

# The potential impact of a resource rent tax on mines in South Africa

**L Venter**  
**21180253**

Mini-dissertation submitted in **partial** fulfillment of the requirements for the degree *Magister Commercii* in **South African and International Taxation** at the Potchefstroom Campus of the North-West University

Supervisor: Prof P van der Zwan

May 2015

## **ACKNOWLEDGEMENTS**

I would like to thank the following persons for their support and assistance during my studies:

- First of all my Heavenly Father who gave me the ability to complete my Masters degree;
- My family, in particular, my parents for their continued support and always acknowledging my achievements throughout my studies;
- Prof Pieter van der Zwan for his advice, guidance and encouragement;
- Staff of the Ferdinand Postma Library for helping with my research and providing me with the required sources; and
- David Levey who carried out the language editing of my dissertation.

## **ABSTRACT**

A problem South-Africa is facing is that the wealth created by mines (also called economic rent) may not yet get distributed satisfactorily evenly between the nation and investors. In an attempt to find a solution to the abovementioned dilemma, government initiated a feasibility study for the nationalisation of mines. This proposal was however waived for two reasons: firstly that it would be unaffordable for government to buy out private companies and secondly, that it would create discontent amongst foreign investors, which would result in them withdrawing access to financing. Consequently, the ANC, during 2012 in the SIMS report proposed a possible implementation of a resource rent tax (RRT), akin to Australia's, to ensure that the State receives a greater/more equitable share of the wealth. Developments in the mining industry since 2012, have drawn attention to two serious issues: labour related concerns and continued strikes as well as a reduction in foreign direct investment as a result of negative investor sentiment towards South Africa. These issues are directly related to the perception that the community (including mine workers) do not benefit fairly from the wealth created by mines, which results in ongoing labour unrests and subsequently in investment withdrawal. It would seem that even though no further consideration has been given to the implementation of a RRT since 2012, it may be regarded as a possible and sensible solution.

This study focuses on the possible impact on the taxation payable by the South African mining industry, if a RRT were to be introduced. Research has been conducted in order to obtain an understanding of the working of a RRT, to analyse South Africa's current tax regime, to develop a simple hypothetical case study to evaluate both the quantitative and qualitative impact of the introduction of a RRT system on South African mining tax (for both the investor and the state).

The study concludes that the introduction of a RRT can potentially result in a more fair distribution of resource rents between the investor and the state (community - rightful owners of the natural resources). Research however proved that this is likely to influence the investor's investment decisions which in turn may result in a general downturn in mining operations and profits. Based on the qualitative results of a case study, a RRT was proven to be inefficient due to the fact that it will only tax mining companies with a higher rate of return and in effect higher risk companies. As investors are prepared to take on high risk projects for the purpose of generating higher returns, the introduction of an RRT reducing this return might influence an investor's decision.

The potential impact on investors' decisions may be counteracted through further research with regard to variables used in the RRT model namely the percentage of tax charged and the required rate of return. A RRT is therefore proven to have some benefits, even though some aspects will require further evaluation.

**KEYWORDS:** Economic rent; Fiscal instruments; Investors; Mining tax; Resources; Resource rent; Resource rent tax; Return; Risk; Supernormal profits.

## OPSOMMING

'n Probleem wat Suid-Afrika in die gesig staar, is dat die welvaart geskep deur myne (ook bekend as die ekonomiese huur) moontlik nog nie bevredigend eweredig tussen die gemeenskap en beleggers versprei word nie. In 'n poging om 'n oplossing vir die bogenoemde dilemma te vind, het die regering 'n ondersoek inisieer na die haalbaarheid van die nasionalisering van myne. Hierdie voorstel is egter laat vaar om twee redes: eerstens dat dit onbekostigbaar sou wees vir die regering om 100% van privaat maatskappye uit te koop en tweedens dat dit ontevredenheid onder buitelandse beleggers sou veroorsaak wat sal aanleiding gee tot onttrekking van hul finansiering. In respons het die ANC in die "SIMS" verslag gedurende 2012 die moontlike implementering van 'n hulpbronhuurbelasting (soortgelyk aan dié van Australië) voorgestel om te verseker dat die staat 'n groter / meer billike deel van die rykdom deur mynbou projekte gegeneer sal ontvang. Met die aandag op ontwikkelinge in die mynbedryf sedert 2012, kom twee ernstige probleme aan die lig - eerstens arbeid verwante bekommernisse en voortgesette stakings en tweedens 'n verlaging in direkte buitelandse investering as 'n gevolg van negatiewe beleggerssentiment teenoor Suid-Afrika. Hierdie kwessies hou direk verband met die persepsie dat die gemeenskap (insluitend mynwerkers) nie 'n redelike voordeel trek uit die rykdom geskep deur myne nie wat aanleiding gee tot voortdurende arbeid onluste wat op sy beurt lei tot die onttrekking van buitelandse investering. Dit blyk dat, selfs al is geen verdere oorweging gegee aan die implementering van 'n hulpbronhuurbelasting sedert 2012, dit as 'n moontlike en sinvolle oplossing vir die bogenoemde dilemmas beskou kan word.

Hierdie studie fokus op die moontlike kwantitatiewe en kwalitatiewe impak op belasting betaalbaar deur die Suid-Afrikaanse mynbedryf, indien 'n hulpbronhuurbelasting implimenteer sou word. Navorsing is uitgevoer om 'n ontleding te doen en 'n begrip te kry van die werking van 'n hulpbronhuurbelasting, 'n ontleding te doen van Suid-Afrika se huidige belasting stelsel, 'n eenvoudige hipotetiese gevallestudie te ontwikkel ten einde die kwantitatiewe en kwalitatiewe impak van die bekendstelling van 'n hulpbronhuurbelasting stelsel op Suid-Afrikaanse mynbou (vir beide die belegger en die staat) vas te stel.

Die studie het bewys dat die bekendstelling van 'n hulpbronhuurbelasting potensieel kan lei tot 'n meer regverdigte verdeling van hulpbronne tussen die belegger en die staat (gemeenskap - regmatige eienaars van die natuurlike hulpbronne). Navorsing het egter bewys dat dit waarskynlik die belegger se investeringsbesluite sal beïnvloed wat in effek

kan aanleiding gee tot 'n algemene afswaai in mynbou aktiwiteit en winste. Gebaseer op die kwalitatiewe resultate van 'n gevallestudie, is 'n hulpbronhuurbelasting bewys om ondoeltreffend wees as gevolg van die feit dat dit net mynboumaatskappye met 'n hoër opbrengs en in effek hoër risiko sal belas. Aangesien beleggers bereid is in hoër risiko projekte te belê vir die doel om hoër opbrengste te genereer, kan die bekendstelling van 'n hulpbronhuurbelasting die vermindering van hierdie opbrengste die belegger se besluit beïnvloed. Die potensiële impak op beleggers se besluite kan teengewerk word deur verdere navorsing te doen rakende die veranderlikes wat gebruik word in die hulpbronhuurbelasting model, naamlik die persentasie belasting wat gehef sal word en die vereiste opbrengskoers. 'n Hulpbronhuurbelasting is dus bewys om 'n paar voordele te hê, selfs al vereis sommige aspekte daarvan verdere evaluering

**SLEUTELTERME:** Ekonomiese huur; Fiskale instrumente; Beleggers; Mynbou belasting; Hulpbronne; Hulpbronnuur; Hulpbronnhuurbelasting; Opbrengs; Risiko; Abnormale winste.

## **LIST OF ACRONYMS AND ABBREVIATIONS**

EBIT	Earnings before interest and taxes
MPRDA	Mineral and Petroleum Resources Development Act
MPRRA	Mineral and Petroleum Resources Royalties Act
MRRT	Mineral resource rent tax
NAR	Net assessable receipts
NPV	Net present value
RRT	Resource rent tax
SA	South Africa
SAIT	South African institute for tax practitioners
SARB	South African reserve bank
SARS	South African revenue services

## TABLE OF CONTENTS

Acknowledgements .....	
Abstract .....	
Opsomming .....	
List of Acronyms and Abbreviations.....	
<b>1. INTRODUCTION .....</b>	<b>1</b>
1.1 BACKGROUND TO THE RESEARCH AREA AND MOTIVATION OF TOPIC RELEVANCE.....	1
1.2 LITERATURE REVIEW OF THE RESEARCH AREA .....	4
1.3 PROBLEM STATEMENT .....	5
1.4 OBJECTIVES .....	5
1.5 RESEARCH METHOD .....	6
1.6 CONCLUSION.....	8
<b>2. RESOURCE RENT TAX (“RRT”) ANALYSIS.....</b>	<b>9</b>
2.1 INTRODUCTION .....	9
2.2 HISTORY OF HOW THE RESOURCE RENT TAX DEVELOPED.....	9
2.3 BASIS OF CALCULATION OF TAX LEVIED IN TERMS OF A RESOURCE RENT TAX.....	11
2.4 PRINCIPLES OF A RESOURCE RENT TAX REGIME, INCLUDING THE COMPONENTS OF A RESOURCE RENT TAX: .....	14
2.4.1 Determination of expected return on investment by investors .....	14
2.4.2 Economic and resource rent .....	17
2.4.2.1 Determination of economic rent.....	17
2.4.2.2 Determination of resource rent .....	19
2.5 ADVANTAGES AND DISADVANTAGES OF A RESOURCE RENT TAX.....	21
2.6 CONCLUSION.....	23
<b>3. DETAIL STUDY ON CURRENT SOUTH AFRICAN TAX REGIME.....</b>	<b>24</b>
3.1 INTRODUCTION .....	24
3.2 DETAILED ANALYSIS OF THE CURRENT TAX REGIME IN SOUTH AFRICA .....	24
3.2.1 Corporate income tax.....	24
3.2.1.1 General income tax provisions .....	24
3.2.1.2 Withholding tax on dividends .....	32



## TABLE OF CONTENTS (CONTINUED)

3.2.1.3	Withholding tax on interest .....	33
3.2.2	Royalties .....	34
3.3	CONCLUSION.....	36
<b>4.</b>	<b>HYPOTHETICAL CASE STUDY COMPARING THE QUANTITATIVE AND QUALITATIVE IMPACTS OF TWO ALTERNATIVE TAX REGIMES.....</b>	<b>38</b>
4.1	INTRODUCTION.....	38
4.2	HYPOTHETICAL CASE STUDY .....	38
4.2.1	Hypothetical model .....	38
4.2.2	Assumptions made with regard to the model.....	41
4.3	ALTERNATIVE TAX REGIMES TO BE EVALUATED .....	42
4.3.1	Alternative 1 – Current tax regime in South Africa.....	42
4.3.2	Alternative 2 - Introduction of a Resource Rent Tax .....	42
4.4	SCENARIOS DESIGNED FOR SENSITIVITY ANALYSIS.....	43
4.5	RESULTS OF QUANTITATIVE EVALUATION IN CONJUNCTION WITH QUALITATIVE CONSIDERATIONS .....	45
4.5.1	Transitional arrangements and the investor’s reaction to change .....	45
4.5.1.1	Required rate of return .....	47
4.5.1.2	Percentage of economic rent to be taxed .....	48
4.5.2	Evaluation of implementing a resource rent tax against results of quantitative evaluation and objectives of a good tax regime.....	49
4.5.3	Evaluation of implementing a resource rent tax against set objectives of mineral legislation as required by the MPRDA .....	53
4.6	SUMMARY OF FINDINGS .....	54
4.7	CONCLUSION.....	55
<b>5.</b>	<b>CONCLUSION AND RECOMMENDATIONS .....</b>	<b>56</b>
5.1.	Research objectives and overall conclusions drawn .....	56
5.2.	Recommendations for future research.....	57
5.3.	Final conclusion.....	58
<b>6.</b>	<b>BIBLIOGRAPHY .....</b>	<b>59</b>

**TABLE OF CONTENTS (CONTINUED)**

**APPENDIX A:** Tax payable under each scenario for both alternatives .....

**APPENDIX B:** Net present value for the taxpayer and the state respectively under each scenario.....

**APPENDIX C:** Comparison of tax payable yearly between two alternatives .....

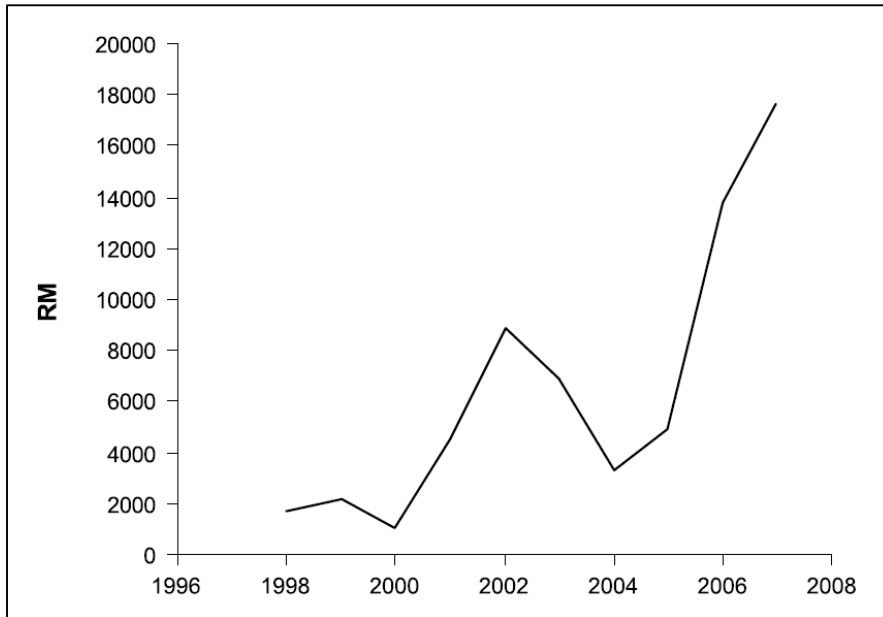
**APPENDIX D:** Graphical representations of results displayed in Appendix C.....

## **1. INTRODUCTION**

The following declaration was made in the Freedom Charter (1995): “The national wealth of our country, the heritage of South Africans, shall be restored to the people. The mineral wealth beneath the soil, the banks and monopoly industry shall be transferred to the ownership of the people as a whole. All other industry and trade shall be controlled to assist the wellbeing of the people. All people shall have equal rights to trade where they choose, to manufacture and to enter all trades, crafts and professions.” (ANC, 2012:21). From the above, it is unambiguous that the aim is to distribute South Africa’s wealth amongst those to whom it rightfully belongs, the people of South Africa. Dore (1990:459) corroborates this, stating that the resources of a country are of natural origin, therefore belonging to the people of that country. Section 2 of the Mineral and Petroleum Resources Royalty Act 28 of 2008 states that a royalty is payable to the National Revenue Fund by any person with regard to the transfer of mineral resources that have been extracted from within South Africa. Mineral rights, therefore, indirectly belong to the people of South Africa as a whole and therefore the nation should be compensated for any depletion thereof, due to mining activities. Governments achieve this by way of fiscal instruments to collect tax that may be utilised for the benefit of the community.

### **1.1 BACKGROUND TO THE RESEARCH AREA AND MOTIVATION OF TOPIC RELEVANCE**

South Africa is facing the problem of the wealth created by mines (also known as economic rent) not yet being satisfactorily distributed evenly between the nation and investors; as is the case in most transitional and developing economies (Andrews-Speed & Rogers, 1999:222). A perception that the mining industry is already making a fair contribution, however exists. As may be seen from Graph 1.1 below, mining taxes have increased significantly since 1998, which supports these perceptions. The table indicates tax revenue from mines (in millions) from 1989 to 2008.



**Graph 1.1 Mining tax in South Africa (Sorensen, 2011:179)**

In most instances, 100% of capital expenditure incurred by mines is granted as a deduction against taxable income in the first years of operations (Section 15 and 36 of the Income Tax Act 58 of 1962). This results in newly established mines not paying income tax for several years after incorporation, due to capital expenditure allowances being carried forward from one tax period to the next (Palmer, 1980:530). Initially, the total wealth created by a new mine will be for the benefit of the investors only, and the surrounding community will draw no benefit whatsoever from the mine for this period. Various possible reasons may exist to justify this benefit to the investor, such as, for example, to allow investors to recoup their capital investments and to compensate them for the exploration risk they have to take (Boadway & Keen, 2009:4).

Although the government's search for a solution to the abovementioned dilemma began with a feasibility study for the nationalisation of mines, the proposal was waived for two reasons: firstly, that it would be unaffordable for government to buy out private companies; it is estimated that it would cost R1 trillion to buy out 100% of listed mine companies – the total amount of the national budget – and secondly, it would create discontent amongst foreign investors, possibly even causing them to withdraw access to financing (Paton, 2012; Hope, 2014:9; Garnaut, 2010a:352). As a result, the ANC (2012:255) proposed the possible implementation of a resource rent tax, similar to that exercised in Australia, to ensure that the State receives a greater/more equitable share of the wealth. This is, however, easier said than done. Since South Africa and Australia are two very different countries and therefore not comparable, an in-depth investigation

has been carried out to analyse the relevance, suitability and impact of such a fiscal instrument on the mining industry in South Africa.

Changes in the mining industry, since 2012, draw attention to two serious issues: firstly, labour related concerns and continued strikes and secondly, a reduction in foreign direct investment. Labour unrest continued for more than a year after the Marikana tragedy in August 2012 (Botiveau, 2014:128). It may be argued that this unrest is a result of miners' perceptions that they are being underpaid and that they do not receive their fair share of the wealth created by mines (Nevin, 2012:72). As Jansen, (2013, cited in Hope 2014:2) stated, "From labour's perspective, there is still inequality in the system". Harvey (2014:2) argues that ordinary people are of the opinion that they did not receive any benefit from the commodity boom, regardless of the ongoing growth in the mining industry. This supports the view that there is an element of unfair distribution of benefits gained from the mining sector.

The second challenge with which South Africa and its mining industry is faced, is the withdrawal of foreign direct investment. Hope (2014:9) points out that the flow of such investment into South Africa decreased by 24% over the period 2011 to 2012 as per the United Nations Conference on Trade and Development (UNCTAD). He further states that this is a result of "negative investor sentiment" towards South Africa, particularly the mining industry. It may be concluded that the labour unrest is but one of the factors contributing towards this "negative investor sentiment". As per KPMG, (2014, cited in Hope 2014:8), labour is an issue that will have to be resolved in order for South Africa to maintain its global competitiveness, as investors may choose to invest elsewhere. The same comments were made by Du Venage (2014:42). KPMG goes on to point out that in order for South Africa to overcome these challenges, communities, government, investors, companies and every other stakeholder will have to co-operate.

Some of the solutions proposed by Harvey (2014:3) include crafting of labour legislation through an inclusive process, where the public is able to participate in setting the rules, especially in the mining industry that constitutes a labour-intensive sector. Another recommendation made by him (Harvey, 2014:1) was that mining and labour policies should be integrated in such a way as to promote development objectives that will result in mutual gain to all stakeholders. This is a very broad statement as it could refer to *any* policy, whether introduced by mining companies, government or labour associations. The proposal made by the ANC for implementation of a resource rent tax (RRT) would

be a policy introduced by government (specifically, the National Treasury and Department of Minerals).

Since the release of the SIMS report during 2012, no further investigation into the proposal has been undertaken and the idea seemed to have been abandoned. However, in a recent publication by Bowman and Isaacs (2014:14) it was argued that the implementation of the RRT could be a solution to reducing royalties, which taxes output, irrespective of a mine's profitability. This in turn, could allow for mines to remain profitable and use funds for skills training and mining development, regional development and fiscal stabilisation, during downturns. Finding solutions to these areas of development could result in reduced strikes and interruptions in the mining sector. It would seem that even although no further consideration has been given to the implementation of an RRT, it is still regarded as a possible and sensible solution. The feasibility needs to be determined before government is able to consider making these changes. This study was conducted in order to determine the probability for success of a RRT (from the perspective of both government and mining companies).

## **1.2 LITERATURE REVIEW OF THE RESEARCH AREA**

Various studies undertaken on the workings, advantages, disadvantages and other factors to keep in mind while implementing a RRT are mostly focussed on that implemented in Australia. Before performing an analysis of the research problem for this study, the purpose behind a RRT and how this instrument should be applied, needs to be investigated. The existing literature in this regard was utilised to gain an understanding of this type of tax.

Jean-Baptiste, a French politician (cited by Tshikovhi & Kalagadi Manganese, 2012:23) once said: "The art of taxation consists in so plucking the goose as to obtain the largest amount of feathers with the least possible amount of hissing". Stephen Meintjes, a mine analyst at Imara SP Reid (cited by Faku, 2012) suggested that the extension of the gold formula to the rest of the mining industry would be an easier solution than implementing a RRT; in other words, a proposition to only amend the current regime instead of instituting a new fiscal instrument. This study however focusses on introducing a new fiscal regime.

