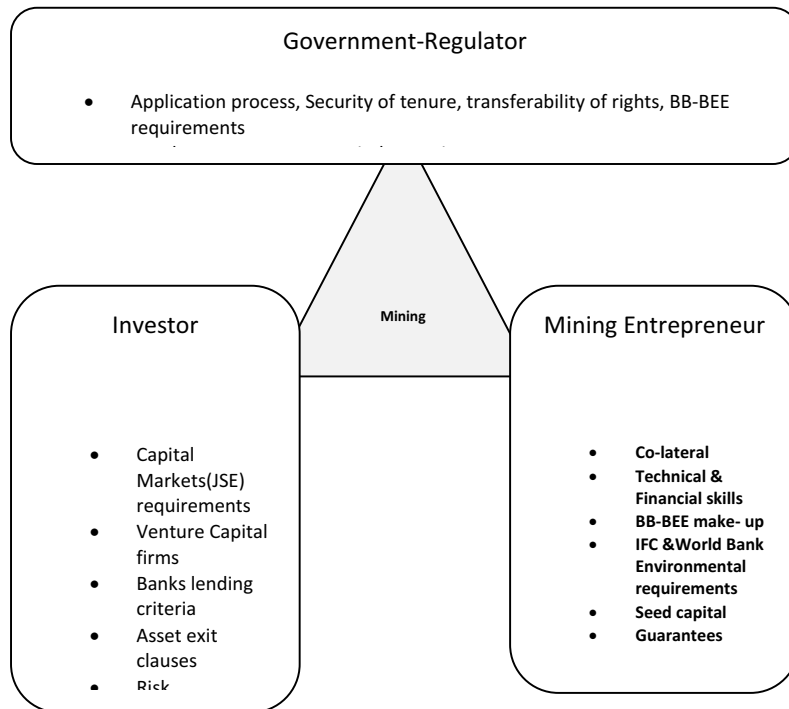
The study was aimed at providing the government, investors, and entrepreneurs with a basis for encouraging and enabling fund-raising for mining start-ups in the small business sector. One of the main objectives of the new MPRDA (2002) is to grant equal access by all the people of South Africa country to the mineral resources sector. It is also known that mining projects are capital-intensive and also characterized by high technical risks. This requires that entrepreneurs and investors require technical skills and knowledge to be able to optimally exploit the mineral resources of the country.

A mining start-up is seen as a very risky venture, which makes investments in early-stage projects somewhat difficult, as the fundraising requirements are strict. Major companies would normally use their budgets to start new project, and recently we have seen venture capitalists from abroad, mainly

Canada, investing in the early phase of the mineral project life-cycle, spurred on by the record commodity prices of 2006/2007.

**Integrated project financing framework for new mining start-ups.**

It became clear from literature searches that the different objectives of the three players in a country’s mineral development environment – being government, investors, and mining entrepreneurs – have to overlap to create a conducive environment for investment in the sector. Figure 1 depicts a framework that seeks to close the gap between expectations and thereby lead to successful transactions.



**Figure1. Integrated funding framework for a mining start-up (adapted from Brent, 2009)**

**Regulatory sphere – government**

**Mining rights application process.** There is a need to fast-track this process, in that the Department of Mineral Resources is currently swamped with applications both for new rights and old-order conversions. The lead time on this process is currently between 18-36 months. This might deter investment in the sector, especially for mining start-ups where the venture capital is sourced from foreign countries. The introduction of an electronic application system will certainly help to reduce lead times to approval.

**BB-BEE requirements.** The introduction of the MPRDA in 2002 requires companies in the minerals sector to show 26 per cent ownership by HDSA persons in 2014. This is not dissimilar to the requirements in other countries of the BRIC bloc. This and other requirements of the Act need to be implemented properly, the key point here being the impacts on project value, as this is what drives investments.

**Security of tenure and transfer of title.-** The new MPRDA actually encourages consultation by entrepreneurs with communities or individuals on whose land minerals occur, in order to negotiate permission to use land for mining operations through lease or rental agreements.

**Royalty tax.** The new mining royalty tax of 2009 was revised several times by the government and stakeholders in the mining industry. The government should look to refining this act further, with the particular aim of encouraging investments in the minerals sector. Some organizations are seeking a tax deferral during the construction period of a mining project, and this will greatly improve the NPVs of new projects, making them more attractive to investors.

