The influence of tax legislation in promoting downstream beneficiation in the South African mining sector

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KEYWORDS

- Mining sector
- Tax incentives
- Mineral royalties
- Refined mineral resources
- Downstream beneficiation

ABSTRACT

Downstream beneficiation in the South African mining industry is promoted in the Mineral and Petroleum Resources Development Act (MPRDA), by the Department of Mineral Resources, the South African Mining Charter of 2004, the Precious Metals Act 2005, Act No 37 of 2005, the Diamonds Act, Act No 56 of 1986, the Mineral Beneficiation Framework for Africa and the Minerals and Mining Policy for South Africa, 1998. One of the methods that the South African Government can use to stimulate the process of beneficiation is through the introduction of tax incentives.

This research evaluated the influence of existing tax and royalty legislation in promoting downstream beneficiation, and the economic decisions of mining companies to respond to the benefits provided for in the legislation. The study commenced with a theoretical analysis of tax and royalty legislation to determine existing provisions in the law that could stimulate the process of downstream beneficiation, or alternatively discourage potential beneficiators, or frustrate the activities of existing refiners. Role players in industry were engaged to analyse tax incentives in legislation that influence the economic decision making of the extractors in response to the legislation either supporting or deterring downstream beneficiation in their value chain. The data obtained from the extractors were analysed and interpreted to determine how tax legislation has influenced the promotion of beneficiation in the South African mining sector.

The study found that tax legislation influenced some of the extractors to a limited extent, indicating that the intent of tax legislation to promote beneficiation was not consistently achieved. It was further observed that the available incentives did not have a sufficiently decisive impact on the extractors to beneficiate, however it was also determined that tax legislation indeed has the ability to promote beneficiation in the South African mining industry. Finally, tax legislation was not found to discourage refining activities. It is recommended that further studies be conducted to determine whether tax incentives are too simplistic to effectively apply in all circumstances or whether more advanced formulas are required based on the various types of minerals beneficiated.

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UITTREKSEL

Verwerking van natuurlike hulpbronne in die Suid-Afrikaanse mynbou industrie word bevorder in die Minerale en Petroleum Hulpbronne Ontwikkelingswet, deur die Departement van Minerale Hulpbronne, die Suid-Afrikaanse Mynbouhandves van 2004, die Edelmetaal Wet, Wet 37 van 2005, die Wysigingswet op Diamante, Wet 30 van 2005, die Mineraalverwerkingsraamwerk vir Afrika en die Minerale en Mynbou beleid van Suid-Afrika, 1998. Een van die maniere waarop die Suid-Afrikaanse regering verwerking kan bevorder, is deur die implementering van belastingvoordele.

Hierdie navorsing ondersoek die invloed van huidige belasting en tantième wetgewing om verwerking te bevorder, asook die ekonomiese besluite wat mynmaatskappye geneem het om voordeel te trek uit die voorsienings van die wetgewing. Die navorsing begin met ‘n teoretiese analiese van belasting en tantième wetgewing om te bepaal of die huidige voorsienings in die wetgewing die proses van verwerking kan bevorder, of alternatiewelik die potensiële verwerking ontmoedig of die aktiwiteite van huidige verwerkers belemmer. Rolspelers in die industrie was betrek om die invloed te bepaal van wetgewing en belastingvoordele op die ekonomiese besluitneming van ontginners om verwerking te bevorder of te ontmoedig. Laastens word die resultate van die meningsopname van die ontginners geanaliseer en word bepaal hoe belasting wetgewing die bevordering van verwerking in die Suid-Afrikaanse mynbousektor beïnvloed het.

Die navorsingstudie dui daarop dat belasting wetgewing wel van die ontginners tot ‘n beperkte mate beïnvloed het, maar dat die doelwit van die wetgewing om verwerking te bevorder nie konsekwent bereik word nie. Verder het die huidige aansporingsmaatreëls nie ‘n beslissende impak gehad op ontginners om verwerking te bevorder nie, alhoewel die belasting wetgewing wel die vermoë het om verwerking in die Suid-Afrikaanse mynbou industrie te bevorder. Laastens blyk dit dat belasting wetgewing nie waarde-toevoegingsaksies ontmoedig nie. Dit word aanbeveel dat verdere studies nodig is om te bepaal of belastingvoordele te simplisties is om effektiewelik in alles gevalle toegepas kan word, en of meer gevorderde formules benodig word om die verwerking van al die verskillende tipes minerale te bevorder.

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ABBREVIATIONS

Abbreviations used in this document:

CIT	Company Income Tax
Committee/DTC	The Davis Tax Committee
DMR	Department of Mineral Resources
EBIT	Earnings before Interest and Tax
GDP	Gross Domestic Product
Income Tax Act	Income Tax Act No. 58 of 1962
METR	Marginal Effective Tax Rate
MPRDA	Minerals and Petroleum Resources Development Act No. 28 of 2002
PAYE	Pay as you earn
Royalty Act/MPRRA	Minerals and Petroleum Resources Royalty Act No. 28 of 2008
South Africa	Republic of South Africa

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CHAPTER ONE: BACKGROUND AND OBJECTIVES OF THE STUDY

1.1 BACKGROUND

The mining industry contributes significantly to the South African economy through increased tax revenues generated and the positive impact of the industry on the balance of payments of the country (The Davis Tax Committee, 2015:26). However, the last decade has seen the decline of its relative contribution to the economy, due to several contributing factors such as weakening commodity prices, escalated cost of labour and production, labour unrest, and increased taxes (ENSAfrica, 2014:para 3).

More than a decade has passed since the State exercised its right to the sovereignty of all South Africa's privately held mineral resources. This right was exercised through the introduction of the Mineral and Petroleum Resources Development Act (MPRDA), which impacted several stakeholders, including government, the public sector, the mining industry as a whole, mining companies, as well as current and potential investors (Grobler, 2014:2). The MPRDA, promulgated in 2002, states that South Africa's mineral resources are the communal heritage of the people of South Africa, whereby the State acts as the custodian of this wealth for the benefit of the people.

The MPRDA enabled the introduction of the Mineral and Petroleum Resources Royalty Act (MPRRA, the Royalty Act). In order to compensate the people of South Africa for the loss of mineral wealth arising from the extraction of minerals from the soil, the Royalty Act was legislated in 2011. The Explanatory Memorandum for the Minerals and Petroleum Resources Royalty Act (National Treasury, 2002:2) explains that the Royalty Act seeks to compensate the State financially for the permanent loss of the country's non-renewable resources by way of a royalty tax levied on the transfer of mineral resources extracted from South African soil.

The Royalty Act distinguishes between refined and unrefined mineral resources, and sets out different royalty formulae which must be applied to mineral resources and circumstances, resulting in an obligation payable to the Commissioner. The process whereby value is added to an unrefined mineral resource extracted from the ground is known as beneficiation (Department of Mineral Resources, 1998:28). Beneficiation involves the transformation of a primary material to a more finished product (Department of Mineral Resources, 2011:para. ii). The additional level

of processing increases the revenue gained from the exploitation of the mineral resource, as well as significantly increases the labour absorptive capacity of the industry (Department of Mineral Resources, 2015:para. 3). It has a valuable impact on South Africa's critical infrastructure, its backward and forward knowledge, its labour force and gross domestic product (Department of Mineral Resources, 2011:5).

South Africa has abundant mineral reserves (King, 2012:para 15), and has the potential to raise the level of beneficiated mineral output, in particular with regards to the production of finished goods (Department of Mineral Resources, 2015:para. 7). However, beneficiation in South Africa has been on the decrease and consequently South Africa is now faced with the challenge of beneficiating its minerals (Statistics South Africa, 2013). According to Cawood (2004:58), one of the MPRDA's fundamental principles is to promote economic growth through increased beneficiation of mineral production. In 2013, the MPRDA was amended to state that the Minister 'must' initiate beneficiation as opposed to 'may' initiate beneficiation (South Africa, 2013:16).

Downstream beneficiation is promoted in the MPRDA, by the Department of Mineral Resources, the South African Mining Charter of 2004, the Precious Metals Act 2005, Act No 37 of 2005, the Diamonds Act, Act No 56 of 1986, the Mineral Beneficiation Framework for Africa and the Minerals and Mining Policy for South Africa, 1998. One of the methods that the South African Government can stimulate the process of beneficiation is through the introduction of tax incentives (Department of Mineral Resources, 2015:para. 18). Tax incentives can encourage investment in the infrastructure required to beneficiate minerals, or through tax allowances in respect of the expenditure required for research and development, or the reduced rate of royalty taxes for refined mineral resources.

Royalty taxes can influence mining companies' economic decisions and behaviour (Mitchell, 2016:1). The MPRRA provides for a different royalty rate formula to be applied depending on whether the resource is refined or unrefined (Van der Zwan, 2010:78). The intention of the lower royalty rate is to promote downstream beneficiation (National Treasury 2002:26). This was to be achieved through the higher factor provided in the royalty rate mechanism for refined mineral resources, which was understood to result in a lower royalty payable for this type of resource.

However, Nel and van der Zwan (2010:101) stated that the royalty mechanism contained in the MPRRA is unlikely to consistently result in the same royalty amount, irrespective of whether or not a mineral resource has been refined, which may be detrimental to promoting downstream

beneficiation and be in contrast to the Mineral and Mining Policy of South Africa. In a previous study by van der Zwan (2010:90), results revealed that the royalties on refined mineral resources can in certain circumstances be significantly higher than those on unrefined mineral resources. It is therefore questionable if the extractor is indeed incentivised, where in certain circumstances the royalty payable on refined minerals exceeds that payable on unrefined minerals (Van der Zwan, 2010:76). This situation would discourage extractors from processing the mineral resource beyond its unrefined state.

Cawood (2011:443) suggested that the royalty regime is unlikely to motivate miners to become refiners, as the benefit of the reduced rate on refined minerals appears to be insufficient to justify the additional costs to refine the mineral resource to the prescribed state of beneficiation. The process of beneficiation requires investment in research and development by the extractors, is capital intensive, and it may take many years before the subsequent gross sales of the refined minerals are realised (Department of Mineral Resources, 2015:para. 3). Cawood (2011:444) advised that the overall mining process of converting non-renewable capital into renewable capital must be considered. He states that the orebody is of little value in the ground and, for it to become valuable, it must be accessed and removed from the host rock in which it occurs. The valuable part must be separated from the ore after mining through crushing, processing, smelting, and refining.

Van der Zwan (2010:74) recommended that a comprehensive analysis be performed of the impact of the royalty on decision making by the miners from both a theoretical as well as a practical perspective, once the MPRRA has been effective for a sufficient period of time. The Royalty Act was promulgated seven years ago, and has been in effect for five years, therefore it is an appropriate time to perform such a study.

Tax incentives may also be available in the Income Tax Act which may reduce gross income, or increase the allowable deductions that may be claimed, or may be available in terms of special provisions or allowances. These provisions or allowances may be specific to the mining industry or may not specifically relate to mining industries, yet still have the effect of promoting beneficiation.

An alternative incentive that may be applicable to refinement infrastructure is the section 12I tax allowance incentive contained in the Income Tax Act. This section relates to new industrial projects and expansions or upgrades of existing industrial projects. Qualifying prospective

beneficiators of unrefined mineral resources or companies that expand existing refining activities may make use of this incentive.

Capital expenditure allowances specifically available to the mining industry may promote beneficiation. Where the mining industry capital allowance does not apply due to the wording of the Income Tax Act, the manufacturing capital expenditure allowance may apply. This allowance is not aimed specifically at the mining industry, and is more generally promulgated for utilisation by the manufacturing sector in its entirety however, it may still have the ability to promote beneficiation of mineral resources. In addition to tax incentives, beneficiation may be encouraged through the introduction of export taxes. Export taxes have the intent of discouraging exports and thereby encouraging domestic beneficiation. This form of incentive has not been introduced into South Africa, however, it is considered in this study, as prospective legislators are discussing the introduction of this tax (The Davis Tax Committee, 2015:89).

Other incentives that could promote the process of refining non-renewable mineral resources include the research and development allowance and the section 11(a) deduction in respect of royalty taxes payable.

1.2 PROBLEM STATEMENT AND SUBSTANTIATION

1.2.1 Motivation

It is unclear whether the South African government has been effective in promoting downstream beneficiation through the use of tax incentives. This gap in the literature prompted this in-depth study to evaluate the influence that royalty legislation, implemented in 2011, had on promoting downstream beneficiation through the dual royalty rate mechanism as provided for in the Mineral and Petroleum Resources Royalty Act (MPRRA), as well as other incentives provided for in tax legislation applicable to the process of beneficiation.

1.2.2 Research question

The study conducted aimed to answer the following research question:

- What provisions are contained in South African tax legislation that may have an influence on promoting or discouraging downstream beneficiation in the mining sector?

1.3 RESEARCH AIMS AND OBJECTIVES

The purpose of this study was to build a conceptual framework on the effect of legislation in theory towards beneficiating minerals and to combine this information with the economic decisions of the extractors resulting from the legislation to determine whether legislation is indeed effective in promoting downstream beneficiation. Provisions contained in South African tax legislation that may have an influence on promoting or discouraging downstream beneficiation in the mining sector were identified and the influence of these available tax incentives to sufficiently motivate South African extractors to beneficiate unrefined mineral resources was assessed.

The research objectives are divided into a general objective and three specific research objectives.

1.3.1 General research aims

This main objective of the study was to determine what provisions are contained in South African tax legislation that may have an influence on promoting or discouraging downstream beneficiation in the mining sector and if these available incentives sufficiently influence South African extractors to beneficiate unrefined mineral resources.

1.3.2 Specific research objectives

The specific study objectives to address the problem statement are threefold:

- To formulate a theoretical analysis of tax legislation to determine existing provisions in the law that could:
    - Stimulate the process of downstream beneficiation; or
    - alternatively discourage potential beneficiators; or
    - frustrate the activities of existing refiners.
- To collect data on the influence of available tax legislation in the economic decision making of the extractors in response to the legislation either supporting or deterring downstream beneficiation in their value chain.
- To analyse and interpret the data by translating it into integrated and meaningful findings.

The first objective is addressed in chapter two, which commences with the foundation for the expected outcomes arising from the introduction of the MPRRA and other South African tax legislation applicable to the process of beneficiation. The chapter continues with a theoretical analysis of tax legislation to achieve the study objective. The second and third objectives are documented and considered in Chapters Three and Four, which set out and analyse the research results.

1.4 LIMITATIONS OF THE STUDY

The limitation of the study is that the specified group of respondents may have had different experiences from other extractors due to their specific circumstances. These circumstances may include varying extent of operations, different geographical regions, different mineral resources beneficiated, varying levels of investment required for beneficiation of their raw materials and different positions and viewpoints within the entity.

To compensate for these limitations, the study aimed to obtain a diverse sample of respondents to ensure representation of these specific circumstances.

1.5 RESEARCH STRATEGY AND DESIGN

The study commenced with a review of the relevant literature, including South African tax legislation, to establish the theoretical constructs required for the study. The outcome of the literature review formed the basis for the questions enquired of the extractors to assess their perceptions on the influence of tax legislation in promoting downstream beneficiation. The questions posed to the extractors were specifically designed to reveal the extractors' range of behaviour and the perceptions that drive the extractors. The target population for the interviews were South African mineral extractors of both refined and unrefined resources.

The study was conducted within the qualitative paradigm, which involved analysing and making sense of unstructured data. This paradigm typically uses the form of interviews and surveys as its main strategies of enquiry, and seeks answers to questions rather than proving or disproving a theory (McKerchar, 2008:10).