Many studies have attempted to evaluate the possibility of implementing a hybrid system – in other words, a fiscal regime, where more than one instrument is implemented in an

attempt to maximise the benefits and eliminate the disadvantages through a combination of instruments. Hogan (2012:251) suggested a hybrid system as an alternative. This involves both a profit based RRT and output based royalties. She (Hogan, 2012:256) is of the opinion that a hybrid system will minimise the risk for both government and investors and will provide for a good balance between the important advantages and disadvantages of the respective fiscal instruments. Hogan's argument is supported by Garnaut (2010a:352) who also suggests a hybrid system which entails the use of relevant fiscal instruments during the four phases of the development of a mine: the exploration phase; investment in new mines; investment in expansion of old mines; and production of established mines. The risk for investors is that the return on their investment may differ significantly from their expected return, due to increased taxation, whereas Government's risk is that possible fluctuations in mining income will result in fluctuations in government's income (taxation collected) as well. A hybrid system should have to be structured in such a way as to minimise both government and the investor's risk during each phase. From the above proposed systems, it is obvious that there is not only one possible solution to the problem under review. This study, however, focuses on the use of a resource rent tax in addition to the current regime in South Africa.

### **1.3 PROBLEM STATEMENT**

The problem statement is articulated as follows: What will the possible quantitative and qualitative impact be on the taxation payable by the South African mining industry, if a RRT were to be introduced?

### **1.4 OBJECTIVES**

**The main objectives for this study include:**

- 1.4.1 To analyse and obtain an understanding of the working of a RRT (addressed in Chapter 2);
- 1.4.2 To analyse South Africa's current tax regime (addressed in Chapter 3); and
- 1.4.3 To develop a simple hypothetical case study to determine the quantitative impact of the introduction of a RRT system on South African mining tax and to conduct a study on the qualitative impact of implementing a RRT in South Africa (addressed in Chapter 4).

## 1.5 RESEARCH METHOD

Research has been conducted in **3 phases** in order to achieve the **objectives** as set out above. Each of these phases contributes to the research methodology. A proposed research methodology, as well as a description of the research undertaken during each phase, are provided below:

### RESEARCH METHODOLOGY:

Ontology and epistemology are critical in determining the research methodology as this directly influences the research paradigm within which the research has been conducted. Ontology and epistemology refer to how knowledge is viewed and what is considered to be knowledge (Coetzee *et al.*, 2014:28; Scotland, 2012:9). There are two different views of the world, within which research may be conducted: a “realist view” and a “relativist view”. Coetzee *et al.* (2014:27) state that a relativist view is one where reality depends on more than one factor or circumstance (ontology). This view of the world in turn influences what is considered to be knowledge (epistemology). This study focuses on gaining knowledge concerning the effect that the implementation of a resource rent tax would have on both the investor and the government, from a qualitative as well as a quantitative perspective. Since this effect (reality), depends upon various factors and circumstances (as touched on in section 1.2 above), a relativist view is applicable. The hypothetical case study that was carried out and which is discussed in Chapter 4 (due to assumptions made and the fact that only a hypothetical scenario is used) does not constitute a “verifiable experiment” that provides evidence on the “objective truth” as would be the case in a positivist paradigm, as defined by Coetzee *et al.* (2014:28). Mack (2010:6) states that the purpose of conducting research in a positive paradigm is to prove or disapprove a hypothesis. Chapter 4 merely assesses the possible outcomes if all other variables remain unchanged.

The view followed in carrying out research necessarily determines the research paradigm followed. Coetzee *et al.* (2014:28) state that an *interpretivist paradigm* is the paradigm in which research will be conducted where a relativist view is taken. They further explain that in respect of research conducted in an *interpretivist paradigm* (also known as an “anti-positivist” or “naturalistic paradigm”), the purpose of the research is to “gain an understanding and probe into unexplored dimensions of phenomena” rather than to prove a “single truth” (Coetzee *et al.*, 2014:28; Scotland, 2012:11). As this study



is conducted in an attempt to gain a more subjective understanding and to evaluate various outcomes, research was conducted using an interpretivist paradigm.

For the purposes of this study, the critical theory/critical analysis methodology was most appropriate. Coetzee *et al.* (2014:30) describe this methodology as follows: “Critical theory is a school of thought that stresses the reflective assessment and critique of society and culture. Rather than naming and describing, the critical theorist tries to challenge guiding assumptions. Critical theorists usually do this by beginning with an assumption about what is good (e.g. democracy) and asking people in a social group, culture or organisation to reflect on and question their current experience with regard to the values identified.” This methodology has been very clearly applied in Chapter 4 in particular, where the qualitative effect of the implementation of a RRT was evaluated against a set of criteria (the “norm” of what is regarded as a good fiscal instrument). In order to reach the set objective of this research methodology, Chapter 2 and 3 support the conclusions drawn. The discussion below on each of the 3 phases provides more detail regarding the role of each in successfully applying the research methodology.

An inductive approach was followed to arrive at the conclusion of this study. Coetzee *et al.* (2014:28) and Cohen *et al.* (2007:22) describe inductive reasoning as logic that “starts with an observation and then specific instances or occurrences are used to draw conclusions about entire classes or objects or events – a sample is observed and then conclusions are drawn about the population from which the sample is selected.” The observation in this study constitutes the theoretical research conducted with regard to the implementation of a RRT. As the study progressed, specific scenarios or instances were qualitatively and quantitatively evaluated in order to draw conclusions.

Three research methods were primarily used in carrying out the study. The first was utilising available literature. This was applied in all sections of this study, in particular Chapters 2 and 3, as these focus on a theoretical understanding gained from the said literature. The second method employed the views of others in literature. This method was particularly crucial in the fourth chapter, where the qualitative impact of implementing a resource rent tax was evaluated. Various opinions were gathered and evaluated to draw conclusions. A further research method also applied in Chapter 4 was that of utilising a framework/norm to evaluate results. As discussed earlier, a set of criteria (norms) was used to evaluate the use of a RRT in South Africa as a fiscal instrument. Lastly, a simple hypothetical case study, supported by actual trends in income and expenditure incurred by mines in South Africa, and used as a research

methodology to determine the quantitative impact of introducing a RRT, was designed. Similar studies have been conducted by Palmer (1980:531), Thampapillai *et al.* (2014:169), Fraser and Kingwell (1997:106-108) and Abdo (2014:48-56), and the model has been used to determine the impact on tax between the two alternatives in different scenarios where variables have been adjusted. Not only was it necessary to compare the physical cash flow impact in a given year for each of the scenarios, but the total net present value for both the investor and government needed to be calculated over the total lifespan of the investment (of the mine) to accurately identify the best option. A similar study was conducted by Otto *et al.* (2006:137-182) where the impact of the net present value for a mining project was evaluated investigating three different scenarios.

## **1.6 CONCLUSION**

Research was conducted in three phases, each represented by a chapter. Chapter 2 offers a detailed study done to gain understanding of the working of a resource rent tax, requiring an in-depth investigation and critical evaluation based on the respective advantages and disadvantages of such a system. This research was conducted using available literature and views of other researchers and authors presented there. Chapter 3 adopts the same research approach used in Chapter 2, consulting available literature and the views of others to gain an in-depth understanding of the current South African tax system and perform a detailed analysis of the said tax system. Chapter 4 includes the development of a simple, hypothetical case study to determine the monetary impact of a RRT system on South Africa's mining tax and an evaluation of the qualitative impact of implementing a RRT in South Africa. The research in this chapter is conducted through making use of knowledge gained from the two prior chapters.

A broad overview of the intended research has been discussed in the preceding paragraph. Chapter 2 moves forward with a theoretical study on the workings of a resource rent tax. This constitutes phase 1 of the research methodology and aims to meet the first research objective, as defined in section 1.4.1.

## **2. RESOURCE RENT TAX (RRT) ANALYSIS**

### **2.1 INTRODUCTION**

Natural resources obtained through mining activities form a substantial part of South Africa's wealth. This is evident from the mining industry's contribution to the gross domestic product (GDP) of 16.7% during 2012, amounting to a contribution of 14.1% to total direct corporate taxes paid in South Africa (Hope, 2014:9) as well as the fact that South Africa is the world's largest producer of platinum and chromium (HIS Global Inc., 2014:19). As already contended in the introduction to Chapter 1, the community ought to benefit from this wealth. Government extracts the community's part of this wealth through the use of fiscal instruments (taxes). The argument is that government should maximise the amount of taxes that it is able to collect without disturbing the investment decisions of investors in these mining operations, while still keeping taxes low enough not to chase investors away (Lund, 2011:234). Resource Rent Taxation has been suggested by the ANC in the SIMS report (2012:255) as one of the ways in which government could maximise tax revenue collected on behalf of the community without unfairly depriving investors from their return on investment. In this chapter, the working and components of a RRT are analysed and evaluated, based on a literature study and various opinions presented over time, in order to gain an in depth understanding of this type of fiscal instrument as per the first objective of this study, set out in section 1.4.

### **2.2 HISTORY AND DEVELOPMENT OF THE RESOURCE RENT TAX**

The RRT (also known as the Resource Super Profit Tax or RSPT) was first proposed by Garnaut and Clunies Ross (1975:273) to ensure that more of the economic benefits derived from mining operations (natural resources) are distributed to the community (Lund, 2011:234; Fane, 2012:181). The problem with other tax regimes, such as royalties, proportional company income taxes and other charges is that they are predetermined and will not be adapted to the profitability of a mining project. In the case of proportional income taxes, a fixed percentage tax is charged, regardless of the profit percentage realised by the mining company. Government will therefore not be able to increase or decrease the amount of tax revenue collected when a mining project is more or less profitable than initially anticipated. In periods of high profitability, government will therefore receive less than a fair portion of the benefits derived from the mining operation (Garnaut and Clunies Ross, 1975:273). Based on research carried out by Garnaut and Clunies Ross (1975:274) and Fraser and Kingwell (1997:104), the

government's expected revenue from mining projects (natural resource projects) is likely to increase when a regime, under which tax is introduced and the rate increased as profits exceed certain internal rates of return (investors' required rate of return) exists as would be the case if the proposed RRT is imposed.

Various characteristics of the RRT regime (discussed in the next few sections of this chapter) enable mining companies to avoid taxes if development costs are very high, or when profits are very low, during the commencement years. Government will however, be capable of collecting a large portion of revenue as soon as profitability increases above the internal rate of return without having such a significant effect as to discourage investment in either new or existing projects or disturb production decisions (Garnaut and Clunies Ross, 1975:273; Fraser, 1997:107)).

Garnaut and Clunies Ross (Garnaut, 2010b:6-7) have identified six main forms of mineral rent taxations: a flat fee; a specific or ad valorem royalty (based on value of production); a higher rate of proportional company income tax (HRIT); a progressive profits tax; the RRT and the Brown Tax (BT). A flat fee constitutes a once-off fee paid for the right to extract minerals, regardless of the potential future profits and outputs generated from mining activities. This form of taxation might be more effective when implemented in combination with another resource tax that depends on the outcome of future activities. Specific or ad valorem royalties relate to taxes levied on the volume or value of production (regardless of minerals sold and related profits realised). A HRIT is similar to the conventional income tax, except that a higher rate is applied to the corporate sector. The RRT and BT are, in principle, exactly the same, with the exception that losses are carried forward (where deductible expenditure exceeds taxable revenue), will attract a cash payment in the case of the BT and will simply be uplifted and carried forward to the following year in the case of a RRT (Garnaut, 2010a:349-350; Hausman, 2011:240; Fane, 2012:181). These different types of mineral taxes are also discussed and evaluated in various other research papers (Boadway & Keen, 2009; Perroni & Whalley, 1998; Fane, 2012; Lund, 2011; Hausman, 2011; Guj, 2012)

These diverse types of tax are also able to be combined in hybrid systems. Rates may vary according to the type of resource, the stage of the natural resource project, the specific risks associated with a natural resource project and the like and, according to Garnaut, may be set in general legislation, negotiated or determined through a competitive process. This study examines the RRT, introduced in Australia as a mineral fiscal instrument, during 2012 (Thampapillai *et al.*, 2014: 169).

## 2.3 BASIS OF CALCULATION OF TAX LEVIED IN TERMS OF A RESOURCE RENT TAX

In order to understand the complete workings of the RRT and to gain an overall idea of how the different components of the RRT system fit together, a brief description on the physical calculation of the tax levied is provided below. Amounts used are fictitious and only for illustrative purposes.

Garnaut and Clunies Ross (1975:286) included an Appendix: “Assessing the Resource Rent Tax” in their study. This illustrates the exact steps in the actual calculation of the RRT. In the abovementioned appendix, reference is made to the terms “assessable receipts”, “deductible payments” and “net assessable receipts”. In order to completely comprehend the calculations, the reader is requested to refer to the respective definitions set out in **Table 2.3.1**. This section employs exactly the same assumptions as were used by Garnaut and Clunies Ross (1975:286-287).

**Table 2.3.1**

<b>Term</b>	<b>Definition</b>
<b>Assessable receipts</b>	All receipts of the operating company other than receipts in the nature of provision of capital or repayment of capital
<b>Deductible payments</b>	All payments by the company other than payments in the nature of repayment of capital, provision of capital or rewards for the provision of capital (including payments of any tax other than RRT)
<b>Net assessable receipts</b>	The excess of all “assessable receipts” over “deductible payments” in any given year

In a report released by Deloitte (2011:1), details were provided on how the RRT implemented in Australia is calculated. According to this report, the mineral resource rent liability is calculated as the excess of “mining profit” after the deduction of “MRRT allowances” multiplied by the “MRRT rate”. Effectively, this calculation results in an amount equal to the total resource rent, as the MRRT rate represents the percentage of economic profit/rent (revenue less allowances) that relates to rent generated from resources only. Furthermore, “mining profit” is defined as mining revenue less mining expenditure, where mining expenditure excludes financing expenditure and downstream

costs of the taxing point (Deloitte, 2011:2). “Mining allowances”, in order of application, include royalty allowances, transferable royalty allowances, pre-mining loss allowances, mining loss allowances, starting base allowances, transferred pre-mining loss allowances and transferred mining loss allowances. In the above, the “mining expenditure” and “MRRT allowances” would represent the “deductible payments” as defined by Garnaut and Clunies Ross (1975:286).

During the early stages of a natural resource project, the deductible payments will most probably exceed the assessable receipts due to the extensive start-up costs of a mining company (Boadway and Keen, 2009:5). This will result in negative net assessable receipts (NAR). Garnaut and Clunies Ross (1975) first proposed that the NAR be carried forward at an interest rate equal to cost of capital, since these “tax credits” will, unlike a Brown tax, become worthless as they will not be paid out by government (Fane, 2012:184). In terms of a RRT, these NAR will therefore be accumulated each year, with all previous years’ being increased by a certain percentage, say 10%. This would mean that the NAR of previous years, increased by 10% for each passing year, is added to the NAR of the current year to arrive at the accumulated NAR. As long as the accumulated NAR remains negative, no RRT will be charged. The moment the NAR becomes positive (due to higher profits in later years of production), RRT will be charged at a certain percentage, say 50%. Different thresholds may be put into place by charging an extra percentage of tax, say 25%, when the NAR (accumulated at a higher percentage, say 20%) is realised. This example is better illustrated in **Table 2.3.2** (Garnaut and Clunies Ross, 1975:286).

The elements used in the physical calculation of the RRT liability have been identified in the preceding sections – these variables are analysed and discussed in detail in subsection 2.4.

**Table 2.3.2**

Year	Assessable receipts	Deductible payments	NAR, (2) – (3)	Accumulated value of NAR of current year and previous years (accumulated at 10% interest)	Tax on returns over 10% threshold at 50% rate of tax	Accumulated value of NAR of current year and previous years (accumulated at 20% interest)	Tax on returns over 20% threshold at 25% rate of tax	Total tax, (6) + (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	0	100	-100	-100	-	-100	-	-
2	0	300	-300	-410	-	-420	-	-
3	50	100	-50	-501	-	-554	-	-
4	200	50	150	-401	-	-515	-	-
5	200	50	150	-291	-	-486	-	-
6	200	50	150	-170	-	-412	-	-
7	200	50	150	-37	-	-344	-	-
8	200	50	150	109	54.5	-263	-	54.5
9	200	50	150		75	-166	-	75
10	200	50	150		75	-49	-	75
11	200	250	-50	-50	-	-109	-	-
12	200	50	150	95	47.5	19	4.75	52.25
13	200	50	150		75		37.5	112.5
14	200	50	150		75		37.5	112.5
15	200	50	150		75		37.5	112.5

*(Garnaut and Clunies Ross, 1975:286)*

## **2.4 PRINCIPLES OF A RESOURCE RENT TAX REGIME, INCLUDING THE COMPONENTS OF A RESOURCE RENT TAX**

In the following section, the different components taken into account in the calculation as discussed in section 2.3 are analysed. In section 2.3 assumptions were made about the percentages used for calculation purposes, but in reality, these percentages have to be set with great care and after much consideration, taking into account all relevant circumstances related to the mining industry of a specific country or type of natural resource project. It is important to examine the different assumptions and variables that might differ between natural resource projects and that need to be taken into account in personalising the RRT to be appropriately applied to a specific natural resource project (Palmer, 1980:522). The percentages of expected return on investment, economic rent and resource rent are discussed in detail in the following three subsections.

### **2.4.1 Determination of Expected Return on Investment by investors**

Investors will only be attracted to a natural resource project if they expect to earn sufficient return on the investment they make; or simply said, if they received greater benefit from the investment than they originally invested. The expected return on investment, also known as the uplift rate (Hogan and McCallum, 2010:21) or the supply price of investment (Garnaut and Clunies Ross, 1975:273), therefore refers to that which the investor expects to receive in return for the capital amount invested. This rate is derived from an investment perspective, where a weighted average rate is calculated, taking into account the possible outcomes and the probability of each outcome's occurrence (Garnaut and Clunies Ross, 1975:273). As per Solomon (2012:148), the threshold rate-of-return used in the resource rent model normally incorporates a risk premium on a risk-free rate, which typically would be the long-bond rate of the country in question. The risk-free rate would reflect the generic risk specific to the country while the risk premium would be representative of the risk specific to the sector (here, mining). Solomon (2012:148) further states that the risk premium in emerging economies varies with the stability of a country's political stability, but would typically be around 5%.

In designing a tax regime to be levied on returns derived from investments, care has to be taken in operationalising the notion of rents (returns) to include all relevant costs of the actions at issue, as failing to do so could result in tax on these returns distorting the investor's decisions (Boadway & Keen, 2009:4). Based on the above discussions and research performed by Boadway and Keen (2009:4), it is clear that the investor's required rate of return will be influenced by a great number of variables, including compensating the investor for the following: risk taken by the investors; opportunity cost of revenue forgone by the consequent inability to



extract the resource in future or use it for another purpose as well as quasi-rents, meaning rents derived from a previous outlay of sunk costs. These considerations are discussed in detail, below.

### **Risk adopted by investors:**

Substantial capital investments required during the long exploration and pre-production periods of a mine, during which no or little revenue is generated, often expose companies and their investors to significant risks (Guj, 2012:3). Guj adds that the generally long life span of mining projects, in combination with the volatility of commodity prices as well as other technical and environmental uncertainties inherent in individual mining projects, increases the investor's risk even more. In the SIMS report (ANC, 2012:21) it was also stated that the "Normal rate of return" to capital should be calculated as the sum of a risk free rate of return and a risk premium that compensates investors for their risk incurred. It is therefore a given that investors take on a great amount of risk. Cawood and Oshokoya (2013:54) discuss the sharing of rents generated in mining projects between government, the public and the company (investors). They highlight the fact that government and the public are impartial as to the share allocated to them, whereas the investor takes a different view, arguing that the entrepreneurship provided by them optimises the profits made, and without a reasonable share of the rent allocated to them, they would have no incentive to employ their skills and wits to maximise the return. Cawood and Oshokoya therefore conclude that the method developed for sharing returns should take into account the "peculiar risky nature of the mining business", and advise that investors should be respected for their "unusual appetite for taking risks". Boadway and Keen (2009:43) also emphasise the fact that the investors' rate of return should take into account the "risk associated with a project and, importantly, the extent to which these are diversified across the company's entire range of activities". At the same time, the risk premium should be adjusted for any opportunities (due to shareholders' influence) to diversify and ultimately reduce risks within a wider portfolio of assets.

As per a study conducted by Solomon (2012:45) certain substantial risks inherent to the mining sector were identified. These include long exploration and project gestation periods; large amounts of sunk and immovable capital accompanied by high levels of economic and political risk; uncertain geological or commercial outcomes as well as uncertain future revenues. Solomon further stated that these risks would be the result of one or more of five possible scenarios: volatile and unpredictable mineral prices; long periods of production ramp-up and operation to achieve break-even; concomitant exposure to political and policy instability; potentially significant environmental impacts requiring large costs on closure of the mine as well as support to affected local communities.