**Venture capital incentive.** This is modelled on the Canadian 'flow-through share' scheme, which allows an investor to claim funds invested in a new mining project start-ups against tax. Here the government also needs to refine the law further and increase thresholds from the levels currently stipulated, and also increase the rebate rate to encourage more people to invest.

## **Investor sphere**

**Capital markets (JSE).** The introduction of the Alternative Securities Exchange (AltX) is seen as a positive move, as it allows small companies to list and be able to raise capital for project development. There is, however, still a feeling that the listing requirements are quite onerous compared to other countries such as Canada and Australia.

**Venture capital firms.** South Africa is seen as a newcomer to this, and this can be linked to the savings culture and living standards in the country. Venture capital is normally provided by investment funds and wealthy individuals; there is also an element of risk-taking culture that needs to develop. The government can also boost this type of investment by legislation, as mentioned above.

**Banks lending criteria.** South African banks are seen as very conservative in their lending criteria. This can be regarded as a positive stance when one considers that at the world economic meltdown of 2008 was triggered in the finance sphere. That said, there need to be ways of apportioning certain bank profits' as risk investment money. This will have the dual function of increasing the banks' shareholder value and helping to boost investment in the minerals sector.

**Asset exit clauses.** The current regulations allow investors to realize profit and exit an investment after taking a project down the value chain. This can be seen as positive, because most venture capitalists operate in this way. They are not in a project to operate it until the assets are wound up, but invest with the aim of exiting when the asset value has appreciated and the time is right.

### **Mining entrepreneurs' sphere**

**Collateral.** Most mining entrepreneurs do not have assets great enough to be used as surety when they seek loan capital from the banks. The government should issue types of bonds to promising projects and encourage banks to lend to mining entrepreneurs.

**Technical and financial skills.** This is a key parameter that determines investment success. The government can invest the royalty tax revenue to develop these skills by sending entrepreneurs to other countries to enhance their skills and supporting local institutions in providing the necessary training.

**BB-BEE make-up.** If the requirements of the MRPDA can be proven to devalue a new mining project, there should be a waiver so as to encourage a transaction. A sensitivity analysis should be done to evaluate the financial impact of BB-BEE on projects, especially those with a low NPV or IRR.

**IFC and World Bank environmental requirements.** Currently, South African banks use these templates as part of the lending criteria, and as such mining entrepreneurs know and apply them when putting a business plan together for a funding application.

### **Proposed mining start-up funding mechanism**

The pillars of a proposed innovative funding mechanism are listed in the following sections. The proposed mechanism calls for assistance or waivers to apply in certain areas for a mining entrepreneur who has passed through a screening test.

#### ***Treasury Laws***

##### *Royalty tax*

The royalty tax formula has to be revised to allow exemption for a mining entrepreneur during start-up through to full project construction (or full production). The maximum tax rates of 2 per cent and 3 per cent for refined and unrefined minerals respectively should apply to all mining ventures in the ramp-up period, and provision should also be made for taxes to be paid from profits, instead of revenue streams as in the current formula.

Proposed royalty formulae:

##### *Section 4(1) – refined:*

$Y = 0.5 + \left[ \frac{\text{NPAT}}{\text{gross sales in respect of refined} \times 12.5} \right] \times 100$  but a maximum of 2%

##### *Section 4(2) – unrefined:*

$Y = 0.5 + \left[ \frac{\text{NPAT}}{\text{gross sales in respect of unrefined} \times 9} \right] \times 100$  but a maximum of 3 per cent.

The threshold of company size (in terms of turnover) has to be increased.

The royalty tax revenue portion should be ploughed back into industry through business training and also providing surety to entrepreneurs.

The remaining portion of the revenue should be used to increase the government funding limits from institutions such as Industrial Development Fund (IDC), the National Empowerment Fund (NEF), and the New Africa Mining Fund (NAMF).

### ***Venture capital company (VCC)***

The VCC scheme should be revised to increase the threshold of company size in terms of turnover to qualify for rebates. These ventures should also be exempt from paying tax during the project development up to completion of construction.

#### *Current VCC format*

In general, the targeted enterprises are high-growth and high-tech companies with an annual turnover of up to R14 million or gross assets of up to R7 million. For junior mining and exploration companies, a different threshold – gross assets of R30 million to R50 million – will be considered. The proposed tax incentives will target individual investors, corporate investors, and venture capital funds.