1.6 CHAPTER OUTLINE

The chapters in this mini-dissertation are presented as follows:

Chapter One: Background and objectives of the study

Chapter one explores a brief history and development of royalty tax in South Africa. It provides an explanation of the meaning of key terms relating to refined minerals and downstream beneficiation. The chapter cites findings based on existing literature relating to the theoretical impact of royalty taxes which leads on to the question of how taxes have influenced the decision making of extractors in promoting beneficiation, and consequently the objective of the dissertation. The chapter continues with the purpose and aims of the study, which includes a motivation for the research, the problem statement and the three specific research objectives. The limitations of the study are considered. The following sub-section provides insights into the research methodology and design, which expands upon the research approach and the research strategy followed. The chapter concludes with a summary of each of the chapters in the dissertation.

Chapter Two: Literature review

Chapter two provides the literature review which identifies and analyses existing literature relating to downstream beneficiation. This literature review commences with a background of the Royalty Act, and introduces the theory behind the concept of the dual rate formula for refined and unrefined minerals. It provides the royalty formulae and explains the dynamic nature thereof, together with the upper and lower limits of the formulae. A theoretical analysis of the workings of the formula are provided, as well as an equation that supports the process of beneficiation. Alternative tax incentives are presented, which include the section 12I capital incentive allowance, capital expenditure allowance specifically for the mining industry as well as manufacturing allowances that may apply and the research and development expenditure allowance. The encouragement of beneficiation through the introduction of export taxes are also investigated, and the chapter concludes with a consideration of the need for stability when implementing amendments to tax legislation.

Chapter Three: Research methodology

Chapter three provides the basis for the research methodology followed during the empirical part of the study. It relays the qualitative research method followed and the primary method of data collection, being interviews and questionnaires. The chapter discusses the methods used for determining the population, the sample design, and a description of how the data was gathered and analysed. The validity and reliability of the sample is explained, and the method of interpretation of the research results.

Chapter Four: Research results and discussion

The objective of chapter four was to investigate and discuss the economic decision making of the extractors in response to tax legislation relating to beneficiation by analysing the views of the extractors. The chapter systematically presents the results of the research methodology and interprets the data by translating it into integrated and meaningful findings. The chapter commences with the empirical findings of the study. The next sub-section examines the demographics of the respondents, including the designations of the respondents and their educational qualifications, the age of the mining operations, number of years that the extractor has beneficiated minerals, the types of minerals extracted, the provinces where the minerals are extracted and the annual gross turnover. The following sub-section presents the findings of the interviews and questionnaires to determine the influence that tax legislation has had on the decision making of extractors relating to downstream beneficiation in the mining sector. The empirical findings are presented with the use of tables and figures to clearly indicate the results. Lastly, the chapter discusses and summarises the findings from the research results.

Chapter Five: Conclusions and recommendations

This chapter concludes the study of the influence of tax incentives in promoting downstream beneficiation. It provides an overall summary of findings from the chapters in this dissertation and sets out the findings of the qualitative research and conclusions to the research findings. Finally, areas for further research are proposed.

CHAPTER TWO: LITERATURE REVIEW

2.1 INTRODUCTION

This chapter addresses the first research objective, which was to determine existing provisions in South African tax legislation that could either stimulate or hamper the process of downstream beneficiation. The chapter commences with the background and nature of downstream beneficiation, and continues with South African statistics on the contribution of royalty taxes to the fiscus, which are provided to gain an understanding of the extent of royalty taxes which affect downstream beneficiation in the context of the South African marginal effective tax rate (METR). The chapter continues with a background of the MPRRA, and introduces the theory behind the concept of the dual rate formula for refined and unrefined minerals. Sub-section 2.6 provides the royalty formulae and explains the dynamic nature thereof. It details the maximum and minimum limits of the formulae and illustrates examples from existing literature. The sub-section progresses with a theoretical analysis of the workings of the formula and the effect of the tax legislation to test scenarios where beneficiation is supported through tax incentives, or discouraged in certain circumstances. The following sub-section continues with an equation that supports the process of beneficiation. The chapter then advances with a study of available incentives contained in the Income Tax Act that are included in the determination of gross income, the general deduction formula and the provisions relating to capital allowances. The section 12I tax allowance incentive is investigated, as well as allowances specifically for the manufacturing sector which may apply to beneficiation. The capital expenditure allowance and research and development allowances are also investigated. Lastly, the encouragement of beneficiation through increased export taxes is explored. The chapter concludes with sub-section 2.14 which considers the need for stability when considering amendments to tax legislation and the requirement for analysis thereof.

2.2 BACKGROUND

Mineral resources that are extracted from South Africa's soil and sea are subject to royalty taxes (National Treasury, 2002:11). Mineral royalty taxes are collected by the South African Revenue Service, and are paid into the National Revenue Fund. These royalty taxes are advantageous to South Africa as the taxes support the fiscus through the increased collection of total tax (National Treasury, 2002,:11). The amount of royalty tax and consequently the total tax payable to the fiscus is increased by the process of beneficiation (The Davis Tax

Committee, 2015:29). The next sub-section examines the importance of the mining sector and the process of beneficiation to the South African economy.

2.3 ECONOMIC BENEFITS OF BENEFICIATION

2.3.1 Contribution to the South African economy

O' Donnell (2015:para 4) places South Africa as the world's richest mining country, stating that South Africa has more than $2.5 trillion in mineral reserves. She goes on to say that South Africa is the world's biggest producer of platinum, as well as the leading producer of gold, diamonds, base metals and coal. In 2010, South Africa held about 32 billion tons of coal reserves, ranking it as the world's fifth largest producer. These facts and figures illustrate the potential of the South African mining industry, and in particular, the potential for growth in refining minerals for the benefit of the economy.

The mining sector plays a key role in the South African economy (Davis Tax Committee, 2015:43). Minerals and products generated through beneficiation account for almost 60% of South Africa's export revenue (World Bank, 2015:43). Mineral beneficiation is one of the major drivers in advancing the empowerment of historically disadvantaged communities in South Africa. It also presents opportunities for the development of new entrepreneurs in both small and large mining industries (Department of Mineral Resources, 2015:para 1). During the 1990's, the South African mining sector changed from being a predominantly primary commodity exporter to becoming a world exporter of processed minerals. The mining industry through direct and indirect channels contributed 18% to the South African GDP, employed 1.35 million people, spent R4 billion on skills development and R2 billion on community investment (Davis Tax Committee, 2015:43). This considerable contribution of company and royalty taxes by the mining sector to the fiscus demonstrates the importance of the mining industry to the economy.

Having established the contribution of the mining industry and the process of beneficiation to the economy in this sub-section, the next sub-section continues to evaluate the contribution to the fiscus as a result of royalty taxes imposed on the industry.

2.3.2 Royalty taxes contribution to the fiscus

The mining industry contributes significantly to the South African economy through the payment of royalty taxes (King, 2012:para11). Initially, the introduction of the MPRRA was expected to have an effect on mining profit of between 10 and 13% (Nel & Van der Zwan, 2010:96). Table 1 below reflects the mining sector's contribution of R21.5 billion in company tax, R16.7 billion in employee withholding tax and R6.4 billion in royalty taxes during the 2014 financial year. Tax collections from mining royalties amounted to R3.6 billion in 2010/2011, which increased to R5.6 billion in 2011/2012. The main reason for the high increase was that the MPRRA was only applicable for a portion of the financial year in 2010/2011. The year 2012/2013 saw a decrease of 12% to R5.0 billion and 2013/2014 an increase of R1.4 billion to R6.4 billion (SARS, 2014:226). Since the implementation of the MPRRA, the total royalty revenue received by the State has amounted to R20.6 billion.

Table 1. MPRR payments by commodity, 2011/12 – 2013/14

R million	2011/12	% of total	2012/13	% of total	2013/14	% of total	Year-on-year growth
Coal	297	5.3%	436	8.7%	390	6.1%	-10.5%
Copper	79	1.4%	48	1.0%	37	0.6%	-24.2%
Diamonds	290	5 2%	175	3.5%	107	1.7%	-38.7%
Gold and / or uranium	817	14.6%	1 129	22.5%	838	13.0%	-25.8%
Industrial minerals	299	5.3%	186	3.7%	278	4.3%	49.5%
Iron ore	2 501	44.6%	1 921	38.3%	3 333	51.9%	73.6%
Manganese	149	2.7%	199	4.0%	235	3.7%	18.3%
Platinum	853	15.2%	461	9.2%	567	8.8%	23.1%
Zinc	143	2.5%	101	2.0%	48	0.7%	-52.8%
Other	183	3.3%	361	7.2%	586	9.1%	62.6%
Total	5 612	100.0%	5 015	100.0%	6 420	100.0%	28.0%

Source: 2014 tax statistics – a joint publication between National Treasury and the South African Revenue Service

This considerable contribution of royalty taxes to the fiscus further demonstrates the importance of this tax in relation to the marginal effective tax rate (METR). The METR is affected by the royalty rate (World Bank, 2015:46). The effective tax rate of a company involved in the mining sector in South Africa is 44.92%, and that of a company that is not subject to the provisions of the MPRRA is 38.8%.

Statistics South Africa formulated a graph which shows the actual contribution of the mining industry to total company income tax (CIT) for a period of five years before the introduction of the MPRRA, and superimposes what the royalty would have been in those years had the MPRRA been in effect. This is shown in Figure 1, in which the blue line indicates total mining taxes. The yellow line indicates royalty tax on unrefined minerals, and the dark green line indicates how royalty tax on refined minerals would have impacted the figures had this tax been in place. The difference between the lines indicating refined and unrefined minerals show how the royalty formula is weighted towards a lower royalty payable for beneficiated products. This graph shows the rise in contribution to total CIT by the mining sector due to the introduction of the MPRRA.

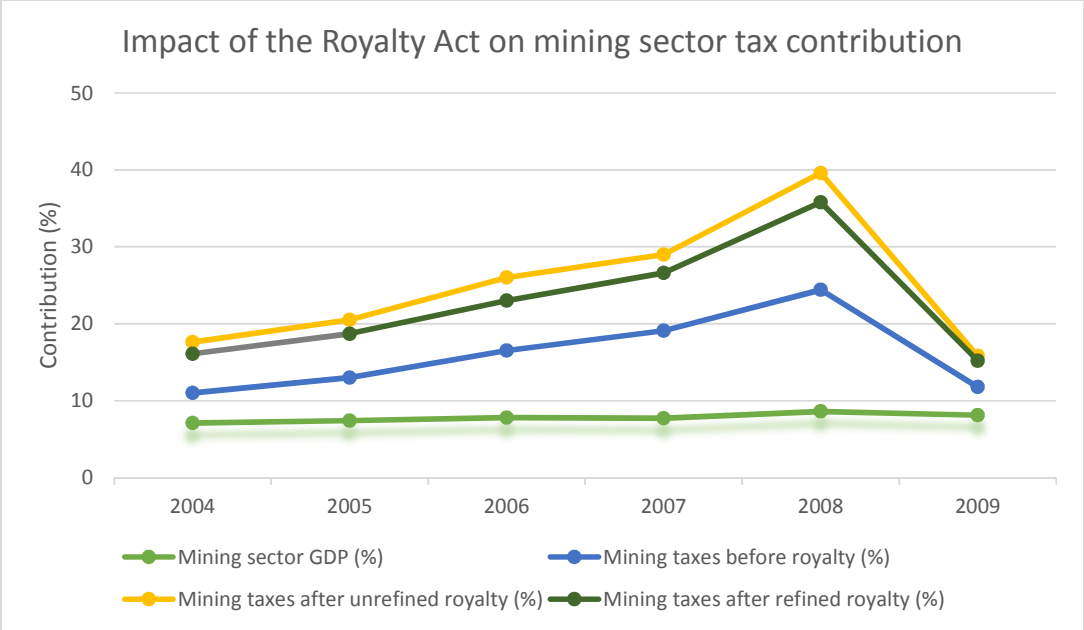

Figure 1. Impact of the Royalty Act on mining taxes

Source: Statistics South Africa in (Cawood, 2011:445)

The question that still needed to be answered was whether the specific process of beneficiating non-renewable mineral resources increased the amount of tax payable by an extractor, thereby further enriching the South African fiscus. To resolve this question, the researcher engaged with the extractors of mineral resources to obtain insights into the matter from the extractors perspective. The qualitative element in which the extractors provide their viewpoints are presented in Chapters Three and Four. The extractors were asked about their views as to whether the process of beneficiation has increased the amount of tax payable by their company

to the Commissioner, demonstrating the importance of the process of beneficiation to the economy. This was analysed in sub-section 4.4.1.

Although this section concentrates mainly on the contribution of the process of beneficiation to the fiscus through income tax and royalty taxes, the contribution as a result of pay as you earn taxes (PAYE) should also be considered. This additional contribution to the fiscus could be attributable to the process of beneficiation creating additional jobs. The mining industry contributes significantly to the South African economy through the creation of jobs (The Davis Tax Committee, 2015:26). The question remaining was whether a portion of the additional jobs were created specifically due to the process of beneficiation. To determine the answer to this question, the opinions of extractors that beneficiated mineral resources were obtained in sub-section 4.4.2.

2.4 INFLUENCE OF THE TAX SYSTEM TO PROMOTE BENEFICIATION

The Terms of Reference under which the Davis Tax Committee (DTC) operates states that one of the considerations that need to be taken into account is that the tax system can influence corporate activities by encouraging certain actions and discouraging others (The Davis Tax Committee, 2015:13). According to the DTC's First Interim Report on Macro Analysis for the Minister of Finance (2015:34), corporate tax incentives are deliberate departures from tax neutrality in order to change the behaviour of companies to promote growth, employment or other policy objectives. The Terms of Reference specifically state that the mandate of the Committee is to take government's objectives into account, which includes the promotion of beneficiation in the mining sector.

As the extraction of mineral resources constitutes a permanent loss of the non-renewable resources owned by the State (National Treasury, 2002:2), it is imperative that the State should promote beneficiation due to the non-renewable nature of the source. Otto *et al.* (2006:9) stated that a government should aim to establish an optimal level of taxation and Sunley *et al.* (2002:1) stated that a fiscal regime should be effectively designed to ensure that the State as the owner of the mineral resources receives an appropriate share of the economic rent, in the form of a royalty. Benefits to the State as custodian of the nation's non-renewable resources can be optimised when value is added through the process of refinement and processing (National Treasury, 2002:8), and higher royalties are received. Consequently, it follows that a royalty

regime should provide encouragement, and not discourage extractors to engage in downstream beneficiation prior to exporting these non-renewable resources (Van der Zwan, 2013:644).

One of the methods in which the South African Government can promote the process of beneficiation is through the introduction of tax incentives (Department of Mineral Resources, 2015:para. 18).

2.5 TAX INCENTIVES

Surrey (1970:705) defines a tax incentive as a taxation that encourages certain behaviour in response to a monetary benefit. The aim of a tax incentive is to induce a certain activity by lowering the amount of taxation payable by the taxpayer. An effective tax incentive is one that has an objective, is balanced between its risks and rewards, and is stable and transparent in its requirements (Pouris, 2003:197). In the context of a tax incentive aimed to promote beneficiation in the mining industry, the objective of the incentive would be to promote refiners to beneficiate unrefined minerals (Department of Mineral Resources, 2015:para. 18). This objective could be achieved through the use of incentives to encourage investment in the infrastructure required to beneficiate minerals, or through tax allowances in respect of the expenditure required for research and development, or the reduced rate of taxation provided for by the dual rate formula for royalties in the MPRRA. Each of these incentives which are available for government to achieve their objective of promoting beneficiation are investigated below.