### **Opportunity cost of alternatives given up:**

In order to understand the impact which opportunity cost could have on the investor's required rate of return, the meaning thereof has first to be understood. A representative definition of opportunity cost taken from an accounting context is "the benefit foregone by selecting one alternative in preference to the most profitable alternative" (Vigario, 2007:442). Boadway and Keen (2009:4) refer to opportunity cost as "hoteling rent" following the classic treatment of these issues by hoteling. This is further referred to by Boadway and Keen as the revenue foregone in the future when the resource is presently being extracted. It is explained that this hoteling rent will only have an effect on an investor's decision at a specific point in time, but will be irrelevant when considering the benefit of a project over its total life span. Another form of opportunity cost that might influence an investor's decision, is foregoing the opportunity to invest elsewhere so as to invest in the specific mining project. This goes hand in hand with the risk free rate of return proposed as a basis for determining the investor's required rate of return (ANC, 2012:21) mentioned above.

In theory, this seems like a fairly simple cost to identify, but in practice, it would in fact be a very difficult quantification. The opportunity cost would probably differ from investor to investor and from project to project. There is no set formula for calculating the opportunity cost and also no single percentage that would fit all scenarios.

### **Quasi-rents:**

Boadway and Keen (2009:5) define quasi-rents as "rents whose existence derives from previous outlay of sunk costs". Based on this definition, it is clear that the investor needs to be compensated for any returns that will flow from a project, purely due to cost already incurred on that project. The start-up phases of a mining project (exploration and development) involve substantial capital outlays (Boadway and Keen, 2009:5). Before these phases are initiated, investors have only an expectation / estimate of the output the mine could yield in future. Uncertainty is substantially resolved after the exploration phase has been completed. This is where all costs associated with exploration have become sunk costs and the return expected from the project, less expected costs from development and extraction phases, will be regarded as quasi rents (Boadway and Keen, 2009:5). From this, it is clear that the quasi-rent will vary, depending on the outcome of completed phases and the point in the mining project's life cycle when the quasi-rent is determined. Once again, as with opportunity cost discussed above, there is no clear cut percentage that will satisfy every scenario.

Based on all the aspects discussed above needing to be taken into account when determining the investor's required rate of return, it may be concluded that careful consideration has to be given to determining this rate, as any unexpected deviations from the investor's initial expectation would result in a distortion of the investor's investment decisions. It is also critical that in determining the required rate of return, all the costs discussed above should be evaluated individually for each mining project, as each scenario is unique (Freebairn & Quiggin, 2010: 385).

## **2.4.2 Economic and Resource Rent**

In the researcher's opinion, neutrality is probably the most important requirement for a successful fiscal policy. A neutral policy is one where the tax levied will not influence the investor's decision regarding investment, production and trading. In order to achieve neutrality, nothing more and nothing less than the economic rent should be extracted (Garnaut, 2010a:347). To fully understand the above, a distinction should be made between resource rent and economic rent.

### **2.4.2.1 Determination of Economic Rent**

In order to understand how economic rent is determined, the definition of economic rent should be understood. **Economic rent** refers to the total surplus of revenue above the risk adjusted rate of return as required by investors (therefore the supernormal profit). The economic rent is represented by return derived from various sources other than just mineral resources (Hogan, 2012:249). Some of these sources include ownership of land; access to government licences to operate a certain type of business, where the amount of licences granted is limited (e.g. Intellectual property rights); monopolistic control over technology or a certain market; superior management skills; innovation in implementation and adoption of technology; better locations; and barriers to competition (Garnaut, 2010b:5; Hogan, 2012:249; Boadway & Keen, 2009:4).

#### **Calculating economic rent:**

As per Garnaut (2010b:5): "**Economic rent** is the excess of total revenue derived from some activity over the sum of the supply prices of all capital, labour, and other 'sacrificial' inputs necessary to undertake the activity". Economic rent will therefore also exclude the investor's required rate of return (named the "prices of capital" in the definition above). Calculating economic rent and variations of rent amounts over time may become complex due to the fluctuating nature of international commodity prices as well as technological changes to production processes, affecting production costs (Cyan, 2010:10). Economic rent generated

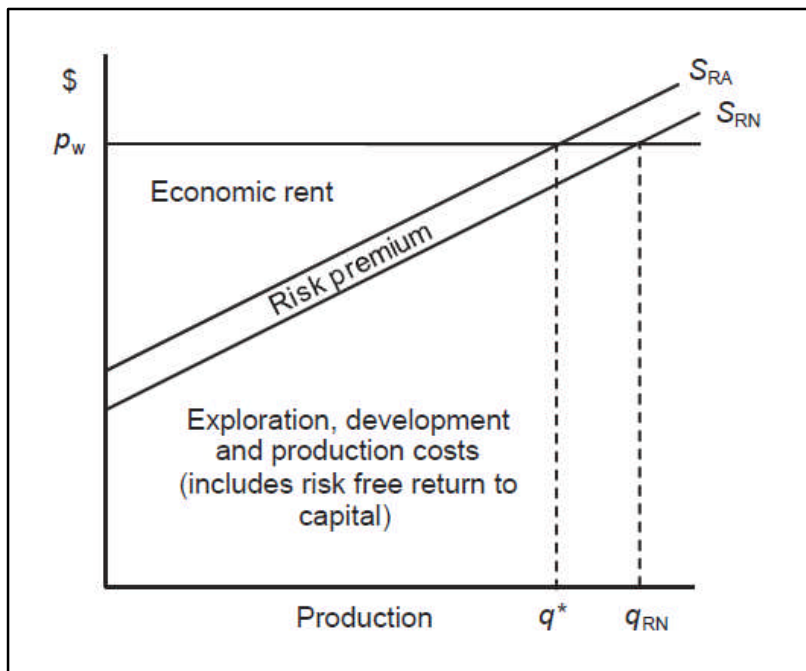
over a period is equal to the excess of revenues over imputed costs, all on an accrual basis (Boadway & Keen, 2009:22). It is also described as “a residual of revenue received, less all outlays on exploration, development, operation and mine closure.” (Freebairn & Quiggin, 2010:385). The revenue as well as the cost side of this calculation is now elaborated on.

The revenue is the easier part to determine. All income received for sale of resources (any form of output) and rendering of services (relating to mineral resources) would be included in revenue. The accounts receivable figure would have already taken the accrual basis into consideration; therefore Boadway and Keen (2009:22) suggest this figure be used in the calculation.

In order to arrive at the economic rent, Boadway and Keen (2009:22) list the costs to be deducted from revenue, the first being all direct costs including materials, rent and labour. As in the case of revenue, they suggest using accounts payable in order to take the accrual basis into account. Freebairn & Quiggin (2010:48) also suggest that all direct costs relating to exploration and production be deducted. Secondly, Boadway and Keen (2009:22) argue that all imputed or asset related costs should be deducted. This includes all costs of holding or using the asset, rather than the cost of purchasing the asset, and specifically includes finance cost (for purchasing the asset for example), depreciation, cost of depleted assets as well as capital losses realised on assets sold or scrapped. Similarly, Freebairn & Quiggin (2010:48) suggest the deduction of all resource and reserve replacement and development costs (which are asset related).

Hogan (2012:249) illustrates economic rent in a mining industry by way of a graphical representation. **Graph 2.4.2.1** below refers. The following legend will facilitate the understanding of the graph:

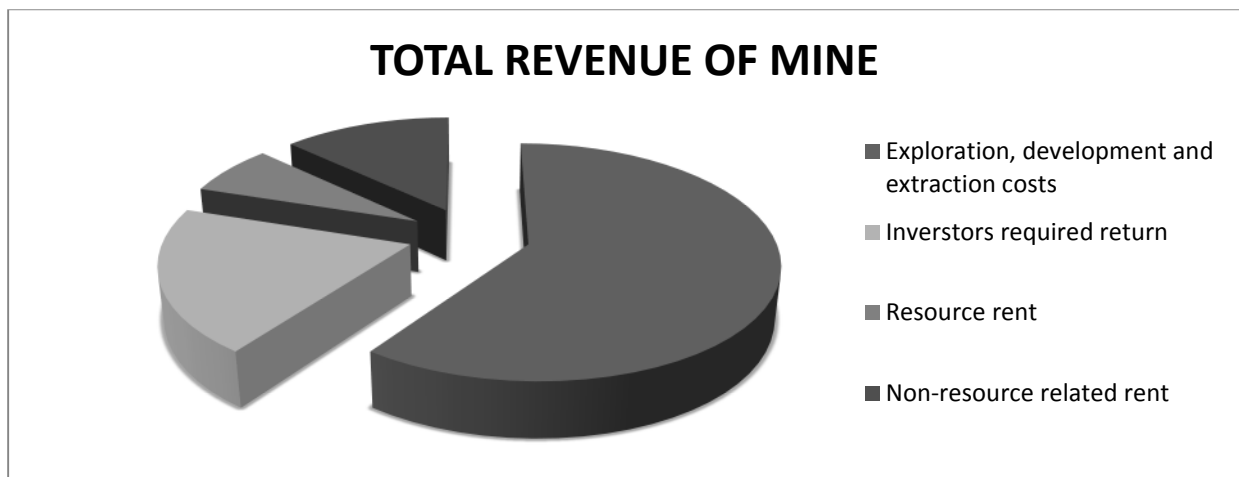
$P_W$	Indicates the World price multiplied by demand (which will stay consistent regardless of the output)
$S_{RN}$	Represents the long-run marginal cost of exploration, development and production including a <i>risk-free</i> return to capital
$S_{RA}$	Represents the long-run marginal cost of exploration, development and production including a return to capital adjusted for a <i>risk premium</i> to compensate risk-adverse private investors
$q^*$	Equilibrium level of industry output at supply curve $S_{RA}$
$q_{RN}$	Equilibrium level of industry output at supply curve $S_{RN}$



**Graph 2.4.2.1 (Hogan, 2012:249)**

#### 2.4.2.2 Determination of Resource Rent

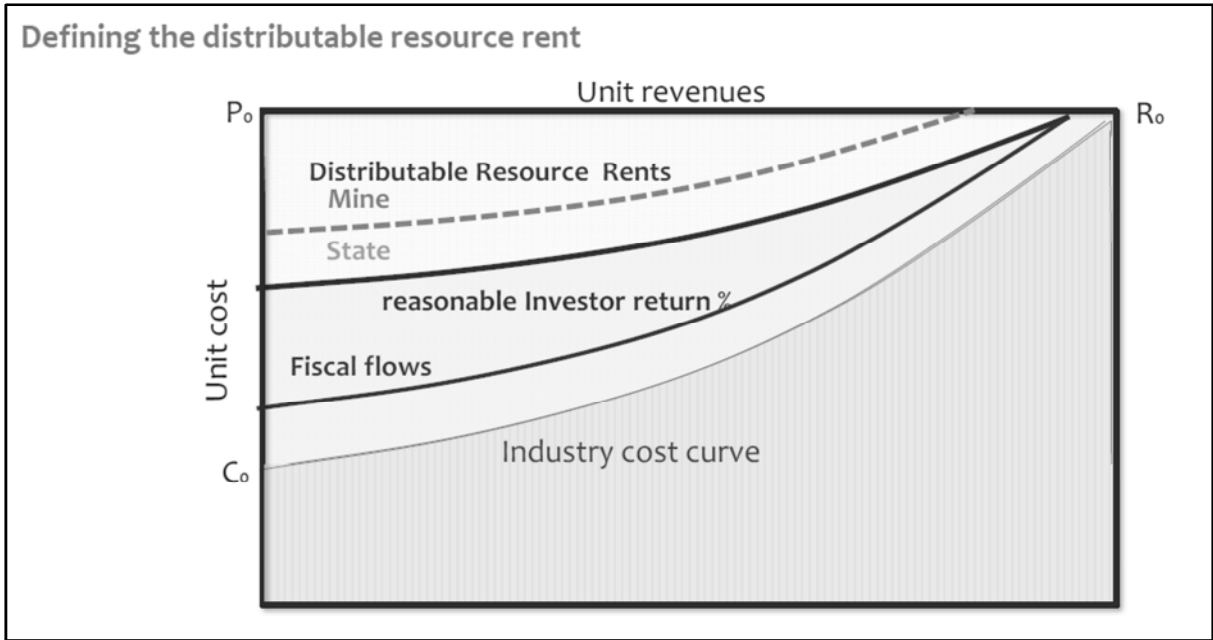
**Resource rent** is the part of economic rent remaining after deduction of return generated from sources other than simply mineral resources as listed in 2.4.2.1 above (Hogan, 2012:249; Thampapillai *et al.*, 2014:173). In order to determine the resource rent relating to a project, an estimation has to be made as to the percentage of economic rent that represents pure resource rent. Since the calculation of economic rent already takes into account the investors' required rate of return, the investor should be indifferent towards the amount of economic rent taxed (Boadway & Keen, 2009:22). The split between economic and resource rent is better illustrated by way of a graph:



**Graph 2.4.2.2.1**

There are 2 aspects that distinguish a resource rent from other sources of economic rent, i.e. mineral sources cannot be moved between countries, and these minerals are government property for which mining licences have to be granted by government to authorise exploitation thereof (Garnaut, 2010a:348). This distinction is important because government (as owner of the minerals) is entitled to 100% of the rent purely generated through those minerals.

The ANC (2012:255) proposed that 50% of the economic rent be taxed. Thorough investigation is needed to establish whether the resource rent truly represents 50% of the economic rent. An inaccurate estimate of this ratio might possibly influence investors' decisions. Lund (cited by Boadway and Keen, 2009:29) stresses the fact that there is relatively little discussion in the literature as to what the appropriate rate would be at which rents should be taxed. Lund (cited by Boadway and Keen, 2009:29) further states that due to governmental efficiency concerns surrounding taxation policies, this percentage would most likely be as high as possible. Boadway and Keen (2009:29), however, draw attention to the fact that amongst other issues, the taxation of rents not derived from resources (the exclusions from resource rent as defined above) could discourage future exploration and development. Hogan (2012:249) supports this by stating that governments should tax substantially less than 100% of the estimated economic rent in order to avoid a negative impact of the taxation policy on industry investment and production decisions. She further states that the government should therefore take into consideration the impact of estimation errors and other sources of resource rent (as discussed in 2.4.2) in determining the percentage to be taxed. The following illustration by Solomon (2012:146) simplifies the theory behind the relationship between project revenues, costs, economic rent and resource rents:



Graph 2.4.2.2.2 (Solomon, 2012:146)

Up to this point it has been found that a resource rent tax was designed in order to tax mining projects on their super profits realised. Super profits, in essence, refer to profits realised over and above that which the investor expected (return on investment) to realise in the first place. The return on investment should take into account a premium for the risk adopted by investors and compensation for opportunity cost and quasi-rents in order for the said investor to be neutral towards super profits being taxed. The research also sheds light on what revenues and costs should be taken into account in calculating economic rent and the specific sources of economic rent that do not constitute resource rent.

## **2.5 ADVANTAGES AND DISADVANTAGES OF A RESOURCE RENT TAX REGIME**

In this section, the respective advantages and disadvantages of a RRT regime are considered. This evaluation promotes a deeper understanding of how a RRT functions in order to achieve the first objective of this study as set out in section 1.4 of Chapter 1. In addition, this provides evidence on the possible impact the advantages and disadvantages might have on both the investor and government where it is introduced as a fiscal instrument.

The first, and probably the chief advantage of a RRT regime, is that the tax liability is calculated based on a project's profitability, and not production output as per an output based royalty (Hogan & McCallum, 2010:22). Normally, a project's profits would be more in line with its cash-flows, which will facilitate the payment of taxes as cash will be more readily available. During the 2008 IMF conference on resource taxation (Hogan & McCallum, 2010:21) it was concluded that rent and profit based taxes are considered to be highly ranked in terms of economic efficiency and flexibility. This is due to the fact that government revenue derived from tax will vary with project profitability – both the investor and government share in the risk of negative market outcomes; therefore the government is less likely to make adjustments to a fiscal regime in response to changes in market conditions.

Guj (2012:5) commented that even though the concept of a RRT is fairly straightforward, the practical implementation thereof may be complex, misunderstood and could lead to significant compliance costs and disputes. A disadvantage following the implementation of a resource rent tax (or any new taxation regime for that matter) is that it would therefore place additional administrative burdens on governments. This would mostly relate to learning how to operate a new system (Garnaut & Clunies Ross, 1975:281; Hogan & McCallum, 2010:23). Cawood and Oshokoya (2013:8) state that there would be an increased possibility of tax avoidance, especially where countries with weaker administration systems have to deal with large international companies with sufficient knowledge to find loopholes. Based on the above, the

administrative issues surrounding the implementation of a new tax would therefore result in a major disadvantage for both tax payers and government.

A very important objective, in designing a fiscal instrument, is revenue stability. Taxes based on profits and economic rent will result in unstable government revenue due to the volatility of commodity prices (Guj, 2012:6). It should however be noted that these commodity prices fluctuate in cycles (therefore usually stabilise after periods of extreme upturns or downturns), which will result in revenue stability in the long run. Therefore, although this might be a disadvantage from government's perspective, it will be beneficial for the taxpayer as the tax liability is calculated based on a project's profitability and not production output as per an *ad valorem* royalty (Hogan & McCallum, 2010:22; Fane, 2012:175). As discussed above, a project's profits would normally be more in line with its cash-flows, which will facilitate the payment of taxes since cash will be more readily available.

Exchange rate variations, due to different currencies used by the investor and the host country, will impose a further challenge. The investor could have doubts about the stability of the currency of the host country and insist on calculating profits in his own currency (Garnaut & Ross, 1975: 281-282). This can however, be overcome by setting specific rules relating to translation and calculation of profit for RRT purposes.

Cawood and Oshokoya (2013:8) have named a few disadvantages relating to a RRT system. They argue that it is difficult designing a RRT that is truly aimed at rents due to the difficulty of calculating the resource rent as discussed in subsection 2.4.2.2 above. Another difficulty relates to the implementation of the tax, specifically determining the appropriate rate of return and rate of tax. Freebairn and Quiggin (2010: 385) support this argument in highlighting that the risk premium differs for every mine and is not known by government, which creates a challenge in customising this tax regime. Cawood and Oshokoya also stated that too many tax instruments implemented simultaneously could result in so-called "Noise" (2013:8).

Another potential weakness identified by Boadway and Keen (2009:59) is that, due to the nature of mining operations, it may take a significant time before a project realises positive accumulated rents. Before then, the government will receive no benefit. This may however, be overcome by using a RRT in combination with another mineral tax to extract some of the mining benefit during the start-up period of the mine, therefore a hybrid system as also recommended by Garnaut (2010a:349).

As may be seen from both the investor and government's perspective when considering the advantages and disadvantages of a resource rent tax, not all objectives are able to be optimised



simultaneously, as some of the government's objectives are equally incompatible with those of the taxpayer (Guj, 2012:6). One element may be beneficial to the taxpayer but at the same time disadvantageous to government.

## **2.6 CONCLUSION**

The first objective of gaining an understanding of the workings of a RRT, has, in theory, been met. It has been found that a RRT was designed in order to tax mining projects on their super profits realised. Super profits in essence refer to profits realised over and above those which the investor expected (return on investment) to realise in the first place. Understanding of the working of a RRT has been enhanced by identifying the various advantages and disadvantages thereof. This proved that all the objectives set, by government and the taxpayer respectively, will never be met simultaneously as one aspect of a resource rent may be advantageous to one party yet at the same time disadvantageous to the other. The knowledge gained in this chapter is applied in Chapter 4. The following section investigates the theory behind the current tax regime in South Africa.

### **3. DETAILED STUDY ON CURRENT SOUTH AFRICAN TAX REGIME**

#### **3.1 INTRODUCTION**

The objective of this chapter is to gain a detailed understanding of the fiscal instruments applied in South Africa's current tax regime and the rules respectively relating to each of these instruments. This chapter is designed to meet the second objective of this study, as set out in Chapter 1.4. South Africa's current tax regime, as applicable to the mining industry, provides for three fiscal instruments, including royalties payable in terms of the Mineral and Petroleum Resources Royalties Act 29 of 2008 as compensation for mineral rights granted to mines, corporate income tax payable by companies in terms of the Income Tax Act 58 of 1962, including withholding tax on dividends that came into effect during 2012 and withholding tax on interest that will come into effect in future. The discussion on each of these instruments in the sections to follow will include detail on the timing or triggering of the tax payable under the specific instrument, the basis on which the tax is calculated as well as the rate of tax applied for each instrument and commentary on these various aspects, as available in the literature.

#### **3.2. DETAILED ANALYSIS OF THE CURRENT TAX REGIME IN SOUTH AFRICA**

##### **3.2.1 Corporate Income Tax**

All Corporate Income Tax provisions (including withholding tax on dividends and interest) are regulated by the Income Tax Act 58 of 1962. These provisions are discussed in more detail in the three subsections to follow.