It is proposed that general venture capital investments (non-mining) qualify for a 30 per cent upfront deduction, with annual deductions to be capped at R500 000 for individuals, R750 000 for corporations, and R7.5 million for venture capital funds. Junior mining exploration investments would qualify for a 50 per cent upfront deduction, with annual deductions capped at R1 million for individuals and R10 million for corporations and venture capital funds. (Budget Tax Proposals, SARS 2008/2009)

#### *Proposed VCC fund format*

- The company size( gross assets) should increase from R50 million to R500 million
- The maximum annual deduction for cooperates should increase from R10 million to R50 million per year.

### *Debt funding*

#### *Banks*

The Finance Intelligence Centre Act (FICA) should be revised to reduce the risk burden to banks by the government providing surety to all small mining start-up loans. Banks should also be allowed to claim back tax if they invest in mining start-ups.

#### *Loan surety*

Government to stand surety to all mining start-up loans of up to R500 million.

The model that follows is developed to address the gaps currently found in the funding options reviewed in the preceding sections. In order to verify some recommendations, a survey was taken to get obtain the views of people in the industry.

The pillars of a proposed innovative funding mechanism are listed below. It calls for assistance or waivers in certain areas to apply for a mining entrepreneur who has passed a screening test.

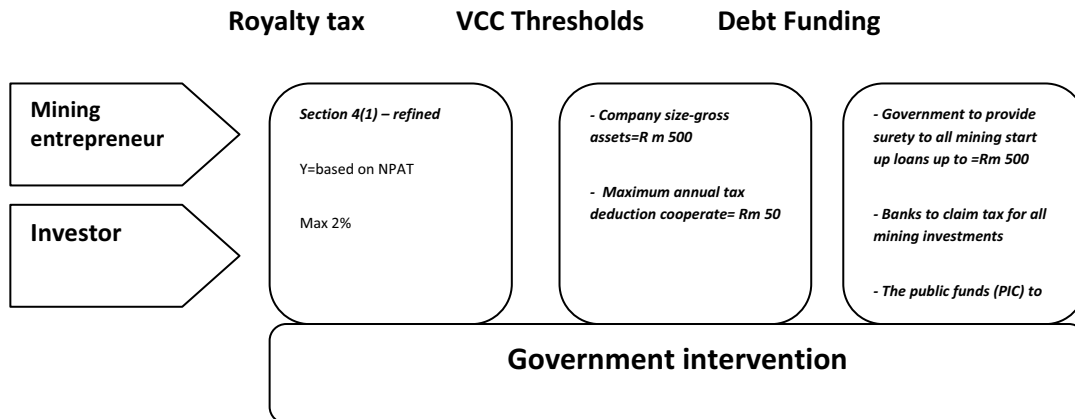


Figure 2. Pillars of the proposed mining start-up funding mechanism

## Research design and methodology

This section describes the research methods used to complete the study. 'The choice of a research designs and methods of data collection for a particular study is influenced by the research problem defined for the study, as different research questions will yield different types of information'. (Leedy and Ormrod, 2001 (cited by Shaw, September 2008 ).

### Research tools

#### Population

This included most junior mining and exploration companies in South Africa that are either listed or private entities. The list included institutions such as the South African Mining Development Association (SAMDA), the Chamber of Mines (CoM), banks, and government funding institutions and departments. A response rate of about 60 per cent was received for this survey, which is normal for non-interactive studies, where survey questions were sent electronically to study participants to complete and return.

#### Sample selection

The study sampling design is the non-probability method, because the research was exploratory and the pool of suitable respondents was limited. The results from this type of study are often very difficult to generalize. (Page and Meyer, 2006). However, this method allows the researcher to select individuals with appropriate knowledge and experience to understand the research problem (Creswell, 2003, cited by Shaw, September 2008).

The two types of non-probability methods that were used are:

1. Judgemental samples. A panel of experts in the subject matter or respondents who, in the judgement of the researcher, will best supply the necessary information (Page and Meyer, 2006)
2. Snowball samples. Additional elements will be picked up by previous elements. In this type of sampling, chosen samples serve as initial contacts and these provide the names of individuals who fulfil the research criteria (Heckthorn, 1997, cited by Shaw, September 2008).

The sample comprised CEOs from exploration and new mining companies, and listed and private entities, together with CEOs of government departments (Department of Trade and Industry (DTI), DMR, Treasury, SARS), presidents of institutions such as SAMDA, the Chamber of Mines (CoM), Black Management Forum (BMF), mining specialists, analysts, and bankers or venture capitalists.

The above respondents were selected for a set of various reasons that are complementary and enabled the study results to be all-encompassing of the minerals industry.