The South African government provides tax incentives to ameliorate the risks involved in mining operations, which provide assistance for large upfront investments made by mines and assist with the costs of decommissioning mines. Otto *et al.* (2006:12) cautions that the incentives provided by government would need to be more than favourable to counteract the problems and costs associated with beneficiation before the extractors would turn to these incentives.

Investigating the extent of utilisation of existing incentives by taxpayers is a vital task in improving the effectiveness of a tax incentive (Bugher, 2004:130). Sub-section 4.6.1 commences the empirical part of this study by investigating the viewpoint of the participant extractors as to whether tax incentives relating to beneficiation are sufficiently favourable to encourage new investment into beneficiation. Pouris (2003:197) suggests measuring the effect of incentives across different industries and technologies, which in turn could be correlated to investigating the effect across different types of minerals beneficiated by extractors. Chapter 4.2.2.3 details the

various types of minerals beneficiated by the extractors that participated in the empirical portion of this study.

The identification of tax incentives that could influence beneficiation commences with an investigation into the incentive provided by the dual rate formula.

2.6 DUAL RATE FORMULA FOR REFINED AND UNREFINED MINERALS

A mineral extraction tax system should aim to achieve an optimal level of benefits between revenues for the owner and encouraging mining projects and extraction of mineral resources by private extractors on the other (Garnaut & Clunies, 1983:1). As it was not the intention behind the introduction of royalty taxes to deter beneficiation, two separate calculations were formulated in order to differentiate between the lower priced unrefined minerals and the higher priced refined minerals. In fact, the Minerals and Mining Policy of South African Green Paper (1995:para 48) stated that the lower royalty rate was introduced to promote mineral beneficiation. In this way, government has strived to achieve a balance in the formula to promote downstream beneficiation as per their mandate.

The dual rate formula provided for in the MPRRA can encourage mining companies to beneficiate their mineral resources. Sub-section 4.7.1 determines the extractors views on whether the dual rate formula contained in the MPRRA has indeed been successful in motivating the extractors to beneficiate non-renewable mineral resources. The reason that the formula is named a dual rate formula is because it is based on either of the two variables of refined minerals or unrefined minerals, and each has a different formula. The applicable formula is determined based on Schedule 1 of the MPRRA, which provides a definitive list specifying at what stage a mineral is regarded as a refined mineral resource. Schedule 1 provides conditions that are theoretical points at which a mineral resource is transferred based on a specified level of purity. If the resource is not considered to be refined as per this list, then the resource is regarded as an unrefined mineral resource, and the formula for unrefined mineral resources as set out in the MPRRA is applicable. The Davis Tax Committee (2015:82) stated that Schedule 1 does not cater for all forms of a particular mineral resource, and that the schedule should be studied with a view to possible amendment. In addition, the Committee stated that interpretational issues relating to the transfer point in the schedule needed to be clarified. This information prompted the researcher to obtain the perspectives of the participant extractors in sub-section 4.9.2 of the

empirical part of the study as to how practical it is to apply the different distinctions between a refined and unrefined mineral resource as required by Schedule 1 of the MPRRA.

2.6.1 Theoretical analysis of the workings of the formula

It is necessary to understand the rationale behind the requirement for the two different formulae with regards to the refinement of minerals. The transformation of a mineral resource necessarily involves additional operating costs. Consequently, these additional operating costs increase the gross sales value of the final mineral product. As the royalty formula is based on a calculation which includes gross sales, the royalty liability will increase with the increase in gross sales value if all other factors in the formula remain constant. The dual rate royalty equations as per the MPRRA are as follows, based on earnings before interest and tax (EBIT):

- Unrefined minerals: 0.5 + (EBIT/(gross sales x 9) x 100
  (*Equation 1)*

- Refined minerals: 0.5 + (EBIT/(gross sales x 12. 5) x 100
  (*Equation 2)*

The royalty payable in respect of the transfer of a refined or unrefined mineral resource is determined by multiplying the gross sales of the extractor in respect of that mineral resource by the percentage obtained in the applicable formula above.

The mathematical equation for the royalty payable on the transfer of refined and unrefined minerals can be written as follows:

- Unrefined minerals: Gross sales x [0.5 + (EBIT/(gross sales x 9) x 100]
  (*Equation 3)*

- Refined minerals: Gross sales x [0.5 + (EBIT/(gross sales x 12.5) x 100]
  (*Equation 4)*

The results of the above equations provide the amount of the royalty tax payable by the extractor to the Commissioner.

The formulae use various terms which are defined in the Royalty Act. These are as follows;

- The gross sales value in the equations means the gross sales value in respect of unrefined minerals when calculating the royalty for unrefined minerals, and the gross sales value of refined minerals when calculating the royalty for the same.
- The term EBIT is defined in section 5 of the MPRRA as the aggregate of the gross sales value of the extractor less the expenditure directly incurred in the winning, recovery and developing of the refined or unrefined mineral resource.

The royalty calculations are designed dynamically in order to capture a higher royalty percentage as the profits of the extractor increase, however, also to ensure that a minimum royalty is payable when profits are low (The Davis Tax Committee, 2015:52). If the calculation of EBIT results in a negative figure, it is deemed to be zero. In this way, the design of the formula ensures that the minimum possible royalty payable will be 0.5%. The minimum royalty payable of 0.5% relates to both refined and unrefined mineral resources. The percentage calculated in the royalty formula is limited to a maximum of 7% in the case of unrefined minerals, and 5% in the case of refined minerals.

The DTC state that the formula for refined mineral resources has a higher denominator than the formula for unrefined mineral resources so that refined minerals incur a lower royalty levy rate than that of unrefined resources (The Davis Tax Committee, 2015:52). The lower the royalty levy rate, if all other factors remain constant, results in a lower levy payable to the Commissioner as a result of refining the minerals. Sub-section 4.8.2 enquires of the participant extractors if the dual royalty rate indeed resulted in a decreased royalty rate percentage payable to the Commissioner. The meaning of a refined mineral is that there has been value added to the product, and the sales value is generally higher than that of an unrefined mineral (National Treasury, 2002:8). The higher gross sales realised from the refined mineral, when inserted into the calculation leads to a higher royalty payable. The question to be answered is at what stage does the higher gross sales value of refined minerals intersect with the lower sales value of unrefined products? In this regard, sub-section 4.8.1. of the empirical part of this study obtained the views of the extractors as to whether the lower royalty rate had a positive influence on their decision to beneficiate as well as the sufficiency of the lower percentage for refined mineral resources, which was investigated in sub-section 4.9.2.

Van der Zwan (2010:75) explained that if the increase in the gross sales value of minerals as a result of beneficiation is less than 38% (12.5 divided by 9), the extractor would be incentivised to process the minerals to the required state of beneficiation to obtain the benefit of the 12.5 multiplier. Conversely, an increase in gross sales that exceeds 38% would result in a higher royalty being payable if the mineral resource is refined, and the extractor would no longer be incentivised. This theory assumes that EBIT remains the same whether the product is refined or remains unrefined. If the EBIT of a refined product is higher than that of an unrefined product, the benefit of the higher multiplier in the formula further diminishes. Van der Zwan provided an example whereby a mineral extracted in its unrefined form generated an EBIT ratio of 30%, which resulted in a royalty rate of 3.8%. If this same mineral was further refined, and as a result of that value added, the EBIT for that mineral resource increased to 40%, the royalty rate would reduce to 3.7%. In this example, the royalty worked in favour of promoting beneficiation. However, the Explanatory Memorandum for the Minerals and Petroleum Resources Royalty Act 28 of 2002 states that the gross sales value of a refined mineral resource is normally expected to be significantly higher than that of an unrefined resource, thereby resulting in a higher royalty rate (National Treasury, 2002:8). In any ratio above 40% EBIT, beneficiation is discouraged by the dual rate formula. This information led the researcher to enquire about various financial figures in the extractors industry in sub-section 4.8.4 regarding the percentage increase in gross sales value due to beneficiation, as well as the percentage increase in earnings before interest and tax that resulted from beneficiating their minerals and what percentage of sales price do refinement costs represent.

The formula has further aspects which influence the amount of the royalty liability which may in turn have an influence on possibly promoting or discouraging downstream beneficiation. As discussed above, the percentage calculated in the royalty formula is limited to a maximum of 7% in the case of unrefined minerals, and 5% in the case of refined minerals. Cawood (2011:450) advised that this difference of 2% between the maximum royalty percentages leviable reduces the miners' incentive to beneficiate. He stated that beneficiation is justified when the increase in sales price added to the royalty saving is greater than the additional costs incurred in refining the product. He further identified that there is a critical point where the royalty rate formula results in a higher royalty payable if a mineral resource is refined.

The equation that supports this theory is depicted as follows:

- ↑ sales price + (saving in royalty) > additional costs incurred
  (*Equation 5)*

The equation shows that the increase in sales price together with the saving in royalty should be in excess of the additional costs incurred in refining the mineral from an unrefined resource to a refined mineral resource in order to promote beneficiation.

The question that still needed to answered was whether the royalty rate formula discourages the extractors decision to beneficiate. To resolve this question, the researcher engaged with the extractors of mineral resources to obtain insights into the matter from the extractors perspective. The extractors were asked about their views as to whether there have been situations where the royalty rate has discouraged their decision to beneficiate mineral resources. This was analysed in sub-section 4.6.2.

This section investigated royalty tax, which is specific to the mining sector, the next section investigates the Income Tax Act as a whole to determine how it can apply to the mining sector, and more specifically beneficiation in the mining sector.

2.7 INCENTIVES CONTAINED IN THE INCOME TAX ACT

In order to determine whether other incentives apply to the process of beneficiation, it is necessary to obtain an understanding of the system of mining tax. This sub-section outlines provisions of the general income tax legislation applicable to the mining industry and the mining specific tax dispensation applicable to the mining sector. The mining tax regime in South Africa stems from a lengthy history which evolved over many years by case law and in response to various geological, economic, social and environmental challenges (Davis Tax Committee, 2015:39).

South African mining companies that derive taxable income from mining activities are charged income tax in the same manner as taxpayers in other sectors of the economy. Mining activities are taxed according to the normal rules contained in the Income Tax Act for gross income, the general deduction formula, and other capital allowances and provisions, subject to certain particular features or exceptions.

These departures distinguish the taxation of businesses conducting mining from the taxation of businesses in other industries. Before considering the aspects which make mining tax unique, it is necessary to have a basic understanding of South African income tax.

2.7.1 Gross income and special inclusions

The interpretation in section 1 of the Income Tax Act defines gross income as (emphasis added):

> *"Section 1* ***'gross income',*** *in relation to any year or period of assessment, means—*
> *(i) in the case of any resident, the* ***total amount****, in* ***cash or otherwise****,* ***received by or accrued*** *to or in favour of such resident; or …*
> *during such year or period of assessment,* ***excluding*** *receipts or accruals of a* ***capital nature****"*

All the components in the definition must be present before an amount is treated as gross income in the hands of the taxpayer. These components are:

- The total amount;
- in cash or otherwise;
- received by or accrued to;
- a resident;
- during the period of assessment; and
- not of a capital nature.

If there are no exemptions to the gross income, then the amount becomes taxable income, and will be taxed at the normal South African rate, after deducting expenditure allowed, subject to any specific rules that may apply.

The additional level of processing minerals due to beneficiation increases gross income as discussed above. The higher the gross income of a taxpayer if no exclusions apply, the higher the taxation payable. This is not seen as a deterrent to beneficiation as the higher profit is of benefit to the shareholders of an entity, whose aim is for profit-making. Alternative income rules and tax rates are applied to a mining company that derives income from both mining and non-mining operations, based on the nature of the income. Miners of gold benefit from a different rate of tax which is known as the gold mining formula. The formula in effect provides that mines with gold mining taxable income of less than 5% pay no corporate tax, whereas gold mines with margins of more than 25% are taxed at 32.3% (Davis Tax Committee, 2015:43). No tax

incentives were identified that provide a benefit for the additional level of processing unrefined minerals.

The gross income definition includes certain specific amounts in paragraphs (a) to (n) which must be included in gross income, whether they are of a capital nature or not. The inclusion specific to mining industries is contained in paragraph (j), which reads as follows (emphasis added):

> *"Section 1* ***'gross income',*** *in relation to any year or period of assessment, means—*
> *(i) in the case of any resident, the total amount, in cash or otherwise, received by or accrued to or in favour of such resident; or …*
> *during such year or period of assessment, excluding receipts or accruals of a capital nature"*
> *but* ***including****, without in any way limiting the scope of this definition, such amounts (****whether of a capital nature or not****) so received or accrued as are described hereunder, namely—*
> *(a)…..*
> *(j) so much of the sum of any amounts received or accrued during any year of assessment in respect of disposals of assets the cost of which has in whole or in part been included in* ***capital expenditure*** *taken into account (whether under this Act or any previous Income Tax Act)* ***for the purposes of any deduction in respect of any mine*** *under section 15(a) of this Act or the corresponding provisions of any previous Income Tax Act, as exceeds the sum of so much of any capital expenditure as in the case of such mine is unredeemed at the commencement of the said year of assessment and the capital expenditure that is incurred during that year in respect of such mine, as determined before applying the definition of "capital expenditure incurred" in section 36(11); ….."*

This special recoupment provision applies in respect of the sale of mining assets. It differs from the normal rules applicable to the sale of non-mining assets. When mining property and capital equipment are disposed of, the recoupment values relating to the capital expenditure are determined by the Department of Mineral (Davis Tax Committee 2015:50). The DMR determines an effective value of the recoupment on a basis similar to an insurance replacement value.

2.7.2 General deduction formula

Section 11(a) of the Income Tax Act governs the law with regards to deductions allowed in determining the taxable income of a taxpayer. This general deduction formula reads as follows (emphasis added):

> *"11. General deductions allowed in determination of taxable income*
> *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—*
> *expenditure and losses* ***actually incurred*** *in the* ***production of the income****, provided such expenditure and losses are* ***not of a capital nature;"***

The general deduction formula can be broken down into various components, being:

- Expenditure actually incurred;
- in the production of income;
- in the carrying on of a trade; and
- not of a capital nature.

Each of these components need to be satisfied before a deduction is allowed in terms of the Income Tax Act. In addition, it is important to also consider section 23(g) when determining the tax deductibility of an item, as this section disallows certain deductions.

Mineral royalty taxes qualify under section 11(a) as deductible expenditure in terms of the Income Tax Act. It is unusual to consider an amount of taxation payable as a deductible item, therefore the researcher considered it important to determine whether extractors were aware of this deduction, and whether the tax effect of this deduction was considered as an incentive to beneficiate. The tax effect of the deduction could be viewed by the extractors as a reduction in the royalty rate, or it could be viewed as a reduction in the tax payable. Whichever manner in which it was viewed, was this considered to be an incentive to beneficiate by the extractors? The empirical section of this study investigates whether the mining extractors deducted the mineral royalty paid as an expense in terms of section 11(a) of the Income Tax Act, and whether they calculated the effect that the deduction has on their final tax bill, and if they viewed the reduction as a further incentive to beneficiate.

2.7.3 Capital recoupments and allowances

Taxpayers are allowed to write off assets acquired and used for purposes of trade over the useful life of such assets. This is known as wear and tear allowances. Special write-off periods are allowed for manufacturing operations.