##### **3.2.1.1 General income tax provisions**

###### **Timing and trigger for income tax**

Corporate income tax is calculated on a yearly basis, with provisional tax payments made throughout the year to SARS. The provisional payments are calculated on the same basis as royalty payments are; discussed in section 3.2.2 below. The first payment is due 6 months before year end, the second at year end and the last payment within 6 months after year end. The first two payments are calculated based on estimates of taxable income while the last payment is based on actual audited results (Income Tax Act 58 of 1962, Fourth Schedule).

## Basis for Calculation of Taxable Income

The general corporate income tax principles, as per the Income Tax Act 58 of 1962, apply to the mining industry, of which the most important provisions relate to *gross income* and the *general deduction provision* (section 11(a)). The Income Tax Act defines “taxable income” as the excess of the total income of any person above allowable deductions as per the act, plus any amount to be included or deemed to be included in the taxable income of that person. The income of a person is calculated as the gross income, less any exemptions allowed, as per the act. Section 1 of the Income Tax Act defines “gross income” as the total amount received or accrued by a person, in cash or otherwise, to the benefit of that person, excluding receipts or accruals of a capital nature. In the context of a mining company, gross income will include all amounts received, excluding amounts of a capital nature. The definition of gross income, however, lists amounts of a capital nature received by a person that should specifically be included in gross income. Paragraph (j) for example required amounts received by a mine in respect of assets sold, of which the cost was deducted in terms of section 15(a) of the act, to be included in gross income, irrespective of the capital nature of the amounts. These proceeds will therefore not give rise to capital gains (Sorensen, 2011:179).

Deductible expenditure is regulated through various sections of the act. Section 11(a), also known as the general deduction formula, sets out the broad requirements to be able to deduct expenditure. Section 11(a) reads as follows: *“For the purpose of determining the taxable income derived by any person from carrying on any trade, there shall be allowed as deductions from the income of such person so derived— (a) expenditure and losses actually incurred in the production of the income, provided such expenditure and losses are not of a capital nature;”*. It is important to note that any expenditure incurred by a mine that falls within these requirements, will be deductible from the income of the mine. Due to the capital intensive nature of mining activities (Van der Zwan, 2009:63), the act makes provision for specific rules applicable to the mining industry in order to allow deductions for capital expenditure. According to Van Blerck (1992:6(2)-6(4)), the following modifications to the general tax principles to calculate the mining taxable income were identified:

- a. A “capital redemption deduction” granted in respect of capital expenditure in terms of section 15 (a) and section 36 of the Income Tax Act.
- b. A number of “ring-fencing” provisions that apply to mining entities specifically. This is regulated by section 36 (7E), (7F) and (7G).
- c. Deductions relating to “prospecting expenditure” regulated by section 15 (b).
- d. Mining “capital recoupments” are treated differently from other recoupments.

Each of these differences are investigated in order to gain an understanding of how the corporate income tax of a mining company is determined. Note that this study focuses on the mining industry in general; therefore, since the act provides for special requirements relating to gold mines in some of the sections under review, these requirements will not be investigated in detail.

**a. Capital redemption deduction:**

Section 15 (a) and Section 36 deal with these allowances. Section 15 (a) provides for the deduction of capital expenditure incurred by mining entities under the provisions of section 36, in the absence of the normal capital allowances available to non-mining (manufacturing) entities. No deduction is however granted for the cost of land (Sorensen, 2011:179). Myburgh (2013) noted that one of the aspects on which SARS focuses during integrated tax audits on mining and prospecting companies, is the classification of a project as ‘mining operations’ versus ‘manufacturing operations’. He further states that the difference in interpretation arises from the unclear definitions of ‘mining’ and ‘mining operations’ as per the Income Tax Act 58 of 1962. A mining project being regarded as a manufacturing operation might result in a very different outcome, as manufacturing operations are only allowed deductions to a certain percentage of actual cost incurred per year, whereas mining operations are allowed deductions of 100% from the first year that cost is incurred (Myburgh, 2013). These available deductions are discussed in further detail below.

**Section 36** provides for the following in the “*Calculation of redemption allowance and unredeemed balance of capital expenditure in connection with mining operations*”:

- **Section 36 (7C):** All *capital expenditure* incurred shall be deducted from the income from the operation of any producing mine, subject to section 36 (7E), (7F) and (7G) below.
- **Section 36 (7E), (7F) and (7G):** These sections relate to the ring-fencing provisions and will be discussed in more detail in (b) below.
- **Section 36 (10):** This paragraph requires “separate and distinct mining operations” that are not neighbouring to be treated separately in calculating the allowance for capital expenditure. These mining operations will therefore be ring-fenced and expenditure relating to the one cannot be set off against the income generated by the other.
- **Section 36 (11):** This section provides all definitions for terms used in section 36. These definitions are summarised below:

“**capital expenditure**” as defined in terms of section 36(11) may be summarised as expenditure (other than interest or finance charges) on **shaft sinking** and **mine equipment**; expenditure on development, general administration and management (including any interest

and other charges) **prior** to the commencement of production or during any period of **non-production**. This will include expenditure incurred to the benefit of the taxpayer's **employees** (excluding the cost of land, surface rights and servitudes) in respect of the acquisition, erection, construction, improvement or layout of housing and furniture, infrastructure in respect of **residential areas developed** for sale, any **hospital, school, shop** or similar amenity (including furniture and equipment) owned and operated by the taxpayer, any **garage or carport** for any **motor vehicles** intended for the private or partly private use of the taxpayer's employees, **recreational** buildings and **facilities** owned and operated by the taxpayer and any **railway line or system** performing a similar function for the transport of minerals from the mine to the nearest public transport system or outlet. Where a taxpayer's trade constitutes mining, any expenditure incurred in terms of a **mining right** pursuant to the Mineral and Petroleum Resources Development Act other than in respect of infrastructure or environmental rehabilitation also falls within the definition of capital expenditure

The sub-provisions of section 36(11) define the periods over which this expenditure will be deductible. All expenditure shall be deemed to be payable in 10 annual instalments (vehicles in 5 annual instalments) from the day the expenditure became due. These annual deductions will cease when the asset is sold/scrapped. Where the taxpayer can however provide satisfactory proof that the mining project's life will be shorter than 10 years, the Commissioner may reduce the number of instalments to the shorter life. When an asset is sold or scrapped, the remaining instalments may be deducted on the date of sale or scrapping. Where a taxpayer completes an improvement as contemplated in section 12N in respect of expenditure incurred to the benefit of the taxpayer's employees as listed above, the expenditure incurred by the taxpayer to complete the improvement shall be deemed to be expenditure for the purposes of this section.

**“capital expenditure incurred”** refers to capital expenditure minus capital recoupments (proceeds resulting from disposals of assets) from assets which have in whole or in part been deducted as capital expenditure in any period

**“expenditure on shaft sinking”** includes all expenditure on sumps, pump-chambers, stations and ore bins accessory to a shaft.

**“expenditure”** refers to the net expenditure after taking into account any **rebates** or returns from expenditure, regardless of when such last-mentioned expenditure was incurred.

## **b. Ring-fencing provisions:**

As discussed in the section above, 100% of expenditure incurred by a mining operation is deductible against its taxable income (Myburgh, 2013). These deductions are likely to exceed taxable income during the first few years of operations, resulting in assessed losses. Section 36 (7E), (7F) and (7G) deals with the provisions relating to ring-fencing of assessed losses for mining entities. These provisions are summarised below:

- **Section 36 (7E)** – Referred to as “The capital expenditure ‘general’ ring-fence” by Van Blerck (1992:15(5))

This provision determines that the amount of capital expenditure deducted in terms of section 15 (a) from taxable income of a mine / mines should be limited to the taxable income derived from mining operations exclusively, after taking into account any balance of assessed loss carried over from the previous year in relation to that mine / mines. Any expenditure not deducted due to this limitation shall be deemed to be a capital expenditure incurred during the succeeding year of assessment. Even though case law provides some guidance on what is regarded as mining income and non-mining income, uncertainty still exists (Myburgh, 2013)

- **Section 36 (7F) and (7G)** – Referred to as “The capital expenditure ‘per mine’ ring-fence” by Van Blerck (1992:15(5))

The requirements of these two provisions are exactly the same as provision (7E), except that they were included in the act to impose further restrictions on the ring-fencing as follows:

### **Subsection (7F)**

This provision prohibits mining companies with two or more mining operations that commenced on or after 5 December 1984 from setting off any assessed losses or capital expenditure not allowed during a year of assessment relating to one mining operation against the taxable income of the other mining operation(s). The calculation and ring-fencing should therefore be applied separately to every mining operation.

### **Subsection (7G)**

This provision was introduced as a relief for the limitations in (7F). Any mining or related operations commenced after 14 March 1990 is referred to as a “new mine” in this subsection. Where any expenditure is disallowed in terms of subsection (7F), this provision

will allow a deduction against the ***total taxable income of new mines*** (after deduction of assessed losses and capital expenditure not disallowed by subsection (7F)) an amount equal to ***25% of the said taxable income*** (limited to the disallowed expenditure).

These provisions shall however not apply where a “new mine” was disposed of in the current or a prior year **or** where the mine is a company and the acquisition of mining rights has been financed wholly or partly through equity shares.

These ring-fencing provisions are better illustrated by way of an example:

### Example 3.2.2.1

The following information is provided with regard to a mining company which operates two separate mining operations for the year of assessment ended 28 February 2014. The operations commenced 1 March 2012:

<b>Total taxable income (before capital expenditure and assessed losses):</b>	
Mining Operation 1	100,000
Mining Operation 2	50,000
<b>Assessed losses carried forward from 2013 year of assessment:</b>	
Mining Operation 1	40,000
<b>Capital expenditure as calculated in terms of Section 36:</b>	
Mining Operation 1	70,000
Mining Operation 2	30,000

First the allowable capital expense (in terms of subsection (7F)) should be calculated for each of the mining operations:

<b>Mining Operation 1</b>	
Taxable income	100,000
Assessed loss brought forward	(40,000)
	<hr/>
	60,000
Allowable expenditure (limited to taxable income)	(60,000)
	<hr/>
Taxable income	0
<b>Mining Operation 2</b>	
Taxable income	50,000
Allowable expenditure (limited to taxable income)	(30,000)
	<hr/>
Taxable income	20,000

Subsection (7G) would not allow a further deduction of 25% of the total taxable income for the mining company as a whole:

<b>Taxable income - Mining Operation 1</b>	0
<b>Taxable income - Mining Operation 2</b>	20,000
	<hr/>
	20,000
25% of the above (limited to the disallowed expenditure of 10,000)	(5,000)
	<hr/>
<b>Total taxable income</b>	<b>15,000</b>

The capital expenditure not allowed (5,000) will be deemed to be expenditure incurred in the 2015 year of assessment for mining operation 1.



### c. **Prospecting expenditure deduction:**

The term “prospecting expenditure” is not defined in the Income Tax Act, but, in terms of the definition of “mining operations” provided in the Income Tax Act, little doubt exists that prospecting does constitute mining operations (Van Blerck, 1992:9(3)). Myburgh (2013) comments that there appears to be a difference in interpretation by SARS and taxpayers as to which section of the Income Tax Act prospecting expenditure claims fall under. This has a direct impact on the income tax position and financial viability of the mining project.

Section 15 (b) of the Income Tax Act provides for deduction from the income derived by the taxpayer from mining operations, any costs incurred on prospecting operations (including surveys, boreholes, trenches, pits and other prospecting work preliminary to the establishment of a mine) together with any other expenditure which is incidental to such operations. These costs should have been incurred in respect of any area within the Republic during the year of assessment.

The act however also provides for 3 specific restrictions on prospecting (Van Blerck, 1992:9(7)):

- **“The instalment restriction”, Section 15 (b)(i)** – This restriction applies for all mining operations other than diamond mines. Under this restriction, the Commissioner can determine any period over which prospecting expenditure is deductible, instead of a single instalment.
- **“The ‘class of mining’ restriction”, Section 15 (b)(ii)** – This restriction allows the Commissioner to determine the classes of mining prospecting expenditure which may be deducted and the proportions in which these may be deducted.
- **“The capital redemption restriction”, Section 15 (b)(iii)** – This restriction prohibits double deductions. No expenditure deducted in terms of section 15 (b) may be deducted under section 36.

### d. **Capital recoupments:**

Unlike general recoupments, capital expenditure recoupments will not be included in taxable income, but would rather be deducted from capital expenditure allowed in terms of section 36 (Income Tax act 58, 1962). This was also touched on in Table 3.1.2 (a), definition of “capital expenditure incurred”.

## **Corporate Tax Rate**

Corporate Income Tax is levied at 28% of taxable income of companies in South Africa as per the Income Tax Act 58 of 1962.

### **3.2.1.2 Withholding tax on dividends**

Withholding tax on dividends became effective from 1 April 2012. The requirements relating to withholding tax on dividends are set out in the Income Tax Act 58 of 1962, Section 64D to 64N. No specific rules other than the normal ones apply to mining companies. The basic principles are set out below. Please refer to **Table 3.2.1.2** for the definitions of terms used as per the Income Tax Act 58 of 1962.

#### **Timing / Trigger of Withholding Tax on Dividends**

The liability for withholding tax on dividends is triggered by the declaration of a dividend, and is payable on or before the end of the month following the month in which the Dividends Tax is triggered. The Dividends Tax is a withholding tax as it should be withheld and paid to SARS by the company paying the dividend or by a regulated intermediary (i.e. a withholding agent interposed between the company paying the dividend and the beneficial owner), and not the person liable for the tax (i.e. the beneficial owner of the dividend). Where the dividend constitutes a dividend in specie, the declaring party will be liable for the dividend tax. (Income Tax Act 58 of 1962). Refer to Table 3.2.1.2 for definitions of terms used above.

#### **Basis for Calculation of Withholding Tax on Dividends**

The dividend tax is calculated based on the amount distributed (in the case of normal / cash dividends), market value (in the case of a dividend *in specie*), or the value forgone (in the case of deemed dividends). Some dividend payments are automatically exempt, i.e. do not require the beneficial owner to submit a declaration and undertaking form in order to qualify. These exemptions include dividends paid to “group companies” as defined in section 41; and dividends paid to regulated intermediaries<sup>1</sup> (withholding agents) as defined in section 64D. (Income Tax Act 58 of 1962). Refer to Table 3.2.1.2 for definitions of terms used above.

#### **Rate of Withholding Tax on Dividends**

Dividends Tax is imposed on shareholders at a rate of 15% on receipt of dividends in terms of the Income Tax Act 58 of 1962, section 64.

**Table 3.2.1.2**

<b>Term</b>	<b>Definition</b>
<b><sup>1</sup>Regulated intermediary</b>	<p>“means any—</p> <ul style="list-style-type: none"> <li>a) central securities depository participant contemplated in section 32 of the Financial Markets Act;</li> <li>b) authorised user as defined in section 1 of the Financial Markets Act;</li> <li>c) approved nominee contemplated in section 76 (3) of the Financial Markets Act;</li> <li>d) nominee that holds investments on behalf of clients as contemplated in section 9.1 of Chapter 1 and section 8 of Chapter II of the Codes of Conduct for Administrative and Discretionary Financial Service Providers, 2003 (Board Notice 79 of 2003) published in Government Gazette No. 25299 of 8 August 2003;</li> <li>e) portfolio of a collective investment scheme in securities; or</li> <li>f) transfer secretary that is a person other than a natural person and that has been approved by the Commissioner subject to such conditions and requirements as may be determined by the Commissioner.”</li> </ul>
<b><sup>2</sup>Beneficial owner</b>	<p>“the person entitled to the benefit of the dividend attaching to a share”</p>

### **3.2.1.3 Withholding tax on interest**

Some of the profits generated from mining activities will be distributed to investors in the form of interest. For this reason, it is also important to acquire an understanding of the requirements of the Income Tax Act of 58 of 1962 in respect of withholding tax on interest. Section 50B to section 50H of the Income Tax Act deals with the provisions for withholding tax on interest.

#### **Timing / Trigger of Withholding Tax on Interest**

Withholding tax is levied on an amount of any interest paid by any person to or for the benefit of any foreign person to the extent that the amount is regarded as having been received or accrued from a source within the Republic in terms of section 9(2)(b) of the Income Tax Act. Interest is deemed to be paid on the earlier of the dates on which the interest is paid or becomes due and payable. In terms of section 50H(2) of the Income Tax Act, withholding tax

on interest will become effective from 1 January 2015 and will only apply to interest that is paid or accrued on or after 1 January 2015 (PwC, 2014:2). Similar to the provisions relating to withholding tax on dividends, withholding tax on interest is payable on or before the last day of the month following the month in which the interest was paid or accrued (The SAIT, 2013).

### **Basis for Calculation of Withholding Tax on Interest**

Interest for South African tax purposes is defined in terms of section 24J of the Income Tax Act. In addition, deemed interest, as defined in section 8E(2) of the Income Tax Act, will also be subject to the withholding tax provisions (The SAIT, 2013). As per a discussion document issued by The South African Institute of Tax Practitioners (2013), the same principles will apply to a foreign person. Section 50D exempts foreign persons from withholding tax on interest where the interest is paid / payable by the South African government, any bank, or a headquarters company providing financial assistance, as well as interest paid in respect of listed debt (Income Tax Act 58 of 1962).

### **Rate of Withholding Tax on Interest**

Tax on interest will be withheld at a rate of 15% in terms of section 50B of the Income Tax Act.

### **3.2.2 Royalties**

Royalties levied on the mining industry in South Africa are regulated by the Mineral and Petroleum Resources Royalties Act 29 of 2008 (MPRRA). This royalty payable to SARS is deductible from taxable income in terms of section 11 (a) of the Income Tax Act 58 of 1962 (Strydom, 2012:5). In order to gain an understanding of how this royalty is calculated, the various sections of the act will be discussed.

#### **Timing / Trigger for Royalties**

Royalties are calculated per financial year; therefore, for the same period as normal income tax is calculated for a company. The MPRRA requires the liability to be settled in provisional payments of which the first two will be calculated on estimated amounts and the last on audited amounts in order to settle the exact liability. The process is similar to that of the Income Tax Act 58 of 1962.

## Basis for Calculation of Royalty

The basis on which the royalty rate is applied is regulated by the provisions of section 3 of the MPRRA. Section 3 determines the royalty liability to be the *gross sales* of the extractor multiplied by the royalty rate (this will be discussed in section 3.2.1.3 below). The basis is therefore largely dependent on the *gross sales* amount. As per Section 6 of the MPRRA, gross sales includes all amounts received or accrued in respect of the transfer of a mineral resource as well as an amount that would have been received or accrued had the transfer of the mineral resource only been transferred in its refined / unrefined condition as defined by the act, where transfer takes place before this condition is reached. Myburgh (2013) highlights that uncertainty exists as to the interpretation of what 'unrefined minerals' would be with regard to the various mineral resources. The section also provides guidance on how to determine the sales value where the actual sales value was unavailable in extraordinary circumstances (Van der Zwan, 2009:65). Section 6 further also identifies some impermissible deductions from gross sales: expenditure incurred in respect of transport, insurance or handling after the mineral resource has reached its refined / unrefined condition.

## Royalty Rate

Section 4 of the MPRRA determines the rate to be applied in calculating the royalty. These rates are variable, being based on profitability, which results in royalty rates being higher at a time of high profits and high commodity prices. This also means that marginal mines will pay little to nothing in royalties (Curtis, 2009:9). The rate for refined and unrefined minerals is calculated differently. The rate for refined minerals is calculated as  $0.5 + \left[ \frac{\text{earnings before interest and taxes}}{\text{gross sales in respect of refined mineral resources}} \times 12.5 \right] \times 100$  and must not exceed 5% where the rate for unrefined minerals is calculated as  $0.5 + \left[ \frac{\text{earnings before interest and taxes}}{\text{gross sales in respect of unrefined mineral resources}} \times 9 \right] \times 100$  and must not exceed 7% (MPRRA, Section 4). The royalty rate for refined minerals is lower than for unrefined minerals in all instances due to the potential growth area for refined minerals identified by government, therefore acting as an incentive to refine minerals (Curtis, 2009:13). **Table 3.2.2** provides a clear indication of how earnings before interest and taxes (EBIT) will influence the rate of royalties payable. An increase in earnings before interest and taxes will result in a higher percentages royalties levied for both refined and unrefined minerals. Likewise a decrease in EBIT will result in lower percentages of royalties levied for both refined and unrefined minerals.