The CEOs of mining and exploration companies were chosen because they are often the ones who go out to the market to raise funds, therefore they have a first-hand experience of the requirements and criteria of many financiers both locally and internationally.

The government heads of department (DTI, DMR, SARS) are the custodians of the regulatory framework and policies that are intertwined with the investment environment of the country. They would be able to respond to proposals of pertaining to the mineral laws and policies.

The government funding institutions were expected to respond to questions regarding the gap analysis between the current situation and best practices. Furthermore, these institutions are constantly receiving feedback from the mining entrepreneurs about what improvements could be made to the current status.

### *Sample size*

The sample design used in many cases would define the sample size to be selected. It was, however, important for the researcher to select an adequate sample size to ensure that sufficient data was available to successfully find a plausible response to the research problem (Shaw, September 2008). Shaw further quotes Leedy and Ormrod, 2001 when suggesting that a researcher should consider a degree of homogeneity of the population when choosing an appropriate sample size. A heterogeneous population will require a larger sample size compared to a more homogeneous population.

### *Research*

### *design*

Research design is the strategy that is developed by a researcher in order to address a research problem by defining the procedures for sampling, data collection, and analyses (Leedy and Ormrod, cited by Shaw, September 2008). The research problem in this study was to develop innovative funding mechanisms for new mining start-ups in South Africa. The **qualitative** approach will be selected for the study.



The important factors that needed to be taken into account in research design, according to McGrath (1982), cited by Brent in Sundra and Williams, 2000) are:

- Generalizability to the population that supports external viability
- Precision in measurement, and control of behavioural variables that affect the internal and construct validity
- Realism of context.

According to Brent (2009), Barry *et al.* (2008) describe research tools on the basis of these factors. They propose that literature reviews may maximize population generalizability, but are low on realism of context and precision of measurement. Judgement tasks, such as those that form part of focus group approaches, are moderately high on generalizability and precision of measurement, but may be low on realism of context. Field studies (or case studies) are high in realism of context, but can be low in generalizability and precision of measurement.

With qualitative research, there is not necessarily a single, ultimate answer to a research question but instead there may be multiple perspectives held by different individuals. Each of these perspectives may be valid, therefore the objective of a qualitative study is to reveal the nature of these multiple perspectives (Denzin and Lincoln, 1998, cited by Shaw, 2008). Shaw further says that according to Creswell (2003), qualitative research makes use of the several data collection methods that are interactive and humanistic in nature. Some of these methods require the active participation by individuals identified in a sample, as well as the sensitivity by the researcher to these participants.

A qualitative research study is emergent in that, although requiring considerable planning and preparation, it may evolve over the course of the investigation Creswell (2003) (cited by Shaw, 2008). A qualitative research study is emergent in that, although requiring considerable planning and preparation, it may evolve over the course of the investigation Creswell (2003) (cited by Shaw, 2008). Leedy and Ormron (2001) (cited by Shaw V,2008) have found that as a study progresses, a researcher will gain an increased understanding of the phenomenon under investigation and in turn the research questions may change, be refined or added to as the researcher learns what to ask of whom it should be asked.

#### *Data collection*

The data for this study was collected by means of non-interactive methods, with proposals and hypotheses presented as questions to the participants. This was done by questionnaires posted electronically for respondents to answer and send back. 'Non interactive data collection procedures remove the social human interaction component from the dynamics of the situation, and this will remove many of the problems inherent in interactive data collection' (Page and Meyer, 2006).

This was a non-experimental research project, and the sample was judgementally chosen by the researcher and therefore not large. Tthe questionnaire enabled the participants to be reached from any geographic location. The questionnaire was sent out twice and this increased the response rate by about 40 per cent of the original rate. This was done in space of four weeks from the date of the first sending, and it served to cover all those who might have been out of office or could not respond because of other reasons.

### **Data analysis and interpretation**

The researcher used the *content analysis* method to analyse and interpret the data collected during interviews with participants. This method is described as 'a detailed and systematic examination of the contents of a particular body of material for the purpose of identifying patterns, themes, biases' (Leedy and Ormrod, 2001, p. 155; cited by Shaw, 2008). The content analysis method in this regard was chosen because the data to be analysed will consist of written notes and transcripts of interviews to be carried out during the study.