To the extent that a mining taxpayer's operations do not constitute mining operations as defined in the Income Tax Act, it therefore must avail itself of the provisions that apply to manufacturing operations where applicable, or alternatively the general rules applicable to taxpayers across all sectors.

*"Section 1 **'mining operations'** and **'mining'** include every method or process by which any mineral is won from the soil or from any substance or constituent thereof."*

The Davis Tax Committee (2015:61) stated that much energy and cost has been expended by tax practitioners and SARS officials over the years to establish the boundaries where mining ends and manufacturing begins. The distinctions are important due to the different taxes applicable to the two sectors.

Mining entities incur a wide range of expenditure, including current expenditure, and expenditure of a capital nature. Special rules apply to the deduction of capital expenditure for an entity engaged in mining operations. These rules are discussed below under the heading 'capital expenditure in the mining industry'.

Another provision in South African tax legislation specific to the mining industry is for the deduction of costs involved in rehabilitating a mine on closure. Section 37 seeks to reduce the costs involved, as a mining entity is required to minimise the adverse environmental impact from operating the mine over its lifetime. The deduction is allowed for a mine to fulfil its closure rehabilitation obligations in terms of the MPRDA.

2.7.4 Determination of taxable income

To determine a taxpayer's taxable income for any year or period of assessment:

- Include all amounts of gross income;
- deduct exempt income;
- deduct amounts that qualify under the general deduction formula;
- add amounts deemed to be included in income;
- add the taxable portion of capital gains made on the disposal of capital assets
- deduct assessed losses from previous year

Taxation at 28% for a mining company (excluding gold mining entities) applies to the taxable income.

2.8 CAPITAL INVESTMENT ALLOWANCE

To encourage high capital investment during times of inflation, the Income Tax Act provides for a capital investment allowance (South Africa, 1995:1). This capital allowance is the section 12I tax Incentive aimed at supporting new and expanding existing infrustructure.

The strategic framework in the Beneficiation Strategy of the Department of Mineral Resources presents a selection of enablers for the effective implementation of the strategy to beneficiate mineral resources. One of these enablers of the beneficiation initiative is section 12I of the Income Tax Act.

> *"**12I. Additional investment and training allowances in respect of industrial policy projects***
> *…..(2) In addition to any other deductions allowable in terms of this Act, a company may, subject to subsection (3), deduct an amount (hereinafter referred to as an additional investment allowance) equal to—*
> *(a) (i) 55 per cent of the cost of any new and unused manufacturing asset used in an industrial policy project with preferred status; or*
> *(ii) 100 per cent of the cost of any new and unused manufacturing asset used in an industrial policy with preferred status that is located within a special economic zone; or*
> *(b) (i) 35 per cent of the cost of any new and unused manufacturing asset used in any industrial policy project other than an industrial policy project with preferred status; or*
> *(ii) 75 per cent of the cost of any new and unused manufacturing asset used in any industrial policy project other than an industrial policy project with preferred status that is located within a special economic zone;*
> *in the year of assessment during which that asset is first brought into use by the company as owner thereof for the furtherance of the industrial policy project carried on by that company, if that asset was acquired and contracted for on or after the date of approval and was brought into use within four years from the date of approval."*

The section 12I allowance is an additional tax allowance on top of the normal allowance available for industrial projects.

The incentive aims to support new industrial projects that utilise new and unused manufacturing assets, as well as expansions or upgrades of existing industrial projects (South Africa, 2015:1). The secondary aim of the incentive is the enhancement of skills training. Once a project qualifies as a supported project, the incentive offers varying levels of investment allowances up to R900 million for a company with preferred status and a maximum total additional training allowance per project of up to R30 million. Preferred status is reached if seven out of a total of eight points are achieved on the incentive's point system. If preferred status is not reached, there is a lower level available named the qualifying status, which requires four out of the eight points to be reached to gain entry to the incentive programme. For qualifying status, the maximum

investment allowance is R550 million, with a maximum of R20 million for the training allowance. In each of the two statuses of preferred and qualifying, there are further sub-divisions of Greenfield projects and Brownfield projects. The former relates to new industrial projects and the latter relates to expansions or upgrades of existing industrial projects. Qualifying prospective beneficiators of unrefined mineral resources or companies that expand existing refining activities may make use of this incentive.

All projects must be approved by the Minister of Trade and Industry.

The researcher considered it important to determine if the extractors were encouraged to beneficiate refined minerals due to the section 12I initiative. The extractors were asked in sub-section 4.10 if their company was encouraged by the section 12I initiative to refine minerals.

2.9 CAPITAL EXPENDITURE IN THE MINING SECTOR

As identified above, mining companies depart from the tax laws contained in the general deduction formula, and are provided with special rules in section 15 of the Income Tax Act.

Section 15 of the Income Tax Act governs the law with regards to deductions from the income derived by mining operations. This deduction reads as follows:

> *"15. Deductions from income derived from mining operations*
> *There shall be allowed to be deducted from the income derived by the taxpayer from mining operations-*
> *(a) an amount to be ascertained under the provisions of section 36, in lieu of the allowances in sections 11(e), (f) (gA), (gC), (o), 12D, 12DA, 12F and 13quin;*
> *(b) any expenditure incurred by the taxpayer during the year of assessment on prospecting operations (including surveys, boreholes, trenches, pits and other prospecting work preliminary to the establishment of a mine) in respect of any area within the Republic together with any other expenditure which is incidental to such operations …"*

This provision allows for the immediate deduction of capital expenditure in the year of assessment in which it is incurred. This capital expenditure includes expenditure on shaft sinking, mine equipment, development, general administration and management. Other assets such as housing for residential accommodation, motor vehicles for private use of employees and some railway lines and pipelines qualify only for a partial annual redemption (South Africa, 1995:1).

A mining company may take advantage of the very beneficial 100% accelerated capital expenditure allowance (ENSAfrica, 2014:para 5). This allowance is claimed against the taxable income of the entity from mining operations. The allowance alleviates the tax cash flow as the accelerated allowance reduces the taxable income of the extractor, which results in a lower amount of taxation payable for the year.

The legislation however is quite complex, and involves various rules which are applicable to the deduction of the capital expenditure. These provisions are found in section 36 of the Income Tax Act, and need to be read with section 15, most notably the applications of sections 36(7C), 36(7E), 36(7F) and 36(7G) which are detailed below:

- Section 36(7C) provides for the redemption of capital expenditure from any producing mine, subject to sub-provisions (7E), (7F) and (7G);
- section 36(7E) provides for the redemption of the capital expenditure from mining income only;
- section 36(7F) limits the redemption of qualifying capital expenditure solely to a specific mine where more than one separate and distinct mining operation is carried out; and
- section 36(7G) which provides for the partial relaxation of sub-section (7F) to the extent that new operations are commenced after 14 March 1990.

This deduction of 100% of qualifying capital expenditure incurred is in lieu of the normal wear and tear allowance, the manufacturing allowance, building allowance and other capital allowances available to other taxpayers. The deduction of the qualifying capital expenditure is limited to the available mining income. The allowance may be used to reduce mining income to zero. Should the capital expenditure be in excess of the taxable mining income, then any excess of capital expenditure is carried forward to the next year. The deduction cannot create or increase a loss from mining operations.

It must be borne in mind that if an extractor makes use of the capital expenditure allowance, certain ring-fencing provisions may apply that restrict the offset of a loss from that mine with the taxable income from another mine within the same legal entity. Furthermore, non-mining income is ring fenced from mining income. These restrictions mean that the capital expenditure incurred can only be claimed against mining income in relation to a specific mine and it cannot be redeemed against non-mining taxable income. The ring fencing rules apply to the taxable income of a mine by restricting the deduction of capital expenditure to the taxable income from that

particular mine. In certain circumstances, the ring-fencing rule may be breached by up to 25% of the taxable income to allow a mining company to apply a portion of its expenditure on one mine against the taxable income of another mine.

The date of commencement of mining operations is important as the following rules apply:

- The ring-fencing of mining versus non-mining income is applicable to all mines which commenced operations after 5 December 1983;
- the ring fencing of income from different mines is only applicable to new mining ventures after 5 December 1984; and
- for mining operations that commenced after 14 March 1990, in respect of a new mine, a partial relaxation of the ring-fencing principle is allowed.

A mining entity may therefore consist of both 'new mines' and 'old mines'. The 25% breach mentioned above applies where an 'old mine' in the same entity may have access to the unredeemed capital expenditure of the 'new mine'. This breach of the ring-fencing provision is limited to 25% of the remaining taxable income of the 'old mine'.

Once a taxpayer qualifies for the section 15 allowance, then the allowance must be used as it is not an elective allowance.

The write off of capital expenditure can be divided into two main categories of:

- 100% write off allowances; and
- partial annual allowances.

The partial annual allowances are deductible in annual instalments from a taxpayer's taxable income.

Section 36(11) of the Income Tax Act details specific types of capital expenditure, which are:

- Capital expenditure incurred during production;
- capital expenditure incurred during pre-production and periods of non-production;
- additional capital expenditure from post-1973 and post-1990 gold mines;

- partial redemption allowances, ie railway lines, vehicles, housing and conveyer systems;
- residential housing for sale to employees; and
- expenditure pursuant to obtaining any right under MPRDA.

The capital expenditure incurred during production is written off in full upfront. The definition of capital expenditure in section 36(11) is extremely wide and effectively includes all capital expenditure used in the carrying out of mining operations.

Capital expenditure incurred during pre-production and periods of non-production also carry the upfront 100% write off. The Davis Tax Committee (2015:46) stated that the reason for this advantageous write off period for pre-production periods was because the legislation was designed to heed and address the prolonged lead times involved in the construction and commissioning of a mine. This allows expenditure incurred in the development, general administration, management, and any interest and other charges on loans utilised for mining purposes, to be claimed under the 100% capital expenditure allowance regime.

Capital expenditure from post-1973 and post-1990 gold mines are allowed an additional 10% and 12% capital expenditure inclusion respectively on top of the actual capital expenditure incurred. The cumulative effect of the initial allowance combined with the additional allowance results in a significant incentive for gold mining companies. The benefits obtained through this incentive are further supported due to the reduction in taxable income which has an impact on the calculation of the gold mining formula, thereby effectively lowering the tax rate.

Partial annual redemption allowances are allowed for employee related and transport specific infrastructure and may be written off over a period of five or ten years. Residential housing for sale to employees may also be written off over ten years. This was implemented due to an initiative to support the provisions of the Reconstruction and Development Programme.

Expenditure incurred pursuant to obtaining a right under MPRDA may be fully deducted, including the expenditure commitments placed on mining taxpayers in terms of the Social and Labour Plans which they are required to be adhered to in terms of the MPRDA.

The researcher considered it necessary to determine if the extractors made use of the upfront capital expenditure write off as a means to stimulate beneficiation in their entity. This was investigated in sub-section 4.11.

2.10 MANUFACTURING ALLOWANCE

Mining entities that do not qualify for the accelerated capital expenditure allowance due to the definition in the Income Tax Act for 'mining operations' and the lack of definition for the word 'mineral', may qualify to use the manufacturing allowance.

Section 12C of the Income Tax Act governs the law with regards to deductions allowed in determining the taxable income of a manufacturer. This deduction reads as follows (emphasis added):

> *"12C. Deduction in respect of assets used by manufacturers …*
> *In respect of any—*
> *…. **new or unused machinery** or plant referred to in paragraph (a) of this subsection, or improvement referred to in paragraph (h) of this subsection, is or was—*
> *(i) acquired by the taxpayer under an agreement formally and finally signed by every party to the agreement on or after 1 March 2002; and*
> *(ii) brought into use by the taxpayer on or after that date **in a process of manufacture or process which is of a similar nature**, carried on by that taxpayer in the course of its business ….*
> ***the deduction under this subsection shall be increased to 40 per cent** of the cost to that taxpayer of that machinery, plant or improvement in respect of the year of assessment during which the plant, machinery or improvement was or is so brought into use for the first time and shall be **20 per cent in each of the three subsequent years of assessment**.*

This section allows wear and tear on new and used manufacturing assets to be claimed over four years on the 40/20/20/20 basis. The allowance is claimable in the year in which the asset is first brought into use in the operations of the entity. The full 40% is claimable in the first year, with no apportionment of the year required. The allowance is limited to the cost of the asset. The asset must be owned by the taxpayer, or acquired in terms of an instalment credit agreement. An instalment credit agreement is different from a finance lease or an operating lease in that an instalment credit agreement is the sale of an item on credit, the price of which includes finance charges and ownership automatically passes to the purchaser once the goods are paid for in full.

Mining operations that do not meet the Income Tax Act definition may make use of this alternative provision, which can be regarded by the extractors as an incentive to beneficiate minerals. For the section to apply, the new or used assets purchased by the taxpayer must be used in the taxpayer's trade directly in the process of manufacture or a similar process.

To determine whether an asset is used directly in the process of manufacture or a similar process, the definition of 'manufacturing' in the Income Tax Act should be investigated. The Income Tax

Act does not define the term 'manufacture', therefore existing case law in this respect is consulted below.

In the case of *SIR v Hersamer (1967AD),* the judge stated that there must be an essential change from the material introduced into the process to the end product.

Furthermore, in the case of *SIR v Safranmark (Pty) Ltd (1982AD),* the judge in the Apellate Division held that the following factors were relevant to the determination of manufacturing activities:

- A standardised product is produced;
- on a large scale;
- by a continuous process;
- utilising human effort and specialised equipment; and
- in an organised manner.

He stated further that when the end product is in terms of its nature, utility and value, essentially different from its main component then the process must be described as one of manufacture.

A mining company that refines minerals may qualify for a deduction of the capital expenditure in Section 12C on the 40/20/20/20 basis should they meet the principles laid down in these cases.

2.11 RESEARCH AND DEVELOPMENT ALLOWANCE

The research and development tax incentive should encourage mining houses and businesses to spend more on research and development in the field of mineral beneficiation, thereby improving the local technology and skills base and enhancing local mineral beneficiation (Taylor 2013:para 3).

Section 11 of the Income Tax Act governs the law with regards to deductions allowed in determining the taxable income of a taxpayer and section 11D specifically allows for a deduction of scientific or technological research and development. This section reads as follows (emphasis added):

> ***"11D. Deductions in respect of scientific or technological research and development***
> *(2) (a) For the purposes of determining the taxable income of a taxpayer that is a company in respect of any year of assessment there shall be allowed as a deduction from the income of that taxpayer* ***an amount equal to 150 per cent*** *of so much of any expenditure actually incurred by that taxpayer directly and solely in respect of the carrying on of research and development in the Republic …"*

In order to qualify for the research and development allowance, section 11D requires that 'research and development' as defined should be carried out. Discussing only the portion of the section that may relate to mining beneficiation, the section defines 'research and development' as any one of the following systematic investigative or systematic experimental activities of which the result is uncertain:

- Discovering new non-obvious scientific or technical knowledge; or
- creating or developing an invention as defined in the Patents Act or a functional design as defined and capable of registration under section 14 of the Designs Act; or
- making a significant and innovate improvement to any functional design, computer programme or knowledge if that development or improvement relates to any new or improved function or improvement of performance, reliability or quality of that invention, design, computer programme or knowledge.

It can be determined from the above definition that research relates to investigative and experimental activities where the result is uncertain, whereas development relates to the creation or improvement of an invention, design or computer programme.