**Table 3.2.2**

<b>EBIT</b>	<b>Refined Minerals</b>	<b>Unrefined Minerals</b>
<b>%</b>	<b>%</b>	<b>%</b>
0	0.5	0.5
10	1.3	1.6
15	1.7	2.2
20	2.1	2.7
25	2.5	3.3
30	2.9	3.8
40	3.7	4.9
50	4.5	6.1
56	5.0	6.7
58.5	5.2	7.0

*(Media statement by National Treasury, 2008:11)*

As is clear from the above formulas, the *earnings before interest and taxes* need to be determined. As per Section 5 of the MPRRA, earnings before interest and taxes is calculated as gross sales (as defined above) *plus* any recoupment and inclusions in income in terms of par (j) of the definition of “gross income” as per the Income Tax Act 58 of 1962 *less* certain allowable deductions. These allowable deductions include all operating costs up to that point (Sorensen, 2011:177), deductible in terms of the Income Tax Act, only relating to assets used or expenditure incurred with regard to the transfer, recovery or development of mineral resources (Van der Zwan, 2009:63). Some deductions granted per the Income Tax Act are however inadmissible in calculating earnings before interest and tax as per the MPRRA. These deductions include deductions in respect of financial instruments; any deduction in terms of section 11(a) in respect of the royalty; any expenditure incurred in respect of transport, insurance and handling of the refined / unrefined minerals after the minerals have reached their refined / unrefined condition; any balance of assessed loss mentioned in section 20(1)(a) of the Income Tax Act; deductions in terms of Section 24 I relating to foreign currency transactions; and any amount in respect of an “impermissible tax avoidance arrangement”.

### **3.3 CONCLUSION**

A detailed analysis of the principles and application of the current tax regime in South Africa has been set out in this chapter. From the information gathered throughout this chapter, a few critical advantages and disadvantages with regard to this regime came to light. The greatest

disadvantage with regard to the Income Tax Act (regulating corporate income tax, dividend withholding tax and withholding tax on interest) is the fact that what are considered to be 'mining operations' and the term 'prospecting expenditure' are poorly defined in the Act. This often results in interpretations differing between the taxpayer and SARS. The benefit of royalties as a mineral tax instrument is the simplicity thereof, compared to other tax regimes (Fane, 2012:175). Fane further goes on to comment that the disadvantage of a royalty is that the rates are usually too low to generate significant revenue for government. He explains that increases in royalty rates will most likely result in a substantial proportion of resources being left in the ground as extraction will no longer be beneficial to the taxpayer.

With reference to Chapter 1.1 where the background and motivation of topic relevance were discussed, the reasoning behind a potential change/modification in the current tax regime in South Africa was touched on. The MPRDA explicitly required mining tax legislation to enable government to collect sufficient revenues from mining operations in order to compensate the people of South Africa for the depletion of their resources. Supporting this objective of the MPRDA is a discussion by Tilton (2004:144) on potential reasons for increasing taxes on mining: that government should, for the benefit of the nation, collect Ricardian rents and opportunity costs of depleting non-renewable resources, instead of saving these for the future. This argument supports the motion of modifying the current tax regime in order to increase mining taxation.

The principles established in this chapter are now applied to a hypothetical case study in order to evaluate the qualitative as well as quantitative effect of the introduction of a RRT in South Africa on taxes paid by the mining industry in South Africa.

## **4 HYPOTHETICAL CASE STUDY COMPARING THE QUANTITATIVE AND QUALITATIVE IMPACTS OF TWO ALTERNATIVE TAX REGIMES**

### **4.1. INTRODUCTION**

In the two previous chapters, the first two objectives of this study, as set out in section 1.4, were met. The objective of this chapter is to create a simple hypothetical case study which can be used as a model to quantify the differences between two basic tax regimes (the third objective of this study). The first system examined is the tax regime currently operational in South Africa and the second system, a tax regime where a resource rent tax is introduced, as proposed by the ANC (2012). Since Garnaut's intention was not to use a RRT as the only fiscal instrument (2010a:352), but combined with other possible instruments in a hybrid system, the evaluation of a resource rent tax in isolation as an alternative has no purpose. In addition, the second tax regime evaluated in this chapter in essence provides the same answer as the application of a RRT in operation in Australia; the reason being that the model will be supplemented with principles from the Australian tax regime where the SIMS report lacked sufficient information.

In order to make this model as simple and purposeful as possible, certain assumptions were made regarding the hypothetical case study in general as well for the individual systems. Section 4.2 addresses the details of the hypothetical case study, including the general assumptions applicable to all options. Section 4.3 deals with the detailed comparison of the two tax systems.

Different scenarios were evaluated for each regime by changing certain variables in the hypothetical case study and are set out in section 4.4. The quantification indicates the net present value of the project for both the investor (company) and the state (SARS) in terms of each of the scenarios defined in section 4.4.

### **4.2. HYPOTHETICAL CASE STUDY**

#### **4.2.1. Hypothetical model**

In constructing this model, Van Blerck (1992), Thampapillai *et al.* (2014), Otto *et al.* (2006) and the Income Tax Act 58 of 1962 were consulted in order to identify the typical costs incurred by mines and the timing of these costs. The details of the model used for illustrative purposes follow:



Mine (Pty) Ltd is a hypothetical mining company situated in South Africa, producing unrefined minerals. 100% of the issued share capital of Mine (Pty) Ltd is owned by a resident company, Investor (Pty) Ltd. The financial year of the company ends on 31 December. The estimated life of the mine is 10 years. All prospecting and exploration costs are financed through a long-term loan (debt instrument) of R300,000,000 (three hundred million) at a fixed interest rate of 10% per annum, repayable after 10 years. The following hypothetical information is available for Mine (Pty) Ltd:

- The inflation rate in South Africa is (and will remain) 7% throughout the 10 year lifespan of the mine. In order to make the model conservative, inflation of 7% was used, which is just a little above the highest rate of 6.8% in South Africa during the past 5 years (Statistics South Africa, 2014:2).
- The weighted average cost of capital (WACC) of 9% for the mine is calculated as follows:
  - **risk-free rate:** return rate of a 10 year government bond (8%) (SARB, 2014),
  - *plus* a **risk premium** for the riskiness of the mining industry and financing of operations through debt (4.5%) (Park & Nelson, 2013:21),
  - *minus* adjustment for **tax** because interest is deductible for tax purposes (section 24J, Income Tax Act 58 of 1962).
- The WACC for the state (government) is assumed to be 8% (risk-free rate) (SARB, 2014).
- No revenue will be generated during the first year, since prospecting and exploration activities will be carried out during this phase.
- From year 3 onwards, revenue will grow by 15% per year and production related variable costs by 8% per annum (in addition to inflation).
- Refer to Table 4.2.1 below for the applicable cost structure.

**Table 4.2.1 Cost structure:**

	<sup>1</sup> Incurred once-off in Year 1 ZAR'000	<sup>2</sup> Incurred annually from Year 1 ZAR'000	<sup>3</sup> Incurred annually from Year 2 ZAR'000
<b>Revenue:</b>			
Income from sale of output	N/A	-	300,000
<b>Costs of an income nature</b>			
<b>Variable costs</b>			
Transport, insurance and handling fees relating to production of minerals	N/A	-	53,000
Wages and salaries (production related)	N/A	-	104,000
Other production related operating costs (fuel, electricity, explosives, other consumables)	N/A	-	85,000
Administrative costs (office related)	N/A	-	18,000
Pre-production costs (general administration and management)	9,000	N/A	N/A
<b>Fixed costs</b>			
Rent – office	N/A	200	N/A
Rent – warehouse	N/A	600	N/A
<b>Costs of a capital nature</b>			
<b>Finance cost</b>	N/A	30,000	N/A
<b>Prospecting expenditure:</b>			
Surveys performed	2,000	N/A	N/A
Boreholes, trenches, pits	8,000	N/A	N/A
<b>Capital expenditure:</b>			
Mining rights purchased	50,000	N/A	N/A
Shaft sinking	100,000	N/A	N/A
Mining plant	10,000	N/A	N/A
Civil and engineering services (site preparation, roads, rail link, water supply and sewage conveyance)	25,000	N/A	N/A
mining equipment (shaft, dump trucks, load-haul dumpers, utility vehicles, drilling rigs, scalars, pedestal breakers, light delivery vehicles)	50,000	N/A	N/A
Residential housing for employees	10,000	N/A	N/A
Motor vehicles for use of employees	5,000	N/A	N/A

1 These costs will only be incurred in Y1 when the mine is started up.

2 These costs will be incurred from Y1 up until Y10, adjusted with growth and inflation as applicable.

3 These amounts will be incurred from Y2 until Y10, adjusted with growth and inflation as applicable.

#### 4.2.2. Assumptions made with regard to the model

The following assumptions were made in order to simplify the case study and align it with the objectives to be met:

- The investor (Investor (Pty) Ltd) is assumed to be a *resident company* who owns 100% of the shares of the mining company (“Mine (Pty) Ltd”) under review. This would result in dividends being exempt from withholding tax – *no dividends withholding tax* will therefore be taken into account in the quantification (Section 64D, Income Tax Act 58 of 1962). This will simplify the case study in the sense that no double tax agreements or foreign taxes will have to be taken into account.
- All amounts are denominated in ZAR. As foreign currencies continuously fluctuate, translation into ZAR at different dates may result in fluctuations in the cash flow results of the case study. By eliminating the effect of foreign currency changes, the results will be more representative of changes in tax regimes.
- The unrefined minerals produced are not specified in order to represent mining in general; however, the scenario is not representative of a gold mine, so that the gold formula will not be applicable (Income Tax Act 58 of 1962).
- Mine (Pty) Ltd operates a single distinctive, separate mining operation – the “per mine” ring-fencing provisions would therefore not apply (Section 36(10), Income Tax Act 58 of 1962). Once again this will simplify the case study in that assessed losses will only be deductible against taxable income from that one mining operation in future years.
- Total output produced in a specific year is sold in that same year, therefore no inventory will be held. This simplifies the tax calculation.
- All revenues and costs are deemed to be received and paid at the end of each financial year to simplify the net present value calculations. As provisional taxes will in reality become payable during a year of assessment, provisional tax payments were disregarded for the purpose of the case study.
- The resource project is started after the applicable tax regime(s) has(have) come into effect – no transitional arrangements therefore to be taken into account. In the release of an exposure draft on Australia’s MRRT, Deloitte (2011:2) summarised the transitional arrangements for existing mines at the time that the MRRT was to be implemented. The Australian MRRT provides for a “starting base allowance” that recognises investment in most tangible and intangible assets which existed before the announcement of the MRRT. The SIMS report does not make any reference to this starting base allowance; therefore the case study assumed that all projects originate only after the introduction of a resource rent tax.

### **4.3. ALTERNATIVE TAX REGIMES TO BE EVALUATED**

#### **4.3.1. Alternative 1 – Current tax regime in South Africa**

As detailed in Chapter 3, the current tax regime was used as the basis for calculation in terms of this alternative. Corporate income tax was calculated at a rate of 28% and mineral royalties at the applicable rate as required by the Mineral and Petroleum Resources Royalties Act 29 of 2008. The following assumptions are made with regard to this alternative:

- The mining company is producing unrefined minerals in order to expose the company to a maximum royalty range of 0.5% to 7% as per the MPRRA.
- No prospecting expenditure will be subject to the provisions of subsection 15 (b)(i) and (ii) of the Income Tax Act – refer to section 3.2.2.1(c) in this document.

#### **4.3.2. Alternative 2 – Introduction of a Resource Rent Tax**

As per the ANC's SIMS report (2012:362), mines will be required to pay a corporate income tax of 28% and a resource royalty of 1%. The same principles apply as for Alternative 1. In addition, a RRT will be calculated as the excess of mining revenue, over and above all mining related expenditure, of an income or capital nature (excluding finance cost (Honey & Mok, 2010:35) and RRT allowances relating to assessed losses carried forward from prior years (uplifted annually by a long-term bond rate of 8% (SARB, 2014) plus 7% (ANC, 2012:361)), multiplied by the RRT rate of 50% (ANC, 2012:361). The following assumptions are made with regard to this alternative (Also refer to Table 4.3.2 for a summary):

- The rate of return, as proposed in the SIMS report, was assumed to be a nominal rate (therefore taking inflation into account).
- The RRT liability calculated is deductible from the corporate income tax, as practised in Australia (Wentzel, 2012:17). Where the RRT payable exceeds the corporate income tax payable in any year, this was treated as a credit against the following year's payable corporate income tax.
- Where the proposal in the SIMS report failed to provide sufficient details on the application of the RRT, the MRRT implemented in Australia was used as guidance.

**Table 4.3.2**

<b>Tax instrument to be applied</b>	<b>Alternative 1</b>	<b>Alternative 2</b>
<b>Corporate Income Tax</b>	Yes – at a rate of 28%	Yes – at a rate of 28%
<b>Royalties</b>	Yes – at a rate of 0.5% to 7%	Yes – at a fixed rate of 1%
<b>Resource Rent Tax</b>	N/A	Yes – at a rate of 50%

The next section outlines the different scenarios where changes to variables in the model were made in order to evaluate the impact of those changes for each of the above alternatives.

#### **4.4. SCENARIOS DESIGNED FOR SENSITIVITY ANALYSIS**

The impact of the following 8 scenarios was investigated for each of the two alternatives tax regimes applied to the hypothetical model:

##### **Scenario 1**

In the first scenario the net present values were calculated without making any adjustments to the hypothetical model as set out in section 4.2. This calculation was also used as the basis to compare the results of all other scenarios in order to evaluate the effect of the variables adjusted in scenarios 2 to 8.

##### **Scenario 2**

In the second scenario, the lifespan of the mine was changed from 10 years to 5 years. By adjusting the amount of years of operation, the effect of higher capital expenditure deductions in each year on the tax payable could be evaluated. It was assumed that the Commissioner would approve capital expenditure to be deducted over the shorter period of 5 years (as per section 36 (11)(d) sub provision (bb) of the Income Tax Act). A study conducted by Otto *et al.* (2006:173-176) evaluates the net present value (NPV) of a mining project depending on the number of years over which the project is run; a similar exercise was performed here.

##### **Scenario 3**

In this scenario, it was assumed that the project is financed through equity (share capital) and not debt. Palmer (1980:540) undertook a case study based on the assumption that the total project is equity financed for the purpose of simplifying the model used. Due to the difference in risk associated with these two types of financing structures, a scenario was dedicated to evaluating the difference between the two. Otto *et al.* (2006:155) also conducted a study on the difference in taxes paid based on the method of finance (cash/equity vs. leveraged/debt). This

scenario provided evidence on the effect of no finance cost on tax payable as well as the effect of a higher discount rate on the net present value calculations. The changes include:

- No finance cost;
- No repayment of a loan at the end of year 10;
- The WACC was increased to 13% (instead of 9%) due to the higher cost of equity since dividends are not tax deductible; and
- Due to the finance cost of R30 million during year 1, not included in the start-up costs, the amount to be financed was now R270 million (and not R300 million).

#### **Scenario 4**

Otto *et al.* (2006:152) conducted a study where different profit scenarios were evaluated by changing the selling price per ton of minerals sold, which simulates a shift in commodity prices. In this scenario revenue growth will be reduced to 10% in order to evaluate the effect of a downturn in commodity prices (without a reduction in mining cost) in a simplified manner.

#### **Scenario 5**

In this scenario it was assumed that the fixed capital expenditure (of R250 million) was evenly incurred over the first 5 years instead of once-off in year one. As in scenario 2, it is assumed that the Commissioner will approve that the capital expenditure incurred from Year 2 to 5 be deducted over the respective remaining period of the mine's life. The loan for financing of the project however was still incurred in year 1. This scenario evaluated the effect of cash flows being distributed over a different time period, as in scenario 1.

#### **Scenario 6**

Inflation was assumed to be 10% instead of the current 7% in order to evaluate the effect of external economic conditions causing a simultaneous increase in revenue and costs. In order for a fiscal instrument to provide for flexible revenue (to government), it should be able to collect a reasonable part of the industry's resource rent under various economic conditions (Hogan, 2012:250).

#### **Scenario 7**

In this scenario, the effect of a 1% increase in the long-term bond rate of 8%, which will result in a required rate of return of 16% applied to the resource rent tax, was evaluated. A similar study has been conducted by Thampapillai (2014:175) where the effect of changes in the return on investment were evaluated. Otto *et al.* (2006:149) comment that the minimum rate of return will vary drastically from company to company, which also justified the evaluation of a change in the return on investment as a scenario. The effect of this change was just investigated for

Alternative 2 as it would not have had any effect on Alternative 1. The results of this were compared to the results of Alternative 2, in Scenario 1.

### **Scenario 8**

The effect of a 10% decrease in the RRT rate (of 50%) levied was evaluated in this scenario in order to determine how sensitive the net present values are to a change in the RRT rate. This scenario was necessary as the proposed 50% is not set in stone and may be changed, depending on the most reliable estimate of the percentage of economic rent that represents resource rent. Alternative 2 alone was investigated, as it has no effect on Alternative 1. The results were compared to the results of Alternative 2, in Scenario 1.

## **4.5. RESULTS OF QUANTITATIVE EVALUATION IN CONJUNCTION WITH QUALITATIVE CONSIDERATIONS**

The results of the scenarios set out in section 4.4, as applied to the hypothetical model for each of the 2 alternative tax regimes, have been summarised in the Appendixes to this document. Appendix A provides a summary of the Rand value of different tax types payable in each of the scenarios for both alternatives. Appendix B provides the net present value for both the taxpayer and the state for each of the scenarios for both alternative tax regimes. It further indicates the % change in net present value from one alternative to the next for each of the abovementioned parties. This appendix also includes graphical presentations of the net present values. Appendix C compares the total tax payable yearly for each scenario in terms of both alternatives and indicates the % movement between them. Lastly, Appendix D contains a graphical representation for each scenario based on the figures presented in Appendix C.

In this section, the results of the hypothetical case study were evaluated from the perspective of the qualitative characteristics and objectives of a good tax regime that were regarded as relevant to this study. Many theoretical studies have been done on the characteristics of a perfect tax regime as well as the various factors that should be taken into account when implementing a new tax regime or making changes to an existing one which will be taken into account in the sections below.

### **4.5.1. Transitional arrangements and the investor's reaction to change**

To implement a new form of tax or to make amendments to an existing tax system requires careful planning and assessment. The biggest issue will probably be the taxpayer's response to such a change. Garnaut (2010a:352) highlights the possible adverse reaction an investor of an

existing mine (In the middle of its life cycle) could display to a sudden change in taxation – something he had never taken into account during the initial evaluation of his investment. For this reason it is important to determine the transitional arrangement in such a way that it is fair and acceptable to the affected taxpayer. As may clearly be seen from the research conducted by Kraal and Yapa (2012:486-487) on the transitional arrangements relating to the implementation of the MRRT in Australia, the process of proposing, approving and implementing a new tax can be tedious, lengthy and politically challenging. When dealing with tax consistency, a government may harm both itself and potential investors by not committing to its future tax treatment of resource projects (Boadway & Keen, 2009:51). This statement boils down to the fact that an investor would be more likely to invest in a project where the future tax liability is known and may be predicted, whereas they will be reluctant to take on a project where it is unsure how much of a successful project's profit will be taxed away. Where an investor decides not to invest, government receives no benefit. Keen *et al.* (2014:11):also commented that: "Limiting distortions is a matter of not only the structure of the fiscal regime at any point in itself, but of its perceived stability: investors will have more confidence to incur the extensive sunk costs of mining the more credible it finds the fiscal regime presented to it."

Triest, cited by Smith (2012:12) said: "Reliable estimates of how tax incentives affect behaviour are an essential input into the formation of tax policy." There is no doubt that the introduction of a RRT would reduce profit potential of South African mining companies and in turn, the attractiveness of South Africa as an investment destination (Wentzel, 2012:17).

In general, the results of the quantitative case study (specifically the material found in Appendix B) indicate that for all scenarios, the benefit (NPV) received by the state is much higher than the benefit received by the taxpayer where a RRT is introduced. This may lead the taxpayer to believe that there is an unfair distribution of mining profits. The net present value for the state also increases by a greater percentage (or decreases by a smaller percentage) from alternative 1 to alternative 2, with the exception of scenario 2. As may be observed in Appendix A, for all scenarios under alternative 2, either corporate tax or RRT is payable. This is due to the RRT being deductible as a tax credit from corporate tax. This treatment results in RRT being payable and corporate tax being completely reduced by the tax credit. As RRT is charged at a higher rate (50%) than corporate tax (28%), alternative 2 results in higher tax payable by the taxpayer or receivable by the state for all scenarios. This further supports the view that the state will receive an even greater benefit from the introduction of a RRT than the loss that the taxpayer will experience. Nevertheless, the variances in the NPV of projects will most certainly impact investors' decisions.



In order to minimise the impact on investors' decisions, the variables of an RRT system would have to be made SA-specific. The important question is what to take into account, to adjust the variables used in the RRT model in order to make the application relevant for the South African mining industry. Two variables that will have to be adjusted for, are: the **return on investment required** by investors necessary for calculation of supernormal profits (economic rent), and the **percentage** of supernormal profits that should be taxed. This study identified and investigated various factors that may possibly influence the required return in order to evaluate the impact of any changes of these factors on the said return. These factors would, for example, include the relationship between risk and return, the type of mine, geological area, commodity prices and so forth. The purpose of scenarios 7 and 8 was to evaluate how sensitive the model would be to changes in the way the resource rent tax is being calculated and therefore provide evidence on the quantitative impact relating to the adjustment of return on investment as well as the tax percentage applied in a RRT regime.