### **Role of the researcher**

The ability of the researcher in qualitative research to analyse and interpret the body of data for the study is vital for the understanding of a social phenomenon. The researcher is considered to be an instrument that is important to qualitative research as a sociogram or rating scale (Leedy and Ormrod, 2001; cited by Shaw, 2008). Part of the research data analysis will include an explanation of the researcher's role and possible partialities. Other possible factors that might lead to bias and threaten the validity of the study will be explained below as pertaining to the study:

- Effect of selection: did the selection change the behaviour of the participants?
- Effect of setting: did the participants come from only one location?
- Effects of history: the study was done during a period of economic recession.

### **Verification and dependability**

The validity of the approach in a research methodology should be a very important consideration. In quantitative research the term *verification* instead of validity is used and is described as the accuracy, meaningfulness, and credibility of the research project as a whole (Creswell, 1998; cited by Shaw, 2008). The researcher in this study will therefore explain how credibility, transferability, and dependability were established

### **Research results**

The study sampling design is the non-probability method, since the research was exploratory and the pool of suitable respondents was limited. The results from these study types are often very difficult to generalize. (Page and Meyer, 2006). This method, however, allows the researcher to select individuals with appropriate knowledge and experience to understand the research problem (Creswell, 2003; cited by Shaw, September 2008).

The survey method was non-interactive and was carried out by means of interview questionnaires posted electronically to participants to respond to and return. The sample was chosen by the researcher based on industry knowledge and companies that the interviewees work for. The response rate was not so good, with a response rate of about 50 per cent at the time of writing. Further responses are expected.

There was also a pattern observed in that the response rate from government institutions was only about 20 per cent, compared with 80 per cent from mining entrepreneurs. This might be due to the fact that that public servants have to be careful not to compromise the stance of government and policies when they answer survey questions.

The ordinal scale was used to interpret the statements from participants and, looking at popular views, these were scored to give weighting to a proposal or hypothesis. The proposals and hypotheses forming the basis of the questionnaire were:

- Whether a company is seeking funding for a mining start-up
- Which fundraising option is preferred by a mining entrepreneur
- The lending criteria of the banks in South Africa
- The amount of money required for a medium-sized mining start-up
- The ease of raising capital by issuing share equity on the JSE.
- The state or maturity of the venture capital market in South Africa
- Impact of the MPRDA 2002 on mining investment.
- Length of time required for obtaining a mining licence and associated permits
- Preference between local and foreign investment by mining entrepreneurs to raise start-up capital.

## **Interpretation of results**

### *Funding option*

The funding options for mining projects can be categorized largely into four types: equity, venture capital, debt, and government institutions. There is an interesting spread of choice by participants. The two most popular choices, equity and venture capital, the ones that have been available the longest. The two less popular choices, bank debt and government institutions, are relatively new, and a further limiting factor is that the size of loans available is in most instances less than what the former two can provide. Since mining ventures are highly capital-intensive, this could be the reason that forces people to rely on those fundraising methods.

### *Listing requirements on the JSE*

In line with an indication of choosing equity to raise capital for a mining start-up, the majority of participants feel that the listing requirements by a junior on the JSE are favourable. This could be due to the option of AltX listing that is aimed at mid-tier companies. The other reason could be that most VCs in the mining industry coming from Canada and Australia actually raise funds on the TSX and ASX, and the capital flows to our local mining entrepreneurs.

### *Venture capital market in SA*

Here there is an overwhelming response that the VC market is new in South Africa and this actually supports the proposition made. There are, however, some participants who believe that the VC market is developed. This could again be due to the fact that most venture capital in the South African mining industry for start-ups originates from off-shore. With the advent of the MPRDA we have, however, seen individuals pooling funds together to kick-start mining ventures, but this has been the case only for the past couple of years, and most of these projects are yet to be started, hence one can say the market is still new.

### *Lending criteria of banks in SA*

The proposal that the South African banks have strict lending criteria is supported by the responses. This is based on the risk proforma used by banks to assess business risks expressed by discount rates, which are much higher than the prime rates in most instances. The banks also require some form of down payment or a deposit, that they say is to prove commitment to the project by the entrepreneur who applies for a loan.

### *Mineral laws in SA*

Most respondents think that the new mineral laws of South Africa actually impede investment in the mining industry. The newly revised mineral laws actually moved the status from a free enterprise system to increased state involvement, with one major shift making the government a custodian of all mineral rights in the country.

Because of what many respondents were accustomed to in the past, including the large international mining companies operating in this country, the shift is seen in a negative light, and others actually believe that this will make the country to slide further on the investment destination rankings. Although this is a popular belief, there is no concrete basis to support this as we have recently seen increased investments in the sector instead.