Section 11D(2) is advantageous in reducing an entity's taxable income, as a deduction of 150% of the research and development expenditure that complies with the components of the general deduction formula (except as stated below), as well as the following additional components:

- The expenditure is directly and solely in respect of research and development;
- the expenditure is undertaken in South Africa;
- the expenditure must be approved by the Minister of Science and Technology; and
- the expenditure is incurred on or after the date that the Department of Science and Technology receives the application for approval of the research and development.

The general deduction formula requires that expenditure should not of a capital nature. However, section 11D departs from this requirement in the general deduction formula and allows the

section 11D deduction for expenses of a capital nature. This is an important deviation, as the majority of asset development is considered to be capital in nature, and consequently would not be deductible under section 11(a) of the Income Tax Act.

Section 11D(6) states that if the Minister of Finance designates certain categories of research and development in the Government Gazette, then these categories will be deemed to be the carrying on of research and development for the purposes of satisfying the definition of research and development contained in section 11D of the Income Tax Act.

Section 11D does not allow a deduction for the cost of a capital asset used in the process of research and development, being fixed property, machinery, plant, implements, utensils or articles. However, section 12C(d) allows for an accelerated wear and tear allowance on new or unused machinery or plant that is acquired on or after 1 January 2012 and brought into use for the purpose of qualifying research and development under section 11D.

Section 12C(d) reads as follows (emphasis added):

> *"12C(d) any new or unused machinery or plant referred to in paragraph (gA) of this subsection or improvement referred to in paragraph (h) of this subsection, is or was—*
>
> *…..(ii) brought into use by the taxpayer on or after that date for the purpose of **research and development** as defined in **section 11D**, the deduction under this subsection shall be—*
>
> *aa) increased **to 50 per cent** of the cost to that taxpayer of that machinery, plant or improvement in respect of the year of assessment during which the plant, machinery or improvement is or was so brought into use for the first time;*
>
> *bb) **30 per cent** of that cost in the year of assessment immediately succeeding the year of assessment contemplated in item (aa); and*
>
> *cc) **20 per cent** of that cost in the year of assessment immediately succeeding the year of assessment contemplated in item (bb)"*

This section allows a wear and tear allowance in the first year that the research and development asset is brought into account of 50%, followed by a 30% allowance in year two, and a final 20% allowance in year three. The section applies equally to improvements of assets that qualify as research and development under section 11D.

Section 13 provides for a 5% allowance on the erection of a building to be used mainly for carrying on research and development.

The proviso to section 11D contains a list of exclusions which exclude certain non-qualifying expenditure. In relation to mining beneficiation, paragraph (e) of the proviso may apply, which reads as follows:

> ***"Provided that*** *for the purposes of this definition, research and development* ***does not include*** *activities for the purpose of—*
>
> *(e) oil and gas or mineral exploration or prospecting except research and development carried on to develop technology used for that exploration or prospecting;"*

The non-qualifying expenditure, being mineral exploration or prospecting excludes research and development carried on to develop technology used for that exploration or prospecting, therefore extractors that beneficiate minerals may still make use of the provisions of section 11D.

The application and approval process with the Department of Science and Technology is detailed in sections 11D(9) to 11D(18), which requires a prescribed form to be submitted that contains the information required by the Department of Science and Technology.

The question remaining was whether the extractors have made use of the research and development tax incentive specifically for research and development to refine minerals. To determine the answer to this question, the opinions of extractors that beneficiated mineral resources were obtained in sub-section 4.12. The extractors were further asked if they were specifically encouraged to fund research and development activities because of the opportunity to make use of this tax incentive.

2.12 ENCOURAGING BENEFICIATION THROUGH INCREASED EXPORT TAXES

The Beneficiation Strategy by the Department of Mineral Resources states that export taxes are a potential instrument at governments disposal to effectively implement the beneficiation strategy. The DTC's report on Mining advises that submissions have been received which are aimed at encouraging beneficiation through the imposition of export taxes on the exports of unbeneficiated products. These proposed export taxes have the intent of discouraging exports and thereby encouraging domestic beneficiation by making domestic beneficiation more competitive (The Davis Tax Committee, 2015:89). The approach aspires to create a greater supply of the taxed product in the domestic market, hence, artificially lowering the domestic price of the goods.

It should be noted that the World Trade Organisation does not prevent the implementation of export taxes (Thomashausen, 2011:407). However, Sandrey (2014:15) warned in an international context of how the Indian share of global production plummeted after the imposition of export taxes, which can serve as an educative example of the consequences of implementing such a tax. Devarajan *et al.* (1996:23) stated that only countries with market power can impose export taxes and record any measure of success. In that regard, the DTC stated that South Africa does not have the necessary price making power in the mining industry (2015:90).

Measures instituted to promote mineral beneficiation should not be detrimental to the international competitiveness of the mining industry in respect of unbeneficiated mineral exports. Raw materials prices should be determined by the market and not by Government (South Africa, 1995:5). The DTC are of the view that the success of export taxes as a means to promote beneficiation is not a promising one, and recommended that other options be explored as a means to encourage beneficiation rather than export taxes (2015:89).

2.13 OTHER TAX INCENTIVES

It is important to consider whether other tax incentives are used by refiners of non-renewable mineral resources. The literature review did not identify other tax legislation that stimulated the process of beneficiation. The question remained however if the participant extractors made use of any other tax legislation that motivated them to beneficiate non-renewable resources. To determine the answer to this question, the opinions of extractors that beneficiated mineral resources were obtained in sub-section 4.15.

2.14 CHALLENGES TO THE STABILITY OF THE MINING INDUSTRY

Mining is a cyclical industry and capital investments in the different stages of the mining industry lifecycle (exploration, development, production and mine closure) tend to follow these cycles (Davis Tax Committee, 2015:41). Mining is a long-term activity and the process of beneficiation requires a significant upfront capital investment. The time line from the commencement of a project to commence mining beneficiation through to the stage where income is finally generated may involve multiple decades and great funding to bring a project to fruition. Over this period the project may be exposed to fluctuating commodity cycles, changing technology and risks on the geology and technical side of a project, as well as other extraneous potential risks (Davis Tax Committee, 2015:41). Mining is also a geographically situated activity which is subject to

significant risk from sudden economic and taxation changes. Other industries are far more mobile and can relocate to different jurisdictions should the taxation environment change significantly.

Cawood (2011:444) advises that the mining industry is a particularly risky industry which requires governments to understand the need for stability of terms, security of tenure and protection against expropriation. Once a mining company has invested capital into the infrastructure required for beneficiation, that capital becomes captive, leaving the company at the mercy of government. Amendments to tax and royalty legislation are integral to a mining company when considering whether to invest the capital required to perform the activity of beneficiating their products. An uncertain tax system has the potential to discourage refiners from investing in the equipment required for beneficiation.

Unfortunately, a high degree of uncertainty has been created by the proposed amendments to the MPRDA and its regulations (The Davis Tax Committee, 2015:33-34). The recommendations contained in the State Intervention in the Mining Sector report created uncertainty in the mining sector (ENSAfrica, 2014:para 2). The World Bank report as part of their key findings from interviews with mining industry representatives that there are concerns regarding policy uncertainty with the threat of amendment to taxes under the Mineral and Petroleum Resources Development Act (World Bank, 2015:47).

An uncertain tax system has the potential to discourage refiners from investing in the equipment required for beneficiation, eliminating government's aim to promote beneficiation through tax incentives.

The researcher considered it necessary to determine if the possible imposition of export taxes would affect the miners' decision to beneficiate minerals. This was investigated in sub-section 4.13.

2.15 CONCLUSIONS

This chapter addressed the literature review required to answer the first research objective, which was to determine existing provisions in South African tax legislation that could either stimulate or hamper the process of downstream beneficiation. The literature review identified that a dual rate royalty exists to promote beneficiation, as well as other incentives that are contained in the

Income Tax Act applicable to all sectors, as well as specific provisions in the form of section 12I, the research and development allowance and the capital expenditure allowance. An alternative form of encouragement of beneficiation identified was through the possible introduction of export taxes. The literature review prompted questions that necessitated discussions with extractors. These questions formed the basis of the empirical section of this study.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 INTRODUCTION

The previous chapter identified available literature on tax incentives which could influence downstream beneficiation. The literature study prompted further research required. In order to fully understand the extent to which tax incentives have played a role in the decision making of the extractors, the extractors themselves needed to be consulted. The aim of this chapter was to provide the research methodology followed during the empirical part of the study. It details the qualitative research methodology and the primary method of data collection. The chapter continues with a description of how the data was gathered and analysed, and the related motivation. The validity and reliability of the sample is explained, as well as the method of interpretation of the research results. The chapter concludes with an indication of the manner in which the research results were presented.

3.2 QUALITATIVE RESEARCH METHODOLOGY

As information on the influence of taxes on beneficiation from the perspective of the extractor are not readily available and by extension related constructs derived from these perceptions are similarly not available, it was necessary to obtain qualitative data for this study. Qualitative research aims to gather an in-depth understanding of human behaviour and the reasons that govern such behaviour to offer the perspective of a particular situation (Chisnall, 2005:18).

The empirical research adopted entailed an exploratory study to determine the current views of extractors on the influence of tax legislation in promoting downstream beneficiation in their company using interviews and questionnaires. The data collected from the extractors acts as a blueprint for the collection, measurement and the analysis of the data in order to achieve the study objectives (Cooper & Schindler, 2003:663).

3.3 DATA COLLECTION

Various data collection methods are available that specifically relate to the collection of qualitative data, including participant observation, different types of interviews and questionnaires. The method using participant observation is not appropriate to achieve the research objectives in this

study as it involves the observation and analysis of certain behaviours. It was therefore decided to make use of the two alternative methods of interviews and questionnaires.

The reason for the interview and questionnaire was because this method provides the opportunity to probe beyond the initial responses and rationale received by the extractors, which produces more in-depth and comprehensive information (Hargie & Dickson, 2004:138). An interview process provides the benefit of timely responses from participants and provides the interviewer with an opportunity to explain the purpose of the study. The researcher could engage the extractors more actively, thereby allowing the researcher to be an integral part of the investigation. It also allows the participant the opportunity to raise concerns and to discuss any matters in more detail. An interview establishes a rapport between the interviewer and the participant, which can in turn provide a level of trust resulting in improved co-operation and participation.

Interviews can take the form of highly formalised/structured interviews, or semi-structured interviews or completely unstructured conversations. Highly formalised/structured interviews do not allow for deviation from the pre-determined questions and makes use of a standardised response schedule. A completely unstructured technique does not provide any form of guidance for the interview, whilst semi-structured interviews allow for a degree of structure, whilst still allowing for a level of discussion and deviation from the pre-determined order of questions.

In addition to conducting interviews, a formal questionnaire was also used to support the findings of the study. Certain questions in the questionnaire were formulated using a Likert response scale. According to Cooper and Schindler (2003:420) the Likert scale is a response scale that is often utilised in questionnaires and it is the most widely used scale in survey research. A Likert item is a statement that the respondent to the questionnaire is asked to evaluate according to a subjective or objective criteria. The level of agreement or disagreement can be measured in a Likert scale statement where the respondent is given a statement and is required to respond in agreement or disagreement. The statement in the questionnaire can be a positively based statement or it can be negatively based. The researcher used the five-point Likert scale in the questionnaire as the five-point scale was considered more appropriate than the nine-point scale, which provided additional response options which added to the complexity of the answer, but in this research, would not add to the benefits of the findings.

The Likert scale according to Cooper and Schindler (2003:421) have the following advantages:

- Eliminates the development of a response bias by the participants;
- the Likert scale can be used to assess attitudes, beliefs, opinions and perceptions;
- the response items are standard and comparable;
- responses can be analysed directly from the questionnaire; and
- interview bias is reduced.

The respondents were given statements to which they were required to respond using a 5 point-Likert scale, with the response options available being:

- Strongly agree;
- agree;
- neutral;
- disagree; or
- strongly disagree

Alternative questions required yes or no answers, and other questions required percentages or Rand values to be provided.

The questions asked of the extractors were designed from the tax legislation identified in the literature review.

3.3.1 Population

Burns and Grove (2001:236) define the term population as all the elements/subjects that meet the criteria for inclusion in a study or members that conform to a set of specifications. In this study the population was mining companies in South Africa. The list of mining companies was obtained from the DTI website. This list included the telephone numbers and in some cases, the email addresses of the mining companies. In addition, the researcher obtained contact details of mining companies from colleagues, clients, associates and peers. These mining companies were used as the total population from which the sample was selected.

3.3.2 Sample selection and design

Sample selection can be based on probability sampling or non-probability sampling. Cooper and Schindler (2003:192) identify four main types of probability sampling, being:

- Systematic sampling;
- stratified sampling;
- cluster sampling; and
- simple random sampling.

Systematic sampling involves sampling every k^{th} element in a population, beginning with a random start commencing at 1. Stratified sampling involves dividing the population into various segments, and to select a sample from each of the segments of the population. Cluster sampling involves the division of the population into mutually exclusive clusters, and thereafter certain clusters are selected for the sample. In the case of simple random sampling, each member of the population has an equal probability of being chosen for the sample.

In non-probability sampling, the sample size used is not quantified, but rather it is dependent upon the specific research questions and objectives. Its aim is about what the researcher intends to determine from the sample selected. Saunders *et al.* (2007:83) state that this type of sample design is used predominantly when obtaining information of a qualitative nature, as the size of the sample is not what is important, but rather the quality of the information extracted.

The geographical area covered in the sample included resident extractors whose activities are conducted in South Africa's land and sea. The choice of population was greatly influenced by the willingness of extractors to participate in the study, consequently the use of routine sampling was impractical. Communications with extractors began in May 2015 to ascertain the extent of initial extractors that were willing to participate in the study. Initially, six extractors confirmed their willingness to participate in various communications. One of the initial extractors subsequently became unable to participate, however, an additional extractor was later obtained so that the sample size remained at six.

According to Baker and Edwards (2012:8), numerous well-respected and classical studies have been written based on a single case study. They go on to say that a small number of cases may be adequate for a research project when studying hard to access populations such as elites. In these cases, between six and a dozen participants may offer insights into the corporate boardroom. Exploratory research design explores the research topic with varying levels of depth without aiming to provide final and conclusive research answers (Singh, 2007:64). Unstructured interviews are the most popular primary data collection method with this type of research (Brown, 2006:43).

Samples for qualitative research are generally much smaller than those used in quantitative research as the former is concerned with meaning, and not making generalised hypothesis. One thread of data is all that is needed to ensure that it becomes part of the analysis framework (Ritchie & Lewis, 2003:83-84).

The sample size was deemed to be an acceptable level for the study. An acceptable level is based on professional judgement with the main consideration being that the sample is representative of the population as a whole (Saunders *et al.,* 2007:207). It was envisaged that approximately six extractors would be used for the sample, and six extractors participated in the process. The quality of the data collected required a formal approach to the gathering of the data.

3.3.3 Gathering the data

It must be borne in mind that the research of mineral policy demands that the researcher must maintain complete neutrality and objectivity during the discussion (Cawood, 1999:3). The interviews and questionnaires were mainly concentrated around obtaining the views of the extractors towards how incentives have played a role in influencing downstream beneficiation.