#### **4.5.1.1. Required rate of return**

As discussed in detail in Chapter 2, the investor's required rate of return has to be determined with reference to the risks and opportunity cost borne by the investor. Every investor's expectation would differ from that of another's, based on the specific mining project being invested in. This will probably be the most challenging task when an RRT is introduced, as no single return rate will fit every scenario and investors will also not be satisfied with a rate lower than their respective expectations. Smith (2012:12) supports the view that parameters for the optimal tax must be mine-specific since the risks for every project vary and, in effect, so does the risk premium.

The proposed rate of return, as per the SIMS report (2012:255), is 15%. It is not stated whether this rate is real or nominal. This would make a material difference in assessing a project due to the differences between United States and South African inflation rates (Solomon, 2012:151). These two currencies are of importance due to revenue (commodity prices) being denominated in US dollars while the cost side of a mining operation is mostly denominated in ZAR. Government would have to find a way to determine a rate of return that will be fair to each individual mining operation taxed in terms of the RRT, in order not to distort the investors' decisions.

The application of the required rate of return of 15%, as proposed by the SIMS report (2012:250), would be to include the calculated required rate of return as a cost (or RRT "allowance" as defined in section 2.3). This application would have the same result as the return rate applied in Table 2.3.1. The results of scenario 7 indicate that an increase of 1% in

the required rate of return (to 16%) will only have an effect on the total tax payable from the point where RRT becomes payable (Appendix C). The net present value calculation, as per Appendix B, indicates that this lower rate of tax will result in the same % increase for the taxpayer (1%) as it would result in a decrease for the state (1%). As may also be understood from Appendix D, scenario 7's graph reflects an almost negligible decrease in tax, payable during year 6 from the 1% increase in required rate of return. This is an indication that the state may potentially control the distribution of wealth by adjusting the required rate of return without creating a perception of unfair distribution, and subsequently exercise a greater measure of control over preventing negative investor reaction or withdrawal of investment in South Africa.

#### **4.5.1.2. Percentage of economic rent to be taxed**

The rate of taxation applied in a RRT would largely depend on the "other sources" of economic rent as discussed in Chapter 2. These would vary from mine to mine due to the nature of the mining activities, the geographical location of the mine and the management structure: factors which might result in higher economic rents not constituting resource rents. It is clear that this percentage would be very difficult to determine, as each mining company cannot be separately evaluated, yet the investors would probably not be satisfied with one percentage being applied across the industry.

The percentage proposed by the ANC in the SIMS report (2012:255) is 50%. No reasoning is provided for this rate. Should the RRT be introduced, government is going to provide more clear and precise information as to how the rate was calculated and what it is based on. In scenario 8, a decrease in the resource rent tax charged, resulted in 18% less tax being paid by the taxpayer over the 10 year period (Appendix C). This decrease is only applicable from the point where resource rent tax becomes payable. This is also evident from the graphical representation in Appendix D, indicating that the lower percentage tax will only start having an effect from year 5, when taxable resource rent is being generated. The lower percentage RRT charged is more beneficial for the taxpayer (22% increase in net present value) than it is disadvantageous to the state (18% decrease in net present value) as may be seen from Appendix A. Government could manage the investor's decision by reducing tax payable. By reducing the percentage of tax charged as per the RRT, the investor will receive a marginally higher percentage tax saving compared to the percentage revenue given up or lost by government. Further research is required in order to determine the optimal rate of tax.

#### **4.5.2. Evaluation of implementing a Resource rent tax against results of quantitative evaluation and objectives of a good tax regime**

Various studies have elaborated on the qualitative factors and characteristics that should be present in a tax regime in order to make it effective, efficient and implementable. In the following few paragraphs, these characteristics which were investigated in detail are discussed, applied to a RRT system as studied in Chapter 2 and evaluated against the results of the quantitative case study performed.

In a study conducted by Hogan (2012:250), four criteria were developed according to which a number of tax regimes were evaluated to establish the advantages and disadvantages of each. The criteria included: economic efficiency; rent collection or flexibility of revenue; government's risk as regards stability of income; and administration cost. Hogan and McCallum (2010:18-20) identified seven criteria for evaluating resource taxation options. Many of these overlap with the ones identified by Hogan above and include: neutrality; the investor's assessment of the technical and commercial risk ("Project risk"); the investor's assessment of the country risk ("Sovereign risk"); flexibility of the tax instrument with respect to change; risk that government does not collect a minimum return ("Fiscal loss"); revenue delay – the risk that government does not receive any returns for the first period after project commencement; and administration and compliance cost. All of these criteria are also supported by Guj (2012:5-7) and Keen *et al.* (2014:11). They may be summarised in the following three categories: neutrality and economic efficiency, flexibility and stability of government income and administration and compliance cost, which are elaborated on in subsections A to C below.

##### **A. Neutrality and economic efficiency**

A fiscal instrument is **neutral** if it does not distort investment and production decisions. Lund, as quoted by Smith (2012:12), noted that in order to apply the concept of neutrality, there has to be a theory on how companies and investors will behave. The impact of implementing a RRT on the investors' decisions has been evaluated in 4.5.1 above. This concept goes hand in hand with economic efficiency. **Economic efficiency** determines the extent to which a fiscal instrument will affect exploration, investment, production and decisions on ending of operations. In a mining context the objective would be to ensure that the same exploration and production activities are carried on, irrespective of whether the tax is implemented or not.

Smith (cited by Ergas *et al.* 2010:370), said, "If 100 per cent of the project was a worthwhile investment for the company, 60 per cent of it will be similarly worthwhile so the tax will neither discourage nor encourage investment." Australia's Government Treasury Secretary, Henry, as

reported in *The Australian*, and cited in Ergas *et al.* (2010:370), questioned why 90 percent is not taxed, if the RRT has no effect on efficiency? Based on the same reasoning as Smith's, 1 percent and 0.1 percent will be similarly "worthwhile" for the investor. If this could be true in practice, a RRT would be economically efficient. Nonetheless, contradictory opinions exist; Ergas *et al.* (2010:378) evaluated a RRT as being potentially "extremely inefficient" as the tax liability is triggered by a rate of return threshold; high risk projects with high rates of return will therefore be taxed (which will discourage investment in high risk projects), whereas low risk projects with returns below the threshold will not be taxed, but rather chosen for investment purposes. This was corroborated by a study conducted by Ball & Bowers (2001:1) where research concluded that under conditions of risk, a RRT fails to be neutral.

In general, Appendix B indicates that the net present value decreased for the taxpayer and increased for the state from alternative 1 to alternative 2 in all scenarios except scenario 2. Scenario 2 is the exception, as the project never reaches the point where profit is generated; therefore, other than royalties, very little tax will be charged. As may be deduced from the graphs in Appendix D, a turning point is reached for scenarios 1, 3, 4, 5 and 6 where alternative 2 becomes more expensive for the taxpayer. This is in line with the understanding obtained from the figures in appendix A to C. Scenario 2 only reaches this turning point at the end of 5 years (the total life of the project) as it only then begins generating resource rents.

Scenario 2 stresses the fact that a mine will not be influenced as much by the implementation of a RRT during the first few years of operations. The results as per Appendix B do indicate an increase of 24%, but this is simply due to the lower negative net present value. This positive effect on the negative net present value of the project is due to the lower royalty rates relating to the tax regime in alternative 2, as well as the mine not reaching the point where RRT will be charged. This results in less tax, and therefore in a lower negative net present value. The taxpayer will most likely not choose to operate the mine for a shorter period as this will still result in a negative net present value, regardless of the fact that the introduction of a RRT will decrease the negative net present value of the project significantly where the mine is operated for a shorter period. It can therefore be concluded that the RRT has been avoided in scenario 2 as no profits had been generated by the end of the project life. This affords an indication that the introduction of a RRT might therefore have a major impact on companies that have been operating for extended periods before the introduction of the RRT, as the point where resource rent is being generated, has probably already been reached. This will simply increase the tax payable compared to the current corporate income taxes payable, not providing the existing mining project with any benefit from the start-up period where no RRT has been levied.

Overall, the results of the quantitative study for scenario 2 corroborate the opinion of Ergas *et al.* (2010:378) and the study conducted by Ball & Bowers (2001:1) which states that less profitable low risk projects will not be significantly affected by the introduction of a RRT, whereas high risk, high return projects will be targeted.

## **B. Flexibility and stability of government income**

**Flexibility of government income** refers to the extent to which a fiscal instrument is able to collect a reasonable part of the industry's *resource rent* under various geological and economic conditions (Hogan, 2012:250). Freebairn and Quiggin (2010:394) stated that a RRT would collect more revenue during economic upturns and less during economic slumps. It will also collect the greatest amount from lucrative mining projects. These characteristics support the argument that a RRT regime is flexible and adaptable.

Scenario 4 simulates the effect of a reduction in overall profits and effectively, a change in economic conditions. The point where RRT becomes payable is only reached during year 7 in scenario 4 as opposed to year 6, as in scenario 1 (Appendix A). The decrease in profits results in a decrease in net present value of only 23% compared to the 25% decrease in scenario 1 (Appendix B). The decreased sales also result in lower royalties being payable. Consequently, this results in a high decrease in tax payable during year 1 to 6 and a significant increase from year 8 to 10 as may be appreciated from Appendix C. Similarly, scenario 6 illustrates how an increase in inflation results in higher profits, which results in more tax payable, which is expected from any profit based tax regime. In examining these two scenarios, it could be concluded that a RRT will collect more tax during economic upturns (where higher profits are being generated) and less during economic downturns (where fewer profits are being generated). Consequently a RRT regime can be regarded as flexible and adaptable.

**Stability of government income** is determined by the extent to which a fiscal instrument can collect a relatively stable and predictable amount of income (Hogan, 2012:250). Hogan and McCallum (2010:20) state that a fiscal instrument that is not responsive to changes in future market conditions will provide a more stable source of government income and is less likely to give rise to fiscal losses. The RRT (as mentioned in B above) is very flexible towards changes in market conditions, which may result in instability of government revenue. This is however only the case where the RRT is evaluated as the only fiscal instrument implemented. Looking at a combination of fiscal instruments (royalties, corporate income tax and RRT), stability would probably not be an issue. The stability of government income may be influenced by various conditions that could exist for diverse mining projects, including the methods used for financing

a project as well as timing of cost incurred for mining projects. Scenario 3 and scenario 5 provide evidence on the effect of changes in these conditions.

When comparing a project financed through debt (scenario 1, alternative 2) and one financed through equity (scenario 3, alternative 2), it is clear that the fact that no finance cost is paid does not have an effect on the tax payable. This is due to finance cost not being deductible for RRT purposes. The only difference in tax payable, as per Appendix A, is due to a higher corporate income tax in scenario 3, as no finance costs have been deducted in calculating the taxable income. The higher percentage decrease in the net present value for scenario 3 (28%), as per Appendix B, for the taxpayer compared to scenario 1 (25%) is therefore due mainly to the higher WACC relating to equity financing and the fact that no finance cost is available for deduction for the purposes of calculating corporate income tax. It may thus be concluded that the introduction of a RRT will have a more significant negative impact on the NPV of projects financed through equity than for projects financed through debt. Similarly, government will receive greater benefit from projects financed through equity than from projects financed through debt (see higher NAV for both alternatives in scenario 3 compared to scenario 1 in Appendix B). Furthermore, this difference, due to the method of finance, is able to influence the stability and predictability of government income.

In scenario 5, the spreading of costs results in RRT becoming payable 1 year earlier than in scenario 1. Comparing the results of scenario 1 and scenario 5 in terms of alternative 1, it is evident that only the timing of tax payable is affected. The total tax payable, however, remains R762,314 (Appendix C) for both scenarios. In terms of alternative 2, the total tax payable increases from scenario 1 (R1,087,24) to scenario 2 (R1,131,664) as established in Appendix C. This is due to RRT becoming payable from an earlier period in scenario 2 and which is charged at a higher rate than corporate income tax; this eliminates corporate income taxes as soon as resource rent is being generated. The significant decrease and increase in net present value for the taxpayer and the state respectively is due to RRT already becoming payable from year 5 at a higher rate than corporate tax (Appendix B). These timing differences in cost being incurred may result in unpredictable timing of government income and might therefore result in the flow of government income becoming erratic and unpredictable.

### **C. Administration and compliance cost**

This refers to the cost for both government (cost of development and implementation of fiscal instrument as well as cost to monitor compliance) and for investor compliance (Hogan, 2012:250). As long as there are no administrative costs associated with multiplicity of instruments, taxation will also remain efficient (Cyan, 2010:6). The implementation of a RRT (as

was the case in Australia) will, without any doubt, result in heightened administration and compliance costs (McCartin & Strong, 2012:31). These costs will include changes to accounting systems, new valuation opinions, changes in transfer pricing policies etc. From the perspective of government, guidance will have to be provided in order to assist taxpayers to prepare for the transition (McCartin & Strong, 2012:31).

#### **4.5.3. Evaluation of implementing a RRT against set objectives of mineral legislation as required by the MPRDA**

Section 2 of the Mineral and Petroleum Resources Development Act 28 of 2002 sets out various objectives that should be met through the act. These objectives are a good indication of those that should be met through any legislation proclaimed on mineral resources within the republic. Section 2(a) to (c) requires that the legislation should give government the right to exercise sovereignty and custodianship and promote equitable access to the mineral and petroleum resources within South Africa to the people of South Africa. Based on information gathered and knowledge gained up to this point, it is clear that the implementation of a resource rent tax would increase the benefit derived by government from mining operations. Should this benefit be employed in the correct manner, the above mentioned objectives would be met. The MPRDA (section 2(d) and (e)) further requires the legislation to promote the expansion of opportunities to previously disadvantaged parties, to participate or benefit from mining operations, as well as promote economic growth in the mining industry. Since the implementation of a RRT is likely to reduce the benefit derived from mining activities by investors (as may be seen from the conclusions reached in section 4.5), investors are likely to withdraw their participation in these mining projects. This will result in the opposite of promoting economic growth: its hindrance. Lastly, sections 2(f) to (i) require legislation to enable the mining industry to provide employment opportunities, security of tenure, conduct operations in an orderly and ecologically sustainable manner and to contribute towards socio-economic development in the areas mining operations are carried on. Since costs incurred in respect of employment, housing and socio-economic development of mines are included in the costs to be deducted from revenue in arriving at a mining project's resource rent, the imposition of a RRT will not influence the taxpayer/investor in incurring these costs. From the above, it is evident that the introduction of a RRT might prevent the objective of promoting economic growth to be met. In all other respects, it is not expected to interfere with reaching the set objectives.

#### 4.6. SUMMARY OF FINDINGS

From the quantitative evaluation, a few specific findings were made:

- A RRT will normally lead to a lower NPV for the investor and a higher one for the state (with the exception of scenario 8). This is due to CIT and RRT being charged on more or less the same basis (taking into account the same revenues and expenses, with the exception of finance costs), but with RRT being charged at a higher rate. From this observation, it may be understood that the state will be able to distribute a larger portion of benefits derived from mining projects to the community through the introduction of a resource rent tax.
- Equity versus debt financing will not have a significant effect on the decrease in net present value that will result from the introduction of a resource rent tax.
- Findings based on all the scenarios evaluated above, make it evident that once a mine starts generating resource rents, the net present value of the investment will start decreasing. The state may however adjust the percentage tax charged or the required rate of return to reduce the severity of the decrease in value. Future research is deemed necessary to determine the optimal percentage of tax charged and the required rate of return in order to avoid the withdrawal of investment in mining projects.

Evaluating the quantitative effect of the introduction of a resource rent tax is however not sufficient to form an opinion on how this will affect the taxpayer and the state respectively. Further conclusions may be drawn from the qualitative factors evaluated in conjunction with the results of the case study:

- Due to a RRT only targeting high risk, high profit projects, this tax regime fails to be neutral. In addition, it was found that this will result in a RRT being inefficient.
- A RRT will collect more tax during economic upturns (where higher profits are being generated) and less during economic downturns (where fewer profits are being generated). Consequently, a RRT regime may be regarded as flexible and adaptable, therefore ensuring flexibility of government income.
- It was nonetheless concluded that a RRT may not necessarily provide stable, predictable government income due to timing differences in mining costs incurred and differences in methods of financing between mining projects. These differences may result in an unpredictable and possibly erratic income to government.
- Lastly, it was concluded that the introduction of a RRT will result in excessive administration and compliance costs.



#### **4.7. CONCLUSION**

The effects of the implementation of a RRT have now been evaluated from both quantitative and qualitative perspectives. As may be seen from the summary of the study findings, some areas are still in need of further future research; nonetheless there are definite indications of advantages that may flow from the introduction of a resource rent tax. Chapter 5 addresses the research conclusions and recommendations.

## **5. CONCLUSIONS AND RECOMMENDATIONS**

In an attempt to achieve a more equitable distribution of the wealth created by South African mines from the country's natural resources, the ANC proposed the introduction of a resource rent tax on mining operations in South Africa during 2012. This study was conducted in order to gather information to draw conclusions on how the introduction of this resource rent tax would influence the mining industry in South Africa. The study focussed on both the qualitative as well as the quantitative impact.

In concluding this study, two broad aspects are discussed: how the research objectives, as set out in section 1.4, were met and recommendations for future research.

### **5.1. Research objectives and overall conclusions drawn**

The details of the research objectives were set out in the first section of this document. The proposed research methodology was applied in order to conduct research in such a way as to meet the set objectives. In Chapter 2, understanding was gained concerning the working of a RRT. All the necessary information was gathered to apply the calculation of a RRT to the tax calculation of a mining entity. The concept of the RRT was introduced by Garnaut and Clunies Ross during 1975 with the intention that this tax instrument was to be used in combination with other tax instruments. This was largely due to the advantages and disadvantages relating to the respective tax instruments. In an attempt to eliminate the disadvantages, a combination of tax instruments could be applied. From the research conducted on the advantages and disadvantages of a RRT in particular, it was concluded that the chief advantage of a RRT is that the tax is charged on mining profits, not mining output (aligning the taxes with cash-flows), and that the most significant disadvantage relates to the complexity of the calculation of resource rent taxes. The complexity is due to the subjectivity in calculating the amount of revenue generated that constitutes resource rent, as well as the fact that the return on investment (investors' required rate of return) will differ for every mining project. It would therefore be difficult to develop a regime that will be fit for every situation and be fair to all mining companies in South Africa.

Chapter 3 deals with the functioning of the current tax regime applied in South Africa. Research proved that the taxable income calculated for corporate income tax purposes takes into account very similar revenues and costs to those required to be considered in calculating the economic rent of a mine for resource rent tax purposes. The one significant exception is that finance costs are deductible from taxable income, but not from economic rent.

In the last chapter, both qualitative and quantitative evaluations were performed to determine the effect that the introduction of a RRT, as proposed by the SIMS report, would have on a hypothetical mining company. The quantitative evaluation performed demonstrated that in most scenarios, the introduction of a RRT will result in a lower net present value for a mining project and a higher net present value for the state. It was further concluded that once a mine starts generating resource rents, the net present value of the investment will start decreasing. This is due to RRT being charged at a higher rate than corporate income tax. Section 4.6 presented a summary of all findings.

From the qualitative evaluation it could be concluded that the introduction of a new tax instrument may discourage investment in mining projects; therefore various qualitative aspects have to be kept in mind when making the decision to introduce a RRT. From these evaluations it could be concluded that the implementation of a RRT in South Africa would require careful consideration for the required rate of return and rate of tax used in the tax calculation. It was proven that government would be able to effectively make use of these two variables to reduce the impact the RRT might have on investors. Contradictory opinions exist on whether a RRT is neutral and economically efficient. In my opinion, based on the qualitative results of the case study, a resource rent tax would prove to be inefficient due to the fact that it will only tax mining companies with a higher rate of return and, in effect, higher risk companies. As investors are prepared to take on high risk projects for the purpose of generating higher returns, the introduction of a RRT reducing this return might negatively influence the investor's decision. This however proves a RRT to be flexible, as it collects more rent from companies with high profits and less from companies with lower profits. A RRT has however also been shown not to provide government income that is stable and predictable. An important aspect that should be kept in mind is the regulation and administration surrounding the introduction of any new tax to ensure a smooth transition. This administration will result in elevated costs for both the investor and the state.

## **5.2. Recommendations for future research**

During the course of the research conducted, two additional possibilities for future research concerning the same problem statement were identified. Refer to section 4.6 for the summary of findings where further research potential was identified. In sections 4.5.1.1 and 4.5.1.2 of this document, the variables (required rate of return and percentage of economic rent to be taxed) that will need adjustment and careful consideration in making the RRT SA-specific, have been touched on. An opportunity exists for further research regarding the factors that would influence these variables and how an optimal model would look in order to accommodate any mining entity in the South African mining industry and which could therefore be applied to projects of all

types, sizes and risk profiles. Another potential opportunity lies in researching the possibility of adjusting the current South African tax regime (corporate income tax regime provisions) to achieve the same goal the ANC envisioned with the introduction of a RRT. The case study done, focussed on the impact on a resident company – research can be extended to evaluate the impact on non-resident investors. Lastly, the study can also be extended to evaluate the effect of a RRT on specific minerals/mines, for example gold mines vs. diamond mines.