### *Mining licence application process and timing*

Most participants want the lead time of obtaining mining permits to be as short as possible. There is a national backlog of applications, leading to opportunity losses for many because some entrepreneurs actually start negotiating for start-up capital during the licence application period. If the process is very lengthy, the VC interested in the project might end up withdrawing, as the necessary permits must be granted before a mining project can proceed to development. It is also easy to list on the JSE for equity funding when there is a mining right or licence in place. As can be seen, the long lead time to obtain the necessary permits has a negative impact on the ability of an entrepreneur to raise funding for a start-up.

### *Technical and financial skills of mining entrepreneurs*

All participants believe that the technical and financial skills of those that venture into the mining industry as entrepreneurs are almost critical. This also because of the inherent high risks in this industry, and therefore expertise in geological information and interpretation, mining, engineering, and financial data are required to be able to decide on the viability of these projects. The ability of an entrepreneur to raise start-up funding in this industry depends on the skills to define and present the investment proposal to investors.

### *Surety of start-up loans to mining entrepreneurs*

Many respondents agree that the government should assist mining entrepreneurs by providing surety for securing loans, except for one who does not think the government should be involved in business transaction between entrepreneurs and loan providers. Mining projects are highly capital-intensive and most small players do not have large assets that can be used as collateral when applying for loans.

## Conclusions and recommendations

The proposed model looks at the three tiers that exist when an investment in a new mining start-up occurs. It is vital that all three parties meet at a favourable point to all for a successful transaction to take place. The government's role in a developing economy like South Africa is to encourage investment in the minerals and technology sector by creating a favourable environment.

The model recommends changes to the current laws and making special provisions for all mining start-ups or projects in development stages until reaching full production or steady-state operations. The current formulae would be changed in most cases to reduce taxes and increase incentives. Changes to the fiscal laws would make it easy for mining entrepreneurs to raise debt funding for projects. The proposed changes are:

- The Royalty tax Formula should be based on company after-tax earnings/profits instead of revenue streams
- The maximum tax payable by mines in development stage should be capped at 2 per cent and 3 per cent for refined and unrefined minerals respectively
- The maximum thresholds for the VCC qualifying criteria to be increased for mining ventures to match the high capital requirements
- The government to issue bonds to stand surety for small mining companies needing to raise funding
- The banks to be encouraged to lend and or invest more in mining ventures by special tax formula similar to the Royalty tax.

The study was completed several years ago and needs to be extended to a larger group while taking into account current changes in regulations to make it more relevant.

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## The Author



### **Jacob Mothomogolo, *Projects Executive, Wesizwe Platinum Limited***

Jacob started his career 17 years ago in the mining industry after obtaining a B.Sc. in Mining from Wits University in 1994. He started as a trainee engineer in the Free State gold mines for Anglo-Gold where he rose to the level of middle management. He then left Anglo-Gold to join DeBeers group as Projects Mining Engineer in the planning and projects office. This is where he developed a passion for project management and he furthered his studies to obtain a post grad degree in project management. Jacob then later joined TWP Consulting in 2003 as Project's Mining Engineer where he did a couple of feasibility studies for brownfield's and greenfield's projects.

It is while at TWP that he did a lot of project work in countries like Zambia, Zimbabwe, Tanzania and Botswana doing due diligence studies, technical audits, competent person's reports and feasibilities. Jacob is also active in the Southern African Institute of Mining and Metallurgy-SAIMM where he sits on two committees as a member of council; past Chairperson of the Mining TPC and also serves on the ECSA's Mining PAC committee. Jacob left TWP in 2011 as a Senior Projects Manager also served on the Shadow Board of the company; he joined Wesizwe Platinum where he now heads up the projects office.

### Current Experience (Projects Executive)

Responsible for delivery of the company project(s) mainly the Bakubung Platinum Mine Project which is a flagship project of the company in a manner that will ensure value maximization to the stakeholders. "This we will do by ensuring maintenance and use of the mining license in compliance with the requirements of the MPRDA, and all other statutory requirements of the SLP, EMPR, MHSA, Tax and Companies Acts etc. Will work towards achieving acceptable cooperate governance standards (King iii) when executing the business of project delivery. The daily activities involve informing the board, EXCO, Project Steering committee teams on the project progress and also to get decisions ratified so as to facilitate project delivery and reporting to all other stakeholders. We will work closely with Owner's team and the EPCM project managers to give direction on all areas that requires client intervention and action".