The interviews were conducted from July 2015 to October 2016 and were in person where possible, alternatively each extractor was contacted by telephone and email and later completed a formal questionnaire. The language medium was English. The director or manager was approached first in order to obtain the authority to conduct the interview and questionnaire. The telephone call provided the researcher with the opportunity to introduce herself, and provide a background to the research and its objectives. The researcher put the participants into a position where they understood the requirements of the study for them to decide whether or not they would like to participate in the study. During this introduction, the confidentiality of information was discussed, as well as the qualitative method to be followed during the process. The researcher then conducted the interview by telephone, email or Skype. Following the interview, the researcher emailed a questionnaire to the respondent. The participant was given adequate time to complete the questionnaire. Questionnaires were completed electronically. The information obtained from the questionnaire and interviews required analysis of the data in order to formulate a meaningful research result.

3.3.4 Data analysis

This section describes how the data collected was analysed by the researcher. Cooper and Schindler (2003:87) maintain that data analysis involves the reduction of accumulated data to a manageable size, developing summaries and looking for patterns to which statistical techniques can be applied. It furthermore includes the interpretation of those findings based on the research questions, and determines if the results are consistent with the research hypotheses. Content analysis is the process of identifying, coding, and categorising primary patterns of data. According to Mathu (2010:198), content analysis involves reading participants' responses a number of times to identify key points and themes that can be derived therefrom. This study combined the results of the interviews and questionnaires, summarised the data, and identified patterns and comparatives to base the research results provided in the next chapter. The accuracy of the results of the data analysis required a sound methodology for ensuring that the sample selected was valid and reliable.

3.3.5 Validity and reliability of the sample

Cooper and Schindler (2003:156) identify validity and reliability as the two important characteristics of a sound measurement instrument. Leedy & Ormrod (2005:97) state that the validity of a research study is the extent to which its design and data yield allows the researcher to draw accurate conclusions. The research results aim to provide an answer to the research objective to determine the influence of available tax legislation in the economic decision making of the extractors in response to the legislation either supporting or deterring downstream beneficiation in their value chain. It is therefore important to ensure the validity and reliability of the sample so that the data yield answers the research objective reliably.

The researcher carried out the following practical steps when conducting her study:

- Pre-testing the research questionnaire through a pilot study;
- discussions with senior researchers who have had previous experience in similar studies;
- discussions with senior researchers involved in the mining industry;
- performing an extensive literature review on South African tax incentives applicable to beneficiation; and
- having the questionnaire reviewed by senior researchers.

Boyce (2002:534) states that pre-testing or pilot testing a questionnaire is considered good practice to ensure the development of a good quality questionnaire. The pilot testing carried out by the researcher assisted in establishing whether the participants would experience any problems in completing the questionnaire. The questionnaire was first critically evaluated by two academics with experience in the field of research. Pre-testing the questionnaire also allows the researcher to determine whether the instructions of the questionnaire are clear and easy to follow, that every statement is fully understood by respondents, the sequence is logical and the language and wording are understandable and non-contradictive. Amendments were made where necessary, and further testing was completed before the final questionnaire was sent to the participants for completion.

Errors can occur in the sample if there are errors in the design of the questionnaire, or the researcher has not designed the questionnaire in order to achieve answers to the research problem (Cooper & Schindler, 2003:332). For this reason, discussions with senior researchers who had previous experience in similar studies was obtained, as well as discussions with senior researchers involved in the mining industry. The researcher carefully considered the design of the questionnaire, which was formulated based on the tax legislation identified in chapter two, and the relevance of the questions in answering the research problem. Again, amendments were made where necessary.

The most important threats to the reliability of the information received during the interview was that the extractors were hesitant to divulge information that they deemed to be confidential, or that could cause harm from competitors or information that they considered to be the intellectual capital of the business. The strategy followed to lessen those threats was to assure the extractor that their identity would not be disclosed, and that the information would be combined to form a coherent summary as well as the assurance that no information gained during the process would be provided to the other extractors during subsequent interviews. The ethical regulations of the university were complied with. Informed consent was obtained at the start of communications from each extractor, which explained the confidentiality with which the information was treated and the anonymity of the extractors. The sample was evaluated by the researcher as valid and reliable due to the above methodology carried out, and was considered to be of sufficient size and quality to present the research results.

3.3.6 Research results

The interpretation of the results and drawing of conclusions is the final step of the research process. The literature review was performed to identify legislation that could promote beneficiation in the mining sector. In turn, the literature review prompted questions that needed to be discussed with extractors.

Denzin (1978:304) identifies research triangulation as the convergence of multiple data sources. This involves other research procedures to improve understanding and credibility of the study. This research triangulated the theoretical data identified in chapter two with the qualitative results of the interviews, as well as the data obtained from published quotes, comments or data by all role players involved and previous theses on the subject. Primary legislation, guides including explanatory memoranda issued by the National Treasury, as well as publicly available sources on academic commentators' perspectives were researched. The data collected was analysed and interpreted, then integrated and collated in the context of all information gathered to formulate the research hypotheses. A qualitative writing style was followed when reporting the research findings. The research results are presented in the following chapter.

3.4 CONCLUSION

A qualitative research approach was followed to provide information on the influence of taxes on beneficiation from the perspective of the extractor because such information is not available in literature. An interview and questionnaire was used as the instruments to collect data. The questionnaire was formulated using Likert scale questions, and a pilot study was conducted which assisted the researcher to refine and modify the questionnaire.

The validity and reliability of the research results were discussed, as well as the methods for ensuring the reliability of the data collected. The sample was evaluated by the researcher as valid and reliable and was considered to be of sufficient size and quality to present the research results.

CHAPTER FOUR: RESULTS AND DISCUSSION

4.1 INTRODUCTION

The literature review in chapter two identified legislation that may promote beneficiation or possibly discourage existing refiners. The next step in the research process was to continue the investigation by obtaining the views of the extractors in response to the findings of the literature review. The objective of chapter four was to discuss the impact on the economic decision making of the extractors by analysing and interpreting the perceptions of the extractors in response to tax legislation promoting beneficiation.

The chapter systematically presents the results of the research methodology and interprets the data by translating it into integrated and meaningful findings. It commences with the empirical findings of the study which examines the demographics of the respondents and includes the designations of the respondents and their educational qualifications. The next sub-section continues with the age of the mining operations, number of years that the extractor has beneficiated minerals, the type of minerals extracted, the provinces where the minerals are extracted and the annual gross turnover of the extractor. The empirical findings on the demographic variables are presented with the use of tables and figures to clearly indicate the results. The next sub-section presents the findings of the interviews and questionnaires which provides insights on the influence that tax legislation has had on the decision making of extractors relating to downstream beneficiation in the mining sector. Each set of findings was analysed and interpreted by linking the finding from the extractor back to the literature review and to the research objectives.

4.2 EMPIRICAL FINDINGS

4.2.1 Participants

This exploratory research obtained commitments from six extractors that were willing to participate in this research study. Baker and Edwards (2012:8) stated that a small number of cases may be adequate for a research project when studying hard to access populations and in such cases, between six and a dozen participants may offer insights into the corporate boardroom. The smaller qualitative sample size was considered acceptable for the study on the

basis of the wide range of demographics of the extractors that ensured suitable coverage across industry size, age and types of minerals extracted.

4.2.2 Demographics

The demographic variables on which the data collection and information was obtained included the following:

- Age of the mining operations;
- number of years the entity has beneficiated minerals;
- types of mineral extracted;
- province/s where minerals are extracted;
- annual gross turnover;
- designations of the respondents; and
- level of professional education of the respondents.

The age of the mining operations and number of years that the entity has refined minerals was obtained to ascertain whether the extractor had been in the mining industry for an extended period with many years' experience, or if they were a relatively new entrant to the mining sector. The MPRRA was implemented in 2010, therefore a mining company that has only been in operation for a few years may not have the same opinion as a mining company whose operations were established before the introduction of the Royalty Act. Furthermore, the reason why the number of years that the mining company has refined mineral resources was obtained for this research was to differentiate which mining companies commenced with beneficiation after the commencement of the Royalty Act due to the benefits they identified in the Royalty Act that promoted them to beneficiate.

The type of mineral extracted was obtained to gain an understanding of the entity. This was important in the context that the MPRRA provides a schedule to the Royalty Act which regulates the stage at which a mineral is regarded as refined for the purposes of using the more favourable refined mineral resource formula. The provinces in which the respondents operate was obtained to determine the geographical spread of the sample in the South African mining sector.

Annual gross turnover was determined to indicate the size of the entity. The size of the entity was also considered when analysing the findings. The designations of the respondents were

obtained to determine the level of authority and level of decision making in the business operations of the extractor, as the purpose of this study was to obtain the decisions of the extractors in consequence to provisions provided in tax legislation. Finally, the qualifications of the respondents were considered important to ensure educated and informed responses.

In addition, all the above demographic variables were obtained to ensure that the sample was representative of the population. These were taken into account when analysing the findings and formulating the conclusions. Visual representations of the demographic variables are presented in the figures and tables below.

4.2.2.1 The age of the mining operations

Table 2 summarises the age of the mining operations. The results indicate that all respondents have been mining for a period in excess of 5 years. Of the respondents, 17% have been operating between 5 and 10 years, 17% have been operating for more than 10 years, and 67% have been operating for more than 20 years.

Table 2. Age of the mining operation

Age of business (years)	***Percentage***
0 to 1 year	0%
1 to 5 years	0%
5 to 10 years	17%
10 to 20 years	17%
20 plus years	67%

4.2.2.2 Number of years refining minerals

Table 3 shows the number of years that the extractors have refined minerals. A mining company may have been in operation for a certain number of years, however, may have only commenced with beneficiation due to tax incentives or other reasons some time after commencing business. The results indicate that 17% recently commenced with beneficiating minerals in the last year, 17% between 1 and 5 years, 17% between 5 and 10 years, and 50% of the respondents have been beneficiating minerals for a period of more than 20 years.

Table 3. Number of years refining minerals

Number of years refining minerals	*Percentage*
0 to 1 year	17%
1 to 5 years	17%
5 to 10 years	17%
10 to 20 years	0%
20 plus years	50%

Analysing the combined results of both Table 2 and Table 3, the diverse range of respondents ensure that both new and experienced refiners responses are included in the study. In addition, the sample selected includes mining companies that commenced with beneficiation activities both before and after the introduction of the Royalty Act.

4.2.2.3 Types of minerals beneficiated

The following types of minerals are beneficiated by the mining company respondents:

- Calcium fluoride
- Chrome
- Coal
- Cobalt
- Copper
- Diamonds
- Dolomite
- Filter sand
- Fluorspar
- Gold
- Limestone
- Nickel
- Platinum group metals

The list shows that numerous diverse types of minerals have been included in the study. This spread ensures that a wide range of results are included in the study and supports the acceptability of the sample obtained.

4.2.2.4 Geographical location of the mines

Figure 2 shows the geographical spread of the respondent mining companies in South Africa. The findings indicate that the provinces of Gauteng, Limpopo, Mpumalanga, the Northern Cape and the North West are represented in the sample obtained, although all provinces were included in the population. Certain mining companies operate mines in multiple provinces.

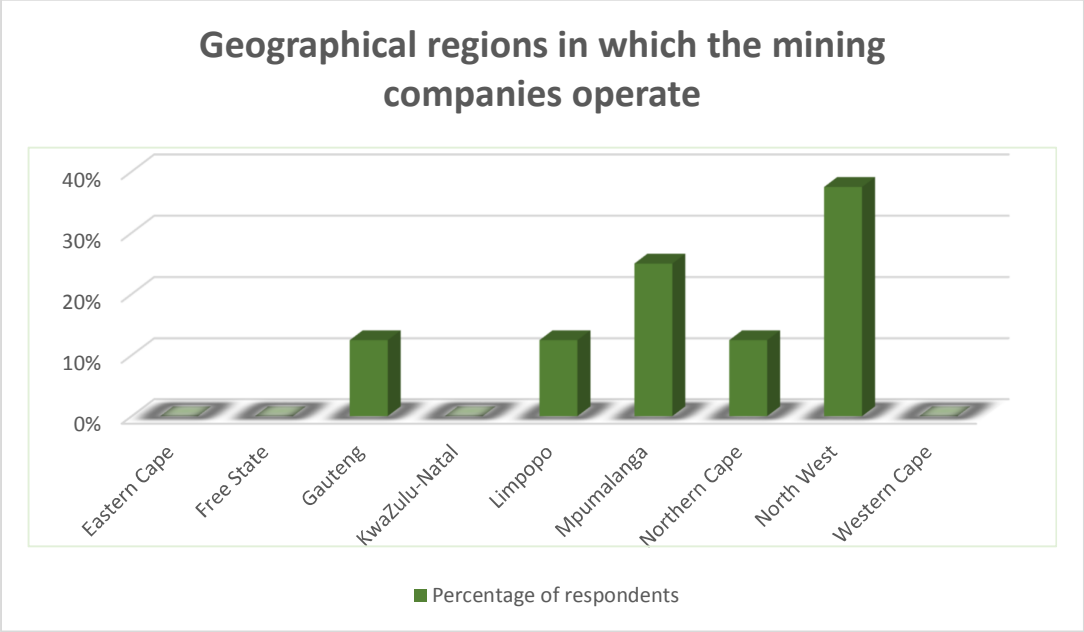

Figure 2. Geographical spread of the mining operations

The sample adequately represents the geographical population, and the sample was considered satisfactory in this regard.

4.2.2.5 Annual gross turnover

Table 4 summarises the annual gross turnover of the respondents, indicating that the turnover of 50% of respondents is under R150 million, 17% are over R1 billion and 33% of the respondents' turnover is above R10 billion.

Table 4. Annual Gross Turnover

Annual Gross Turnover	***Percentage***
R 0 to R150 million	50%
R150 million to R1 billion	0%
R1 billion to R10 billion	17%
Over R10 billion	33%

Again, the results reflect a wide spread of mining companies that have been included in the sample, and substantiate the adequacy of the sample obtained.

4.2.2.6 Designations of the respondents to the questionnaire

Figure 3 reflects the position within the mining company that the respondent holds. The results reveal that the majority of interviews completed were compiled by a director of the mining company. More than 30% were completed by a manager of the mining company, and the balance by an executive of the entity.

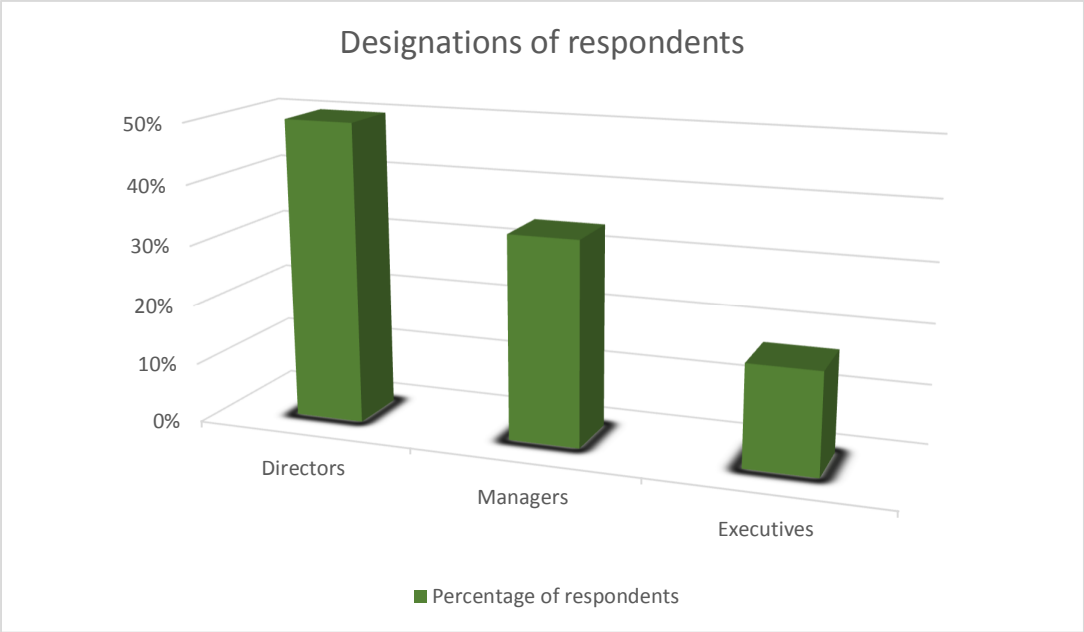

Figure 3. Designations of the respondents

These positions of authority within the mining companies provide a level of assurance regarding the quality of the answers provided by the respondents. The sample was therefore considered to be of a sufficiently high-level within the company for the respondent to partake or be aware of the decision making with regards to beneficiating products.