### **5.3. Final conclusion**

Based on research conducted and results evaluated, it may be concluded that the introduction of a RRT might potentially result in a fairer distribution of resource rents between the investor and the community (rightful owners of the natural resources). Research however established that this is likely to influence the investor's decision to invest in mining projects. This will result in a general downturn in mining revenue generated across the industry, which will in turn defeat the initial purpose. This potential impact on investors' decisions may be counteracted through further research with regard to variables used in the RRT model, as stated in 5.2 above. A RRT is therefore demonstrated to offer various benefits, even although certain aspects will require further evaluation.

## 6. BIBLIOGRAPHY:

Abdo, H. 2014. Investigating the effectiveness of different forms of mineral resources governance in meeting the objectives of the UK petroleum fiscal regime. *Energy Policy*, 65:48-56.

ANC. 2012. SIMS Summary. <http://www.anc.org.za/docs/reps/2012/simssummaryz.pdf> Date of access: 4 May 2012.

Andrews-Speed, P. & Rogers, C.D. 1999. Mining taxation issues for the future. *Resources Policy*, 25(4):221-227.

Ball, R. & Bowers, J. 1983. Distortions created by taxes which are options on value creation: The Australian resources rent tax proposal. *Australian Journal of Management (University of New South Wales)*, 8(2):1-14.

Boadway, R. & Keen, M. 2009. Theoretical perspectives on resource tax design. Canada, Kingston: Department of Economics. 68p. (Queen's Economics Department Working Paper No. 1206)

Botiveau, R. 2014. The politics of Marikana and South Africa's changing labour relations. *African Affairs*, 113(450):128-137.

Bowman, A. & Isaacs, G. 2014. Demanding the Impossible? Platinum mining profits and wage demands in context. *Research on Money and Finance: Occasional Policy*. 14p.

Cawood, F.T. & Oshokoya, O.P. 2013. Considerations for the resource nationalism debate: a plausible way forward for mining taxation in South Africa. *Journal of the Southern African Institute of Mining and Metallurgy*, 113(1):53-59.

Coetzee, K., Van der Zwan, P. & Schutte, D. 2014. Taxation research. Potchefstroom: NWU, Potchefstroom Campus. (Study guide TAXM 873).

Cohen, L., Manion, L., & Morrison, K. 2007. Research methods in education (6th Edition). London: Routledge. 638p.

Curtis, M. 2009. Mining and tax in South Africa: Costs and benefits. <http://curtisresearch.org/SAfrica.MiningTax.Feb09.Curtis.pdf> Date of access: 28 September 2014.

Cyan, M.R. 2010. The effects of rent assignment on long lived public good in exhaustible resource economies. Georgia: Georgia State University (Dissertation – DPhil). 263p.

Deloitte. 2011. Minerals resource rent tax exposure draft legislation released. [http://www.deloitte.com/assets/Dcom-Australia/Local%20Assets/Documents/Industries/Energy%20and%20resources/Deloitte\\_Minerals\\_Resource\\_Rent\\_Tax\\_%20June%202011.pdf](http://www.deloitte.com/assets/Dcom-Australia/Local%20Assets/Documents/Industries/Energy%20and%20resources/Deloitte_Minerals_Resource_Rent_Tax_%20June%202011.pdf) Date of access: 5 October 2014.

Dore, M.H.I. 1990. On market structure and the taxation of exhaustible resources: a sales tax, it is argued, will capture the rents and lower the cut-off grade of ore mined. *American Journal of Economics & Sociology*, 49(4):459-468.

Du Venage, G. 2014. Africa remains an important destination for mining investment: failed policies and ongoing issues in South Africa put a damper on a discussion that should otherwise be upbeat. *Engineering & Mining Journal*, 215(3):42-45.

Ergas, H., Harrison, M. & Pincus, J. 2010. Some economics of mining taxation. *Economic Papers*, 29(4):369-383.

Faku, D. 2012. 'Rent tax needed to transform mines'. *The Star*: 15, 19 Mar.

Fane, G. 2012. Allocating and taxing rights to state-owned minerals. *Bulletin of Indonesian Economic Studies*, 48(2):173-189).

Fraser, R. & Kingwell, R. 1997. Can expected tax revenue be increased by an investment-preserving switch from *ad valorem* royalties to a resource rent tax? *Resources Policy*, 23(3):103-108.

Freebairn, J. & Quiggin, J. 2010. Special taxation of the mining industry. *Economic Papers*, 29(4):384-396.

Garnaut, R. 2010a. Principles and practice of resource rent taxation. *Australian Economic Review*, 43(4):347-356.

Garnaut, R. 2010b. *The new Australian Resource Rent Tax*. Melbourne: The University of Melbourne. 20p.

Garnaut, R & Clunies-Ross, A. 1975. Uncertainty, risk-aversion and the taxing of natural resource projects. *Economic Journal*, 85(338):272-287.

Guj, P. 2012. *Mineral royalties and other mining specific taxes*. Australia: International Mining for Development Centre. 16p.

Harvey, R. 2014. Mining and development: lessons learnt from South Africa and beyond. *Governance of Africa's Resources Programme, Policy Briefing*, 86:1-4.

Hausman, J. 2011. Non-neutrality of the proposed resource super profit tax. *Australian Economic Review*, 44(3):239-244.

HIS Global Inc. 2014. Country reports: South Africa. *South Africa Country Monitor*: 1-23.

Hogan, L. 2012. Non-renewable resource taxation: policy reform in Australia\*. *Australian Journal of Agricultural & Resource Economics*, 56(2):244-259.

Hogan, L. & McCallum, R. 2010. Non-renewable resource taxation in Australia. Australia: ABARE BRS. 61p.

Honey, D. & Mok, L. 2010. Australia waits on minerals Resource Rent Tax. *International Tax Review*, 21(8):35-37.

Hope, G. 2014. A new vision for mining. *Inside Mining*, 7(2):8-9.

Keen, M., Mullins, P., Luca, O. & Eggert, R. 2014. Reviewing the fiscal regime for mining. Israel: International Monetary Fund, Fiscal Affairs Department. 49p.

Kraal, D. & Yapa, P.W.S. 2012. Resource Rent Taxes: the politics of legislation. *Australian Tax Forum*, 27(3):485-525.

Lund, D. 2011. Neutrality of the Resource Super Profits Tax. *Australian Economic Review*, 44(3): 233-238.

- Mack, L. 2010. The philosophical underpinnings of educational research. *Polyglossia*, 19:5-11.
- McCartin, P. & Strong, J. 2012. How to effectively manage new mining taxes. *International Tax Review*, 23(4):31.
- Myburgh, A. 2013. The taxation of South African mining and prospecting companies: certain and predictable? *Tax ENSight*. 19 November. <http://www.ensafrica.com/news/The-Taxation-of-South-African-Mining-and-Prospecting-Companies-Certain-and-Pred?id=1241&STitle=tax%20ENSight> Date of access: 28 September 2014.
- Nevin, T. 2012. Ripples from Marikana. *African Business*, 391:72-74.
- Otto, J., Andrews, C., Cawood, F., Doggett, M., Guj, P., Stermole, F., Stermole, J. & Tilton, J. 2006. *Mining royalties: a global study of their impact on investors, government and civil society*. Washington DC: The World Bank. 297p.
- Palmer, K.F. 1980. Mineral taxation policies in developing countries: an application of Resource Rent Tax. *Staff Papers – International Monetary Fund*, 27(3):517-542.
- Park, H.M. & Nelson, M.G. 2013. Mining project evaluation process for investment decisions: Risk variables in mining projects: part one. *Mining Engineering*, 65(10):18-21.
- Paton, C. 2012. Minerals paper proposes 50% tax on super-profits. *Business Day*: 4, 6 Mar.
- Perroni, C. & Whalley, J. 1998. Rents and the cost and optimal design of commodity taxes. *Review of Economics & Statistics*, 80(3):357-364.
- PricewaterhouseCoopers. 2014. Does South Africa currently have a withholding tax on interest? *Synopsis, Tax today*: March 2014: 1-8.
- Scotland, J. 2012. Exploring the philosophical underpinnings of research: relating ontology and epistemology to the methodology and methods of the scientific, interpretive, and critical research paradigms. *English Language Teaching*, 4(9):9-16.
- Smith, J.L. 2012. Issues in extractive resource taxation: a review of research methods and models. S.I.: International Monetary Fund. 26p.



Solomon, M. 2012. The rise of resource nationalism: a resurgence of state control in an era of free markets or the legitimate search for a new equilibrium? Cape Town: Southern African Institute of Mining and Metallurgy. 155p.

Sorensen, P. 2011. Legislative transformation of South African mining since 1994: what progress? *International Journal of Environmental Studies*, 68(2):171-190.

South Africa. 2003. Financial Advisory and Intermediary Services Act: Codes of conduct for administrative and discretionary financial services providers, 2003. (Notice 79). *Government gazette*, 25299:3, 8 Aug.

South Africa. 2011. Mineral and Petroleum Resources Development Act 28 of 2002. Available: [www.acts.co.za](http://www.acts.co.za).

South Africa. 2014. Income Tax Act 58 OF 1962. Available: SARS website, LexisNexis.

South Africa. 2014. Mineral and Petroleum Resources Royalties Act 29 OF 2008. Available: SARS website, LexisNexis.

South African Reserve Bank. 2014. Current market rates: Daily average yield on government bonds with an outstanding maturity of 10 years and longer. <https://www.resbank.co.za/Research/Rates/Pages/CurrentMarketRates.aspx> Date of access: 31 August 2014.

Statistics South Africa. 2014. Statistical release: Consumer Price Index, May 2014. <http://beta2.statssa.gov.za/publications/P0141/P0141May2014.pdf> Date of access: 31 August 2014.

Strydom, B. 2012. Mining and petroleum royalties. [www.bowman.co.za/News.../South-Africa-Mining-and-Petroleum-Royalties](http://www.bowman.co.za/News.../South-Africa-Mining-and-Petroleum-Royalties). Date of access: 19 July 2014.

Thampapillai, D.J., Bolat, A. & Hansen, J. 2014. Resource Rent Taxes and sustainable development: A Mongolian case study. *Energy Policy*, 71:169-179.

Tilton, J.E. Determining the optimal tax on mining. *Natural Resources Forum*, 28(2004):144-149.

The SAIT. 2013. An overview of South Africa's withholding tax regime. <http://www.thesait.org.za/news/160184/An-overview-of-South-Africas-withholding-tax-regime.htm>. Date of access: 25 August 2014.

Tshikovhi, S. & Kalagadi Manganese. 2012. Mining in South Africa: nationalisation vs. changes in the tax regime. *TAXtalk*, 33:22-23.

Van Blerck, C.M. 1992. Mining tax in South Africa. 2<sup>nd</sup> Edition. Rivonia: Taxfax CC. 532p.

Van der Zwan, P. 2009. Mineral royalties: a review of the development of mineral royalty legislation in South Africa. Pretoria: UP. (Mini-dissertation – MCOM).

Vigario, F. 2007. Managerial Accounting. 4<sup>th</sup> Edition. Durban: LexisNexis.

Wentzel, W. 2012. A regulatory analysis of the potential impact of the African National Congress's report entitled maximising the developmental impact of the people's mineral assets: State Intervention in the Minerals Sector. Johannesburg: African Leadership Network. 35p.

APPENDIX A

ALTERNATIVE 1 *											
SCENARIO	TAX TYPE	Y1 ZAR'000	Y2 ZAR'000	Y3 ZAR'000	Y4 ZAR'000	Y5 ZAR'000	Y6 ZAR'000	Y7 ZAR'000	Y8 ZAR'000	Y9 ZAR'000	Y10 ZAR'000
Scenario 1	<b>Total tax payable:</b>	-	7,800.00	11,346.00	16,074.72	28,702.19	63,464.81	92,355.44	129,456.09	176,886.52	236,228.16
	Royalties	-	7,800.00	11,346.00	16,074.72	22,334.91	29,907.00	39,729.79	52,427.12	68,788.34	88,338.72
	Corporate income tax	-	-	-	-	6,367.28	33,557.81	52,625.65	77,028.97	108,098.18	147,889.44
Scenario 2	<b>Total tax payable:</b>	-	7,800.00	11,346.00	16,074.72	22,334.91	N/A	N/A	N/A	N/A	N/A
	Royalties	-	7,800.00	11,346.00	16,074.72	22,334.91	N/A	N/A	N/A	N/A	N/A
	Corporate income tax	-	-	-	-	-	N/A	N/A	N/A	N/A	N/A
Scenario 3	<b>Total tax payable:</b>	-	7,800.00	11,346.00	32,252.37	50,324.54	72,704.81	101,595.44	138,696.09	186,126.52	245,468.16
	Royalties	-	7,800.00	11,346.00	16,074.72	22,334.91	29,907.00	39,729.79	52,427.12	68,788.34	88,338.72
	Corporate income tax	-	-	-	16,177.65	27,989.63	42,797.81	61,865.65	86,268.97	117,338.18	157,129.44
Scenario 4	<b>Total tax payable:</b>	-	7,800.00	9,828.00	11,909.43	14,895.00	17,989.31	23,010.90	49,601.44	65,541.35	84,160.70
	Royalties	-	7,800.00	9,828.00	11,909.43	14,895.00	17,989.31	22,362.96	26,934.22	33,313.76	40,030.53
	Corporate income tax	-	-	-	-	-	-	647.94	22,667.22	32,227.59	44,130.17
Scenario 5	<b>Total tax payable:</b>	-	7,800.00	11,346.00	16,074.72	38,896.64	61,425.92	90,316.55	127,417.20	174,847.64	234,189.27
	Royalties	-	7,800.00	11,346.00	16,074.72	22,334.91	29,907.00	39,729.79	52,427.12	68,788.34	88,338.72
	Corporate income tax	-	-	-	-	16,561.72	31,518.92	50,586.76	74,990.08	106,059.29	145,850.55
Scenario 6	<b>Total tax payable:</b>	-	7,800.00	11,625.00	16,875.00	33,646.54	70,790.77	105,187.99	150,627.35	209,325.18	287,240.29
	Royalties	-	7,800.00	11,625.00	16,875.00	24,023.46	32,959.04	44,860.92	60,653.78	80,108.78	107,288.58
	Corporate income tax	-	-	-	-	9,623.08	37,831.74	60,327.07	89,973.57	129,216.40	179,951.71

\* This table indicates the various taxes payable under each scenario for Alternative 1

ALTERNATIVE 2 #

SCENARIO	TAX TYPE	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
		ZAR'000	ZAR'000	ZAR'000	ZAR'000	ZAR'000	ZAR'000	ZAR'000	ZAR'000	ZAR'000	ZAR'000
Scenario 1	<b>Total tax payable:</b>	-	3,000.00	3,660.00	4,465.20	23,290.03	76,668.71	151,437.39	203,147.20	268,984.77	352,470.76
	Royalties	-	3,000.00	3,660.00	4,465.20	5,447.54	6,646.00	8,108.12	9,891.91	12,068.13	14,723.12
	Corporate income tax	-	-	-	-	17,842.49	-	-	-	-	-
	Resource rent tax	-	-	-	-	-	70,022.71	143,329.27	193,255.29	256,916.64	337,747.64
Scenario 2	<b>Total tax payable:</b>	-	3,000.00	3,660.00	4,465.20	23,290.03	N/A	N/A	N/A	N/A	N/A
	Royalties	-	3,000.00	3,660.00	4,465.20	5,447.54	N/A	N/A	N/A	N/A	N/A
	Corporate income tax	-	-	-	-	17,842.49	N/A	N/A	N/A	N/A	N/A
	Resource rent tax	-	-	-	-	-	N/A	N/A	N/A	N/A	N/A
Scenario 3	<b>Total tax payable:</b>	-	3,000.00	6,635.86	24,413.73	38,165.63	76,668.71	151,437.39	203,147.20	268,984.77	352,470.76
	Royalties	-	3,000.00	3,660.00	4,465.20	5,447.54	6,646.00	8,108.12	9,891.91	12,068.13	14,723.12
	Corporate income tax	-	-	2,975.86	19,948.53	32,718.09	-	-	-	-	-
	Resource rent tax	-	-	-	-	-	70,022.71	143,329.27	193,255.29	256,916.64	337,747.64
Scenario 4	<b>Total tax payable:</b>	-	3,000.00	3,510.00	4,106.70	4,804.84	5,621.66	23,231.25	91,129.78	112,699.86	138,843.49
	Royalties	-	3,000.00	3,510.00	4,106.70	4,804.84	5,621.66	6,577.34	7,695.49	9,003.72	10,534.35
	Corporate income tax	-	-	-	-	-	-	11,114.84	-	-	-
	Resource rent tax	-	-	-	-	-	-	5,539.07	83,434.29	103,696.14	128,309.14
Scenario 5	<b>Total tax payable:</b>	-	3,000.00	3,660.00	11,062.93	26,886.74	111,014.17	151,437.39	203,147.20	268,984.77	352,470.76
	Royalties	-	3,000.00	3,660.00	4,465.20	5,447.54	6,646.00	8,108.12	9,891.91	12,068.13	14,723.12
	Corporate income tax	-	-	-	6,597.73	1,238.57	-	-	-	-	-
	Resource rent tax	-	-	-	-	20,200.63	104,368.17	143,329.27	193,255.29	256,916.64	337,747.64
Scenario 6	<b>Total tax payable:</b>	-	3,000.00	3,750.00	4,687.50	27,529.90	95,330.68	168,802.66	231,928.08	314,593.10	422,358.05
	Royalties	-	3,000.00	3,750.00	4,687.50	5,859.38	7,324.23	9,155.29	11,444.11	14,305.14	17,881.43
	Corporate income tax	-	-	-	-	21,670.52	-	-	-	-	-
	Resource rent tax	-	-	-	-	-	88,006.45	159,647.37	220,483.97	300,287.96	404,476.62
Scenario 7	<b>Total tax payable:</b>	-	3,000.00	3,660.00	4,465.20	23,290.03	69,109.27	151,437.39	203,147.20	268,984.77	352,470.76
	Royalties	-	3,000.00	3,660.00	4,465.20	5,447.54	6,646.00	8,108.12	9,891.91	12,068.13	14,723.12
	Corporate income tax	-	-	-	-	17,842.49	-	-	-	-	-
	Resource rent tax	-	-	-	-	-	62,463.27	143,329.27	193,255.29	256,916.64	337,747.64
Scenario 8	<b>Total tax payable:</b>	-	3,000.00	3,660.00	4,465.20	23,290.03	62,664.16	122,771.54	164,496.14	217,601.44	284,921.24
	Royalties	-	3,000.00	3,660.00	4,465.20	5,447.54	6,646.00	8,108.12	9,891.91	12,068.13	14,723.12
	Corporate income tax	-	-	-	-	17,842.49	-	-	-	-	-
	Resource rent tax	-	-	-	-	-	56,018.16	114,663.42	154,604.23	205,533.31	270,198.12

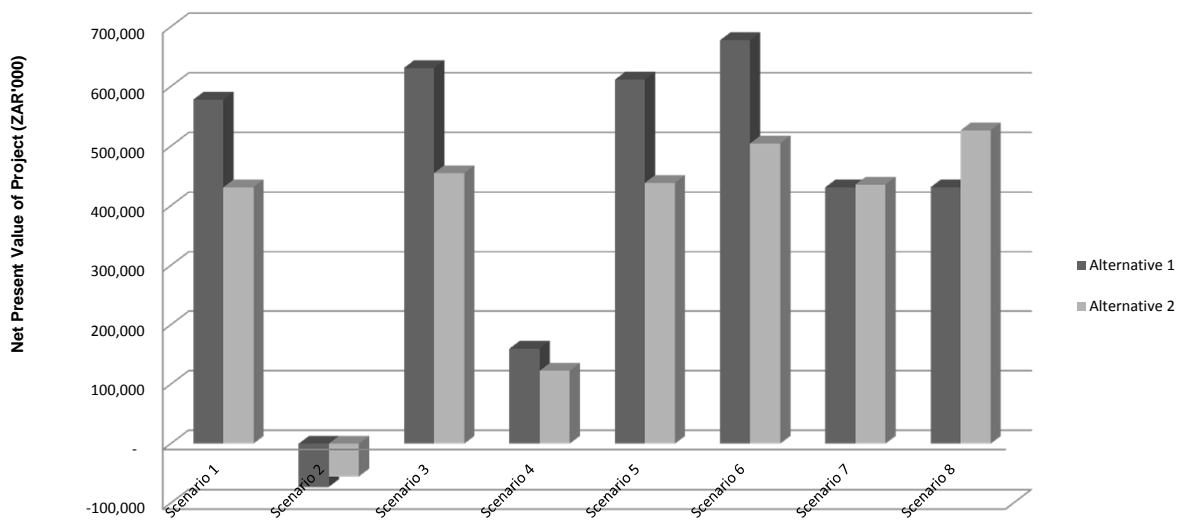
# This table indicates the various taxes payable under each scenario for Alternative 2