4.2.2.7 Highest academic qualifications of the respondents to the questionnaire

The educational levels of the respondents are shown in Table 5. The results reflect that 100% of the mining company's representative respondents held post matric educational qualifications, with a Master's degree reflecting the majority of the respondents' highest qualification, and a Doctorate being the highest qualification of the respondents.

Table 5. Educational qualifications of the respondents

Educational qualifications of the respondents	*Percentage*
Grade 12	0%
Certificate	0%
Diploma	16%
Degree	0%
Postgraduate Degree	0%
Master's Degree	67%
Doctorate	17%

These results provide a level of assurance that the respondents were able to provide informed and educated responses for inclusion in this study.

4.2.2.8 Conclusions on the demographics and sample size

The participants represented both new and experienced refiners' that mine numerous diverse types of minerals over many geographical regions which ensured a wide spread of the population. The sample included both smaller mines and more substantial listed mining entities. The informed and educated responses of the six extractors were considered suitable to acquire the information for this study. Due to these reasons, the small number of participants did not negatively impact the quality of the findings. In conclusion, the number of extractors was considered appropriate for this research project with the participants offering the required insights into the corporate boardroom.

4.3 MAJOR RESEARCH FINDINGS

The respondents were provided with the opportunity to express their views on the influence that tax legislation has had on promoting downstream beneficiation in their entity. Each set of questions asked, and the related findings are detailed below, separated into the following headings:

- Contribution of mining beneficiation to the economy;
- informed decision making;

- taxes in general;
- royalty taxes;
- royalty rate formula;
- Schedule 1 of the MPRRA;
- section 12I tax incentive allowance;
- capital expenditure allowance;
- research and development allowance;
- export taxes;
- income tax deductions; and
- alternative incentives.

Visual representations of the information and opinions provided by the extractors are presented in the figures and tables below.

4.4 CONTRIBUTION OF THE PROCESS OF BENEFICIATION TO THE ECONOMY

In order to assess the context of beneficiation in relation to the economy, it is necessary to examine the contribution of the process of beneficiation to the economy. As this study deals specifically with the tax influence on miners, the increase in taxation due to beneficiation is considered.

4.4.1 Increase in taxation

Statistics relating to the amount of taxes received by the government specifically due to beneficiation are not publicly available, however the amount of tax contribution from the mining sector as a whole is available. The literature review revealed that the mining sector contributed R21.5 billion in company tax and R6.4 billion in royalties during the 2014 financial year (SARS, 2014:226). This considerable contribution of company and royalty taxes by the mining sector to the fiscus demonstrated the importance of the mining industry to the economy.

The additional level of processing allows the refined mineral to be sold at a higher price (Department of Mineral Resources, 2015:para. 4). The higher royalty payable due to the higher gross sales price, the formula also yields a higher amount of tax payable if the profits of the extractor increase (The Davis Tax Committee, 2015:52). The general rule that the process of

beneficiation leads to higher taxes is relevant to determine the degree of contribution of the process of beneficiation to the economy.

The actual degree of contribution of the process of beneficiation to the economy is not publicly available, however the researcher felt it important to determine the views of the extractors as to whether or not the process of beneficiation has increased the amount of tax payable by their company to the Commissioner. This is important to the study as the extractors views on the influence of tax legislation on the promotion of downstream beneficiation commences with the higher amount of taxes payable to the Commissioner due to their refinement activities. The extractors were asked if they agreed, were neutral or disagreed that the process of beneficiation has increased the amount of tax payable by their company to the Commissioner, and the level of their agreement, disagreement or neutrality.

Figure 4 reflects the extractors' assessment as to whether the process of beneficiation has increased the amount of tax payable by their company to the Commissioner.

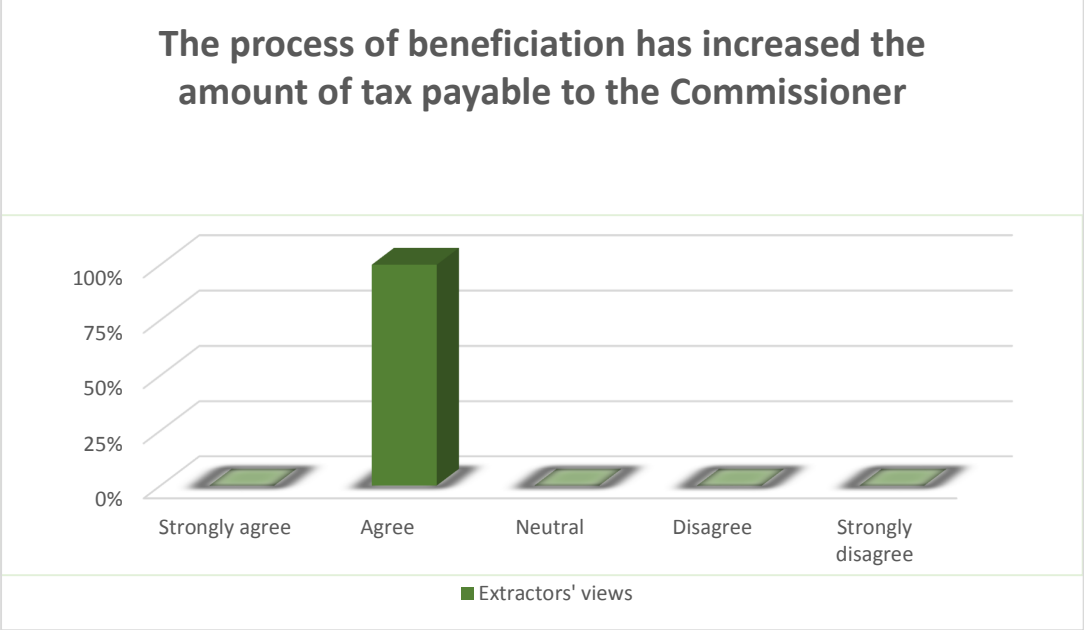

Figure 4. Respondents' opinion on increase in taxation

This figure shows the answers as to whether the process of beneficiation has increased the amount of tax payable by their company to the Commissioner. It is clear that 100% of the

extractors agree that the process of beneficiation has increased the amount of tax payable to the Commissioner. This result supports the assumption identified in the literature review that higher taxes are paid to the Commissioner due to refinement activities.

In conclusion, it is evident that process of beneficiation increases the tax contribution to the economy. This demonstrates the importance of beneficiation to the economy, and why it is essential and beneficial for the government to encourage extractors to beneficiate.

It flows that this increase in taxation is not only due to income taxes, value added taxes and royalty taxes, but also due to an increase in pay as you earn taxes (PAYE). This additional PAYE could be attributable to the process of beneficiation creating additional jobs.

4.4.2 Additional jobs created

The literature review identified that the mining sector remains vital to the South African economy through the creation of jobs (The Davis Tax Committee, 2015:26). The mining sector contributed R16.7 billion in employee withholding tax during the 2014 financial year. This contribution can also be attributed to the labour-intensive process of beneficiating raw minerals into refined mineral resources, which increases the labour absorptive capacity of the industry (Department of Mineral Resources, 2011:5).

The extractors were asked to provide their level of agreement with the statement that the process of beneficiation has created employment in their company. Figure 5 reflects the extractors' response on whether the process of beneficiation has created jobs in their company. It can be seen that the majority of participants agree that employment is created specifically due to the process of refining mineral resources, while twenty percent of the respondents were neutral. These results support the findings of the literature review that beneficiation increases the labour absorptive capacity of the industry and has a positive impact on South Africa's labour force.

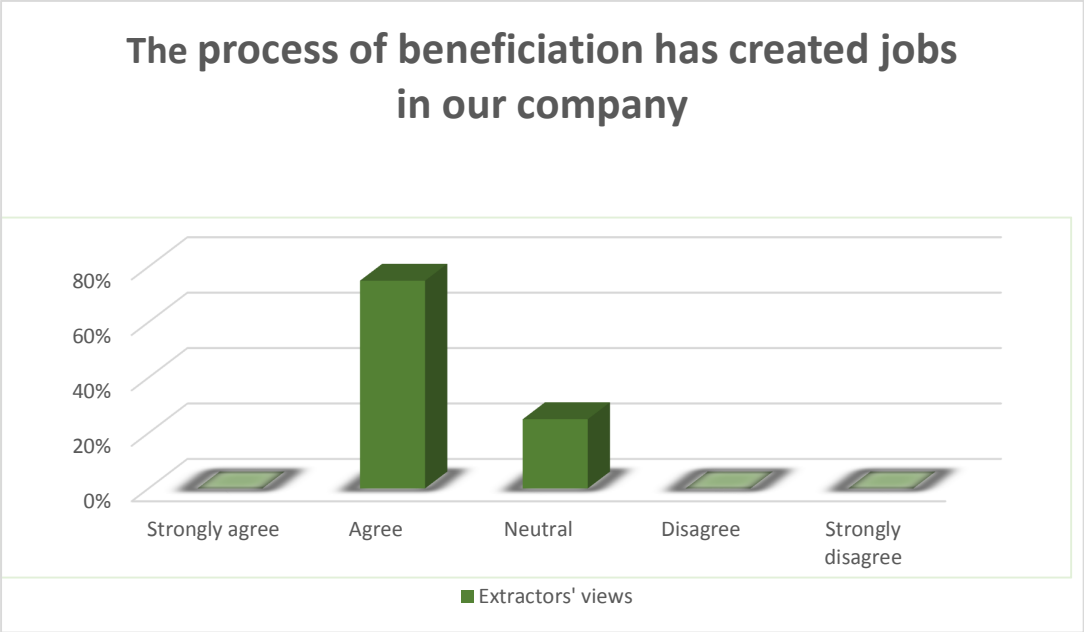

Figure 5. Additional jobs created

In conclusion, it can be confirmed that the labour-intensive process of beneficiation creates additional jobs vital to the South African economy.

The study has confirmed that the process of beneficiation increases the taxes payable to the fiscus, as well as creating employment, thereby signifying the importance of the process of beneficiation to the economy. As the importance of beneficiation to the economy has been established, it should now be determined whether extractors are incentivised to beneficiate based on tax incentives available.

4.5 INFORMED DECISION MAKING

The literature review identified that van der Zwan (2010:76) cautioned that it is questionable if the extractor is indeed incentivised. For an extractor to determine whether a tax incentive actually provides an incentive to their company to beneficiate, certain feasibility studies will need to be carried out by the extractor on which to base this decision. This study seeks to determine whether relevant data was obtained by the extractors for them to make informed decisions on whether to beneficiate based on the tax incentives available to them. This contributes to the research

objective in that the answers to these questions reveal whether the extractor's decisions to beneficiate based on tax incentives are supported by facts and figures relevant to their entity.

4.5.1 Feasibility studies

This study queried the following of the extractors:

- Were mineral project feasibility studies carried out by your company on extending trade to include downstream beneficiation as a result of tax incentives?

Table 6 shows the respondents' answers to the question asked, indicating that the majority of extractors carried out mineral project feasibility studies on extending trade to include downstream beneficiation as a result of tax incentives. A minor portion of the extractors did not carry out these studies.

Table 6. Feasibility studies

Respondents answer	***Percentage***
Yes	67%
No	33%

In conclusion, it is confirmed that the majority of extractors carried out feasibility studies. A reliable feasibility study requires a baseline as a commencement point of the study.

4.5.2 Beneficiation baseline

The literature review identified that there is a critical point at which the process of beneficiation becomes advantageous to the extractors. This critical point is depicted by Cawood's equation (2011:450) that supports beneficiation.

For the extractors to make use of this calculation, a beneficiation baseline would need to be determined with which to commence the calculation, as well as for any feasibility study to be carried out. The researcher asked the extractors if their company had established a baseline of

beneficiation to measure the impact of tax incentives. Table 7 shows the responses received by the extractors to this query.

Table 7. Beneficiation baseline

Respondents answer	***Percentage***
Yes	75%
No	25%

In answer to the question as to whether the extractors have established a baseline of beneficiation to measure the possible impact of tax incentives, 75% of the respondents stated that their company has established this baseline, and 25% advised that they have not established this baseline. Going forward in this study, which expands on Cawood's equation, the results indicate that the majority of extractors have established a baseline of beneficiation to measure the impact of tax incentives, and carried out mineral feasibility studies on extending trade to include downstream beneficiation, which will assist them in making informed decisions on tax incentives, and informed answers for the purposes of this research. The research progresses to focus on tax incentives which are available to extractors, and the impact of these tax incentives on their decision making.

4.6 TAX INCENTIVES IN GENERAL

The information obtained from the extractors was formulated by the researcher in such a way as to determine the influence that tax legislation has had on the economic decision making of the extractors in relation to the promotion of beneficiation. The information obtained included the following:

- Views on extractors corporate actions in response to tax legislation;
- views on whether legislation can discourage existing value added activities;
- views on whether tax legislation can motivate an extractor to beneficiate; and
- the influence of existing legislation on the company's decision to beneficiate.

4.6.1 Taxes to encourage new investment into beneficiation

The literature review identified that Cawood (2011:444) cautions that once a mining company has invested capital into the infrastructure required for beneficiation, that capital becomes captive, leaving the company at the mercy of government. Tax legislation is integral to a mining company when considering whether to invest the capital required for beneficiation. Cawood further advises that the process of beneficiation requires investment in research and development by the extractors, is capital intensive, and it may take many years before the subsequent gross sales of the refined minerals are realised. Due to these difficulties associated with beneficiation, the tax incentives available will need to have a decisive impact on the extractors in order to encourage the required investment for new beneficiation. This study attempted to determine if tax incentives relating to beneficiation can alter corporate actions of the extractors by encouraging new investment into beneficiation.

The extractors were provided with the statement, “Tax incentives relating to beneficiation can influence corporate actions of our company by encouraging new investment into beneficiation”. The extractors were required to rate their level of agreement with the statement.

Figure 6 reflects the level of agreement of the extractors on whether taxes relating to beneficiation can influence their corporate activities by encouraging new investment into beneficiation. It can be seen that the extractors either agree, strongly agree, or are neutral or even disagree with the statement. In analysing these results, approximately one third of the extractors considered that taxes can encourage new investment into beneficiation while other extractors are divided on the matter. In the demographics of the extractors presented above, it was determined that the study succeeded in obtaining a diverse sample of participants ranging from new to experienced beneficiators, representing many geographical regions, and representing numerous types of minerals resources that are beneficiated. It is possible that due to this diverse sample and consequently diverse mining population, the tax effect on the various distinctive extractors are similarly diverse.