APPENDIX B

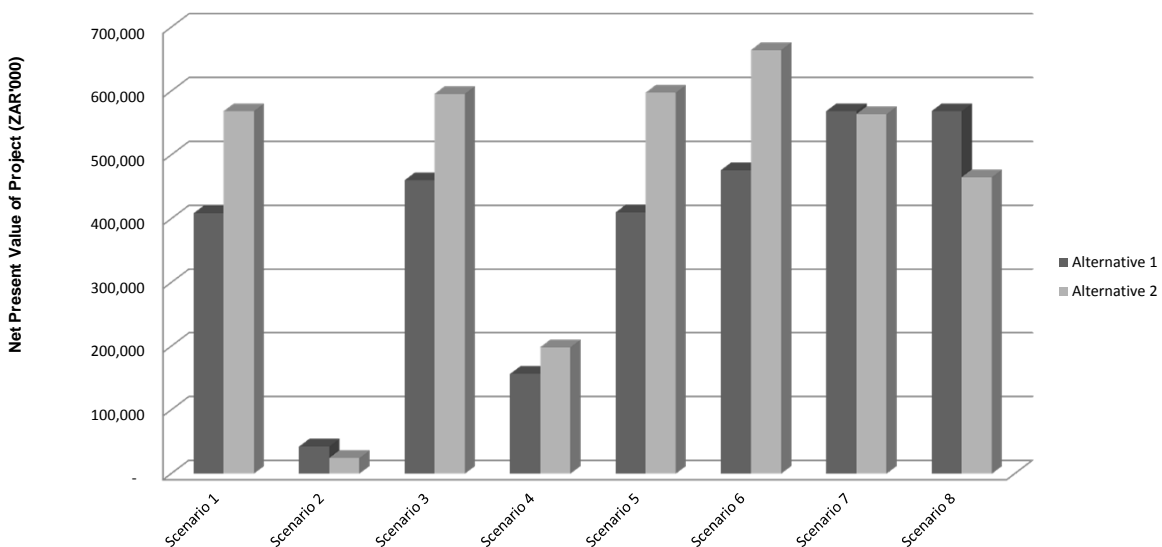
NET PRESENT VALUE OF THE PROJECT - INVESTOR			
Alternative 1	Alternative 2	Difference between alternatives	
Current regime	RRT regime		
ZAR'000	ZAR'000		
Scenario 1	578,080	431,114	-25%
Scenario 2	-72,807	-55,228	24%
Scenario 3	631,402	455,018	-28%
Scenario 4	159,973	122,578	-23%
Scenario 5	611,484	438,499	-28%
Scenario 6	677,729	504,682	-26%
Scenario 7	431,114	435,622	1%
Scenario 8	431,114	526,735	22%

NET PRESENT VALUE OF THE PROJECT - STATE			
Alternative 1	Alternative 2	Difference between alternatives	
Current regime	RRT regime		
ZAR'000	ZAR'000		
Scenario 1	408,774	568,862	39%
Scenario 2	42,710	24,610	-42%
Scenario 3	460,489	596,012	29%
Scenario 4	156,711	198,669	27%
Scenario 5	410,171	597,803	46%
Scenario 6	476,347	664,612	40%
Scenario 7	568,862	564,099	-1%
Scenario 8	568,862	465,436	-18%

NET PRESENT VALUE OF THE PROJECT - INVESTOR



NET PRESENT VALUE OF THE PROJECT - STATE



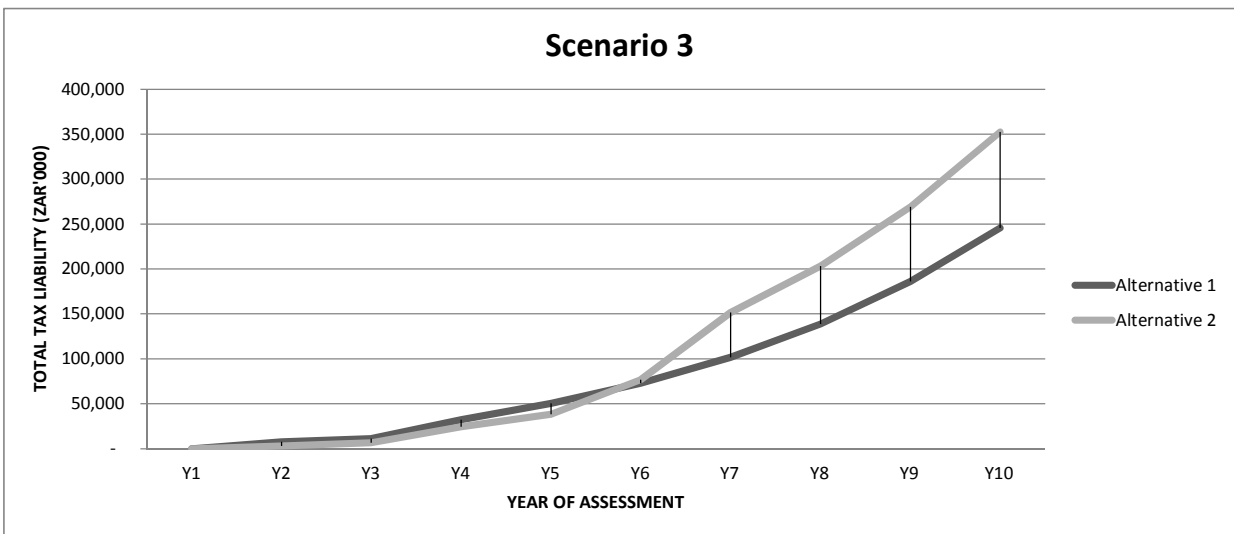
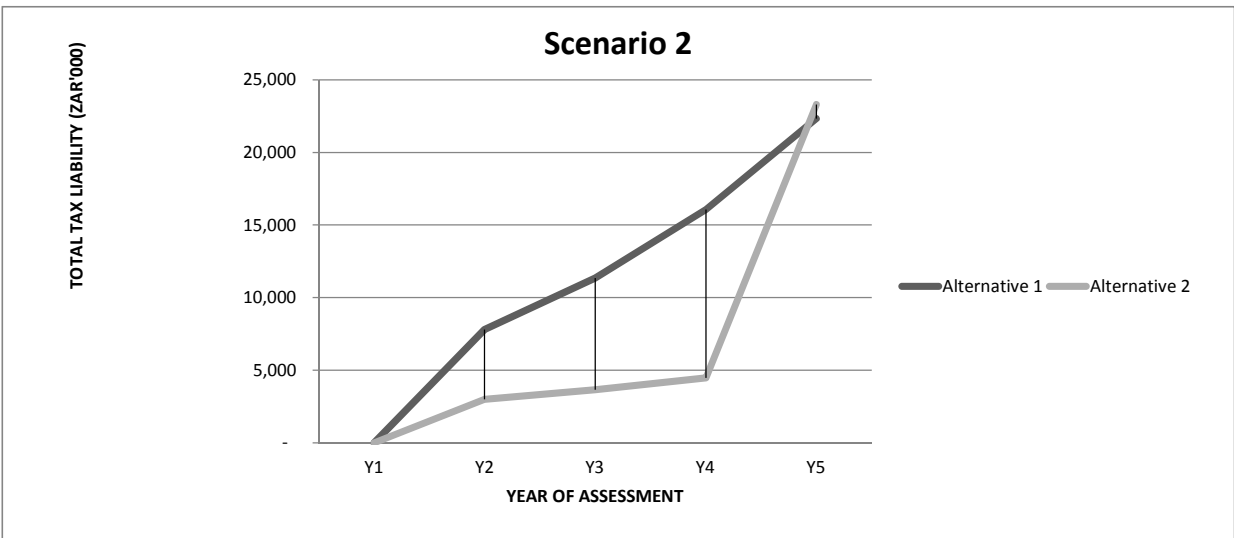
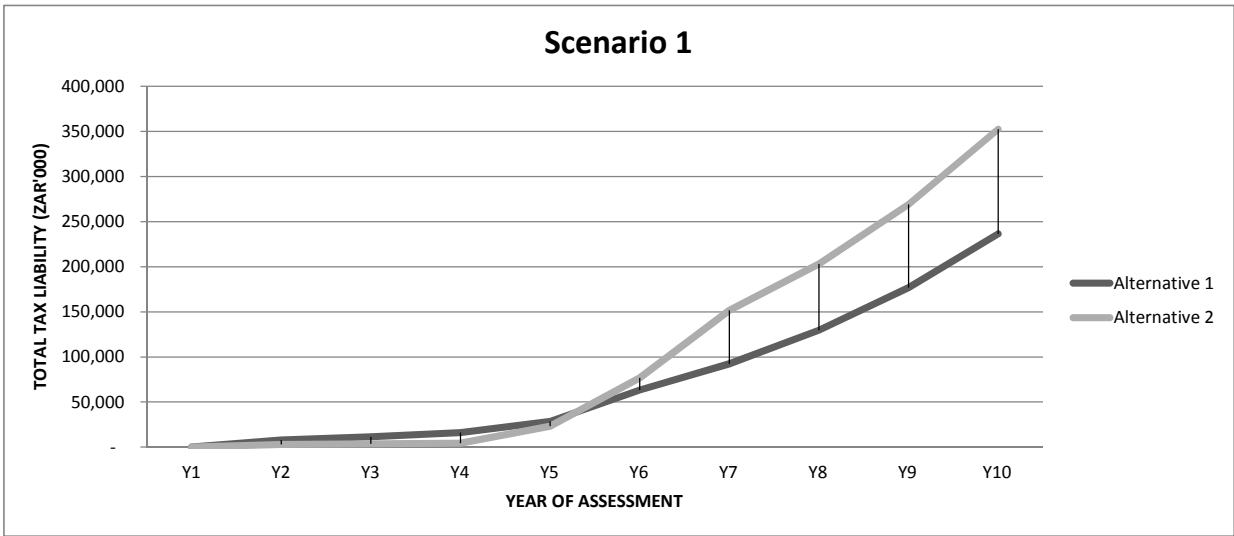
APPENDIX C

Year	Scenario 1			Scenario 2			Scenario 3		
	Alternative 1	Alternative 2	Diff.	Alternative 1	Alternative 2	Diff.	Alternative 1	Alternative 2	Diff.
Y1	-	-	0%	-	-	0%	-	-	0%
Y2	7,800	3,000	-62%	7,800	3,000	-62%	7,800	3,000	-62%
Y3	11,346	3,660	-68%	11,346	3,660	-68%	11,346	6,636	-42%
Y4	16,075	4,465	-72%	16,075	4,465	-72%	32,252	24,414	-24%
Y5	28,702	23,290	-19%	22,335	23,290	4%	50,325	38,166	-24%
Y6	63,465	76,669	21%				72,705	76,669	5%
Y7	92,355	151,437	64%				101,595	151,437	49%
Y8	129,456	203,147	57%				138,696	203,147	46%
Y9	176,887	268,985	52%				186,127	268,985	45%
Y10	236,228	352,471	49%				245,468	352,471	44%
<b>Total</b>	<b>762,314</b>	<b>1,087,124</b>	<b>43%</b>	<b>57,556</b>	<b>34,415</b>	<b>-40%</b>	<b>846,314</b>	<b>1,124,924</b>	<b>33%</b>

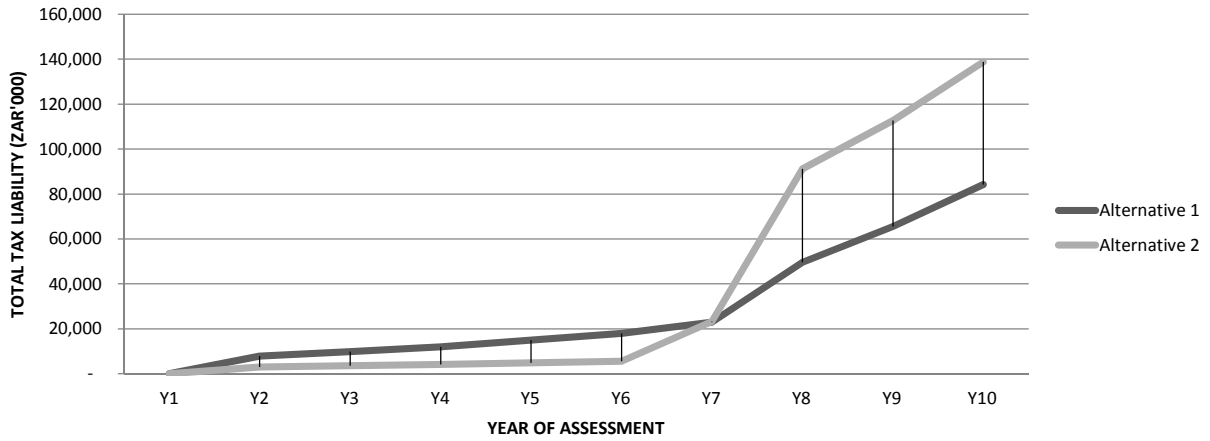
Year	Scenario 4			Scenario 5			Scenario 6		
	Alternative 1	Alternative 2	Diff.	Alternative 1	Alternative 2	Diff.	Alternative 1	Alternative 2	Diff.
Y1	-	-	0%	-	-	0%	-	-	0%
Y2	7,800	3,000	-62%	7,800	3,000	-62%	7,800	3,000	-62%
Y3	9,828	3,510	-64%	11,346	3,660	-68%	11,625	3,750	-68%
Y4	11,909	4,107	-66%	16,075	11,063	-31%	16,875	4,688	-72%
Y5	14,895	4,805	-68%	38,897	26,887	-31%	33,647	27,530	-18%
Y6	17,989	5,622	-69%	61,426	111,014	81%	70,791	95,331	35%
Y7	23,011	23,231	1%	90,317	151,437	68%	105,188	168,803	60%
Y8	49,601	91,130	84%	127,417	203,147	59%	150,627	231,928	54%
Y9	65,541	112,700	72%	174,848	268,985	54%	209,325	314,593	50%
Y10	84,161	138,843	65%	234,189	352,471	51%	287,240	422,358	47%
<b>Total</b>	<b>284,736</b>	<b>386,948</b>	<b>36%</b>	<b>762,314</b>	<b>1,131,664</b>	<b>48%</b>	<b>893,118</b>	<b>1,271,980</b>	<b>42%</b>

Year	Scenario 7			Scenario 8		
	S1 Alternative 2	S7 Alternative 2	Diff.	S1 Alternative 2	S8 Alternative 2	Diff.
Y1	-	-	0%	-	-	0%
Y2	3,000	3,000	0%	3,000	3,000	0%
Y3	3,660	3,660	0%	3,660	3,660	0%
Y4	4,465	4,465	0%	4,465	4,465	0%
Y5	23,290	23,290	0%	23,290	23,290	0%
Y6	76,669	69,109	-10%	76,669	62,664	-18%
Y7	151,437	151,437	0%	151,437	122,772	-19%
Y8	203,147	203,147	0%	203,147	164,496	-19%
Y9	268,985	268,985	0%	268,985	217,601	-19%
Y10	352,471	352,471	0%	352,471	284,921	-19%
<b>Total</b>	<b>1,087,124</b>	<b>1,079,565</b>	<b>-1%</b>	<b>1,087,124</b>	<b>886,870</b>	<b>-18%</b>

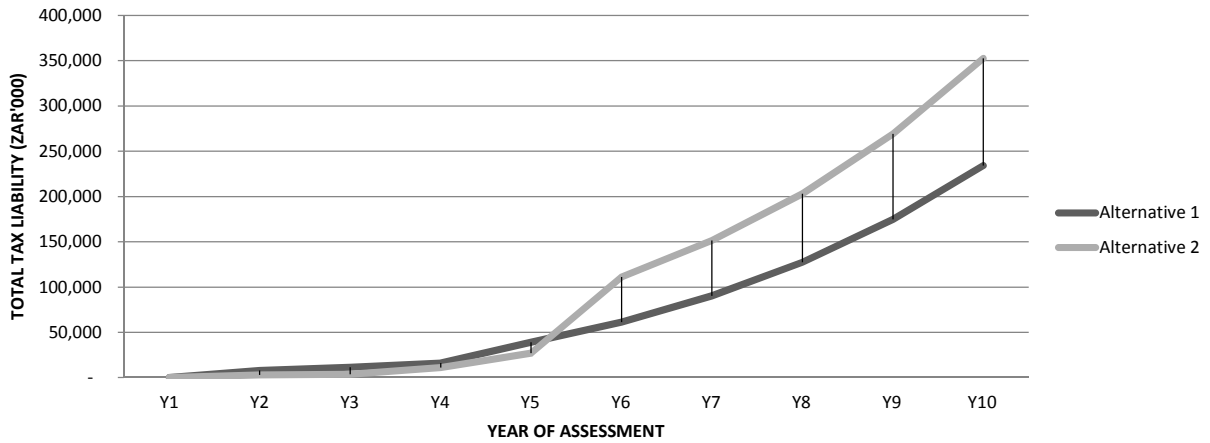
APPENDIX D



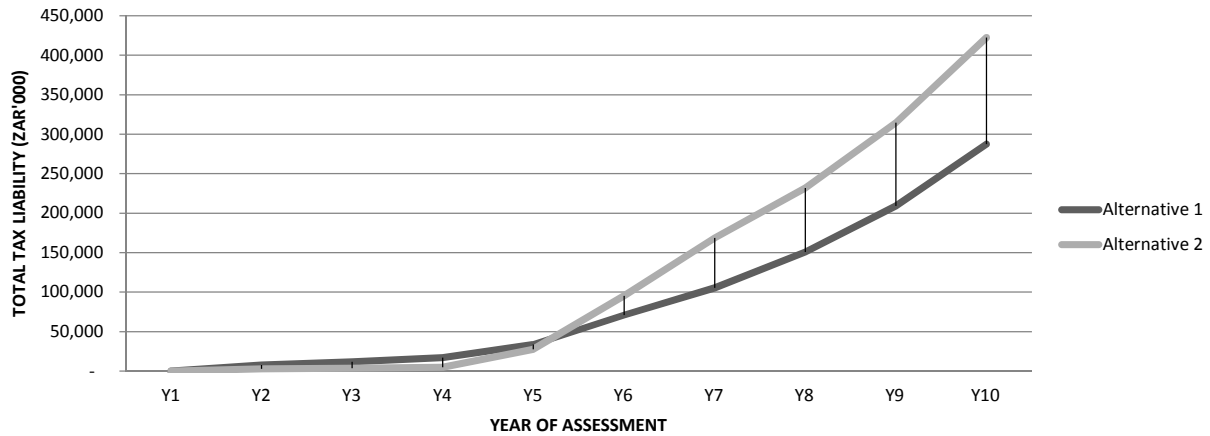
### Scenario 4



### Scenario 5

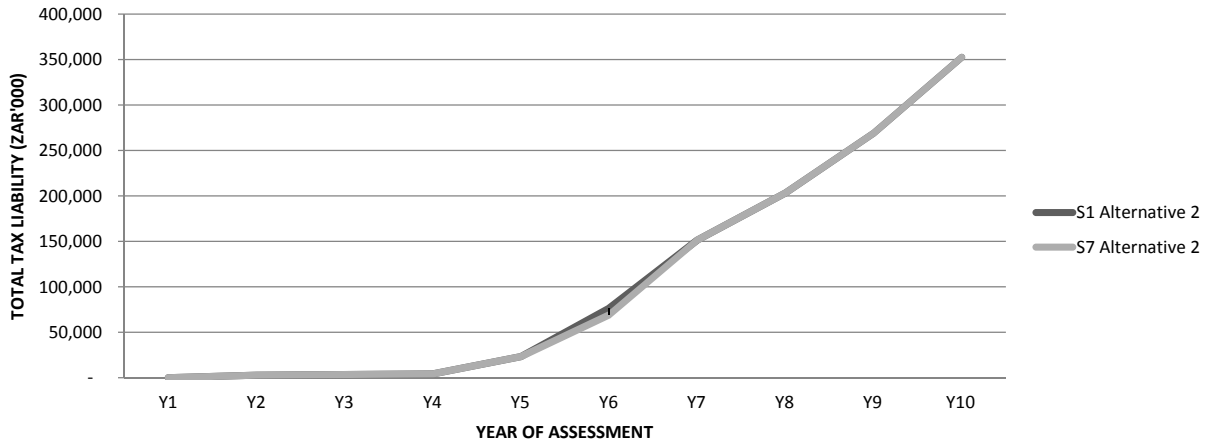


### Scenario 6





### Scenario 7



### Scenario 8