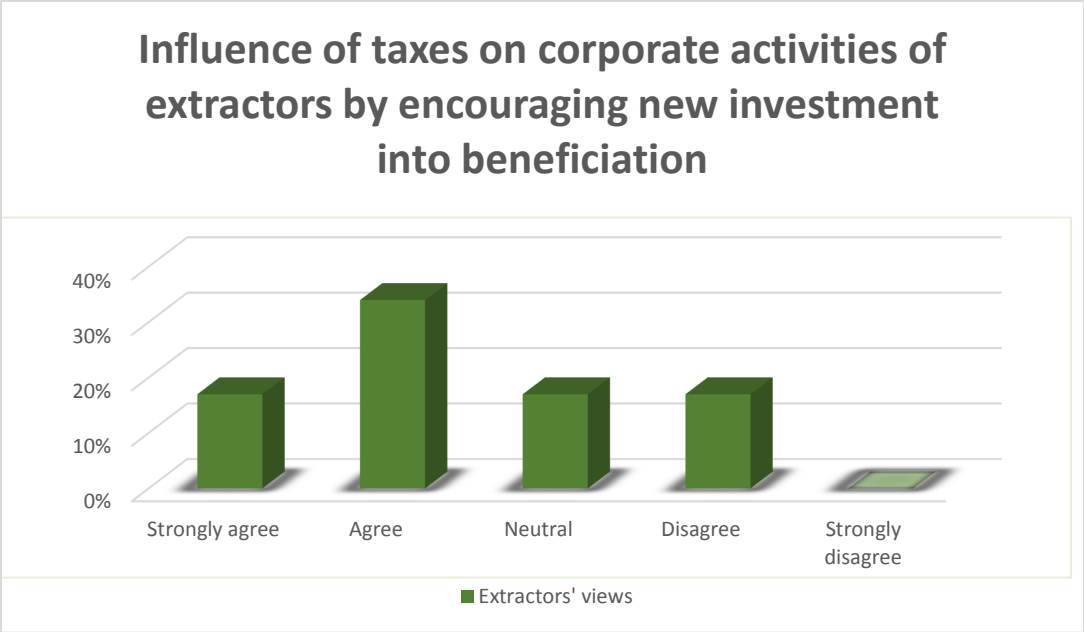

Figure 6. Influence of taxes encouraging new investment

Although it is evident that more extractors agree that taxes relating to beneficiation can influence corporate actions by encouraging new investment into beneficiation, results indicate that there are also those extractors that strongly agree, as well as those that are neutral, or even disagree. Owing to these differences in opinion, further study should be carried out to determine whether tax incentives are too simplistic to effectively apply in all circumstances or whether more advanced formulas are required based on the various types of minerals beneficiated. The literature review stated that tax incentives available would need to have a decisive impact on the extractors to encourage new beneficiation. While discussing this issue with the extractors, the researcher was advised that the tax incentives available would need to sufficiently compensate for the varying levels of demand between refined and unrefined minerals.

It is thus also possible that the available incentives do not have a sufficiently decisive impact on the extractors to beneficiate, and the extractors require greater incentives to motivate them to invest in the capital required to beneficiate. After determining that extractors are divided with regards to tax incentives promoting new investment into beneficiation, it was natural to progress to the question of whether tax incentives have discouraged their existing value added activities.

4.6.2 Taxes discouraging existing value added activities

The literature review identified that the DTC (2015:16) cautioned that the design of a tax system should not discourage investment. However, based on a previous study by van der Zwan (2010:90), it was determined that royalty taxes on refined mineral resources can in certain circumstances be significantly higher than those on unrefined mineral resources and consequently discourage extractors from refining. The researcher believed it necessary to obtain the views of the extractors to determine whether taxes have discouraged existing downstream beneficiation in their entity.

This study enquired of the extractors as to their views on whether tax legislation relating to beneficiation can discourage refiners from existing value-added activities. The extractors were given the statement, “Tax legislation relating to beneficiation can discourage our company from existing value-added activities”

Figure 7 reflects the extractors level of agreement on whether tax legislation relating to beneficiation can influence corporate actions in their company by discouraging refining activities. From the figure, it can be seen that most of the extractors disagree that tax legislation relating to beneficiation can discourage existing value-added activities. Less than 20% of the respondents agree, and similarly less than 20% of the extractors are neutral.

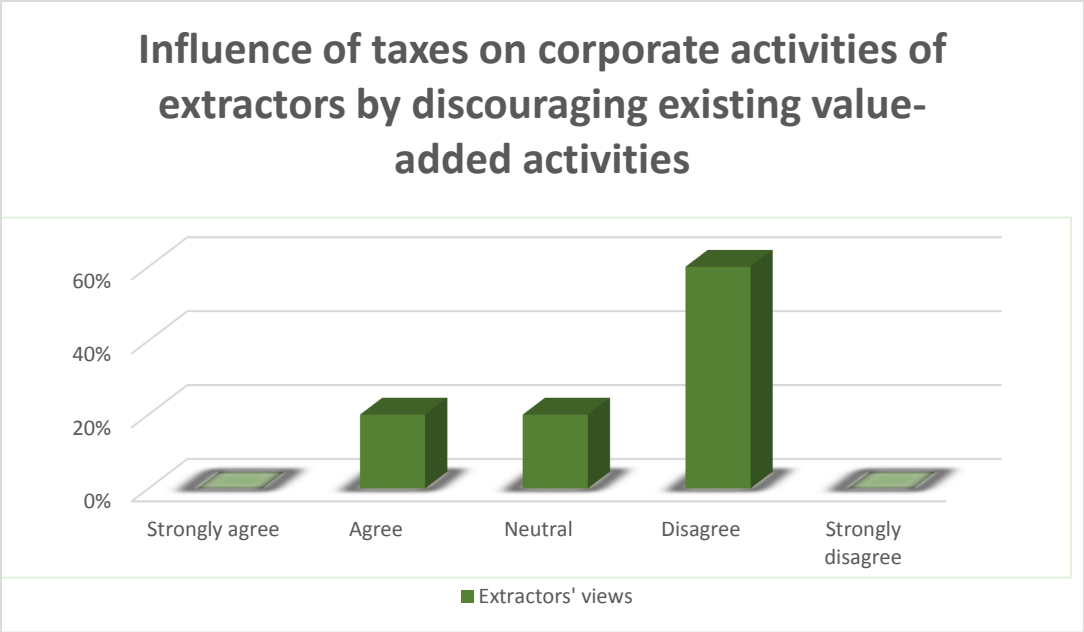

Figure 7. Influence of taxes discouraging refiners

The researcher concludes that although in some circumstances, the taxes do discourage extractors, in general the extractors are not discouraged from beneficiating their non-renewable mineral resources due to tax legislation.

To further refine the influence of tax legislation, and whether it encourages or discourages extractors behaviour, it was then necessary to consider the specific taxes and tax incentives involved, being royalty taxes, the section 12I tax allowance incentive, capital expenditure allowance, research and development allowance, export taxes, and any other tax incentives that may have an influence on the process of downstream beneficiation.

4.7 ROYALTY TAXES

4.7.1 The MPRRA to motivate extractors to beneficiate

In the literature review, the study found that Cawood (2011:443) suggested at the commencement of the royalty regime that the Royalty Act was unlikely to motivate miners to become refiners. His reasoning was that the benefit of the reduced rate on refined minerals would be insufficient to justify the additional costs that were required to refine the mineral

resources. As the Royalty Act has been in effect since 2011, the researcher was prompted to determine whether the MPRRA has indeed motivated extractors to beneficiate. The study enquired of the extractors as to whether the introduction of the MPRRA motivated them to beneficiate unrefined minerals.

Figure 8 reflects the answer to the question: "The introduction of the MPRRA motivated our company to beneficiate unrefined minerals." The figure shows that the extractors agree, are neutral, or disagree with the majority being neutral to the introduction of the MPRRA and the same proportion agreeing or disagreeing.

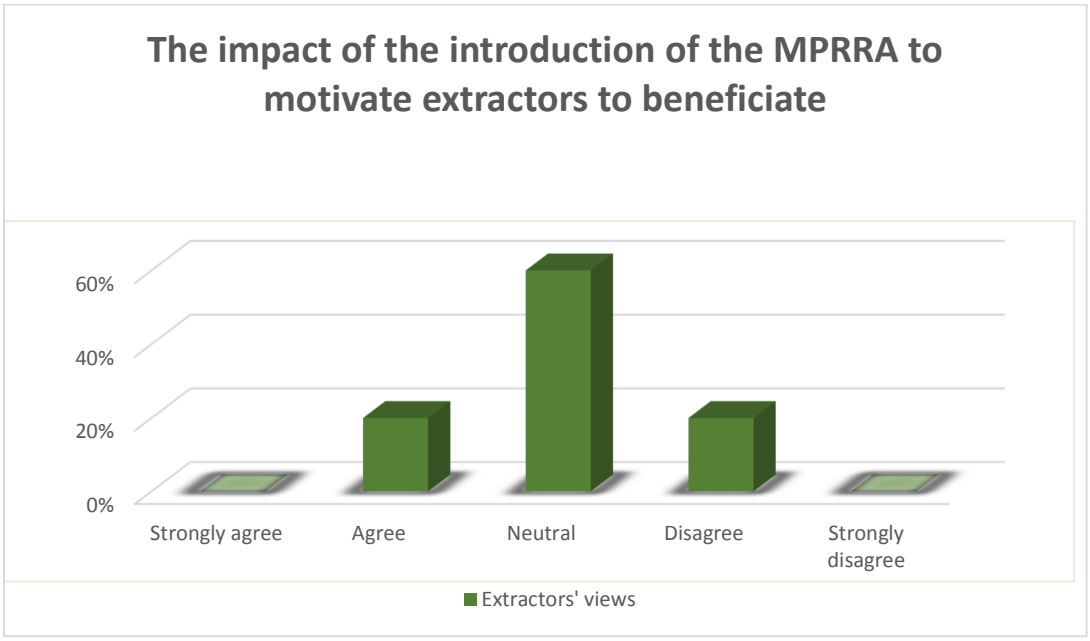

Figure 8. Respondent's perspective on the MPRRA motivation to beneficiate minerals

Cawood's suggestion that the Royalty Act would be unlikely to motivate miners to become refiners does have grounding in the neutrality of the results obtained by the miners. This may be because of the suggestion provided by Cawood that the benefit of the reduced rate on refined minerals would be insufficient to promote beneficiation. Sub-chapter 4.8 continues with Cawood's suggestion, and investigates the views of the extractors with regards to the royalty rate formula in further detail.

4.8 ROYALTY RATE FORMULA

4.8.1 The impact of the dual rate mechanism to promote beneficiation

The literature review identified that the Royalty Act contains two separate calculations which were formulated to differentiate between the lower priced unrefined minerals and the higher priced refined minerals. The intention of the lower royalty rate for refined minerals was to promote downstream beneficiation (National Treasury, 2002:26). Cawood (2011:450) made a preliminary assessment in 2011 that it would be unlikely that the policy objective of value addition would be achieved by the dual rate formula as provided for in the MPRRA. As stated above, his reasoning was that the benefit of the lower rate for refined minerals would be insufficient to justify the additional costs required to promote downstream beneficiation. This theory persuaded the researcher to determine if the extractors concurred. This is relevant to the study as it continues to look at the influence that tax legislation has had on the extractors by promoting downstream beneficiation. The study obtained the views of the extractors as to whether the lower royalty rate had a positive influence on the extractors decision to beneficiate.

Figure 9 reflects the response to the statement: “The lower royalty rate had a positive influence on our company’s decision to beneficiate.”

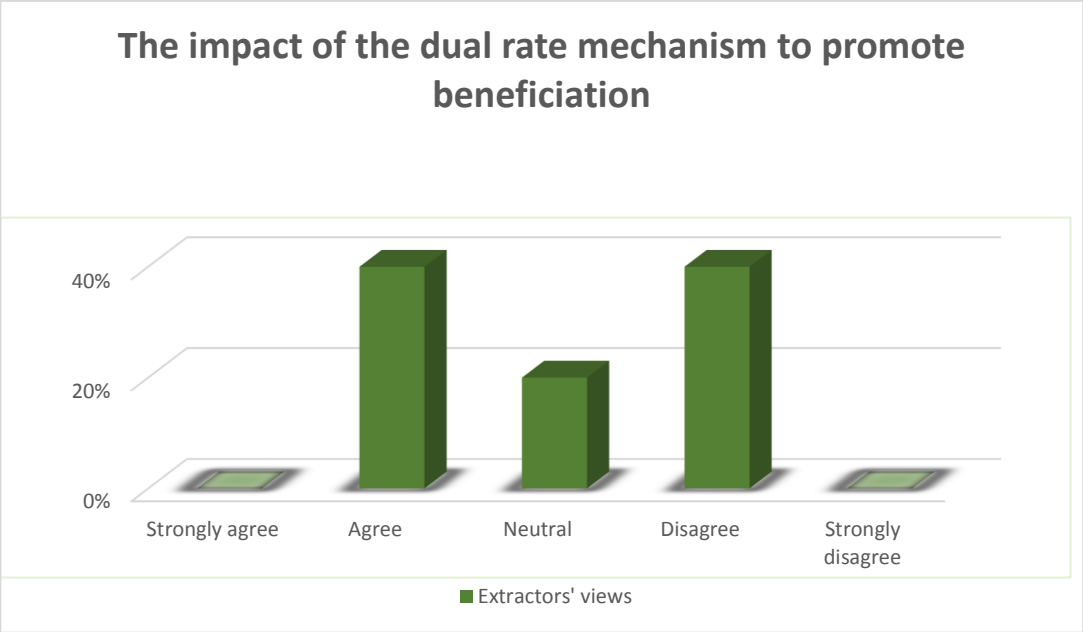

Figure 9. Impact of dual rate mechanism to promote beneficiation

The responses to this statement indicate that the extractors agree, are neutral or disagree, without a clear majority in any category that the dual rate mechanism in the MPRRA has promoted value added activities in their company. These results neither prove nor disprove Cawood's theory. This could be due to the fact that the participant extractors refine different type of minerals, and the dual rate formula may have a positive influence to beneficiate for extractors of certain minerals, but not all minerals. In conclusion, the divided results indicate that further study should be carried out relating to how the dual rate formula affects different types of mineral resources.

Another conclusion to be drawn is that it appears that the intention of the lower royalty rate for refined minerals to promote downstream beneficiation was not consistently achieved. The researcher concludes that the dual rate formula has influenced certain extractors, however, as it does not consistently promote beneficiation, the influence is not necessarily as intended by the MPRRA. The study now determines the correlation between the impact of the dual rate mechanism to promote beneficiation, and the decrease in the royalty rate percentage payable.

4.8.2 Decreases in royalty rate percentage payable

During the literature review, it was found that due to the mathematical nature of the formula, the higher the denominator in the equation, the lower the result of the formula, and thereby the lower the amount of the royalty tax payable to the Commissioner.

This study queried with extractors if the dual royalty rate resulted in a decreased royalty rate percentage payable to the Commissioner. The reason why this question was asked was because it was important to determine whether the extractors understand the mathematical workings of the formula. The question above related to whether the formula is beneficial to their entity, however, this question is differentiated in that the simple workings of the equation lead to a lower royalty rate percentage payable. This does not necessarily mean that it becomes beneficial, as seen in the answers to the prior question.

Figure 10 reflects the level of agreement by the extractors with the statement that the process of beneficiation has decreased their royalty rate percentage payable to the Commissioner due to the workings of the dual rate formula.

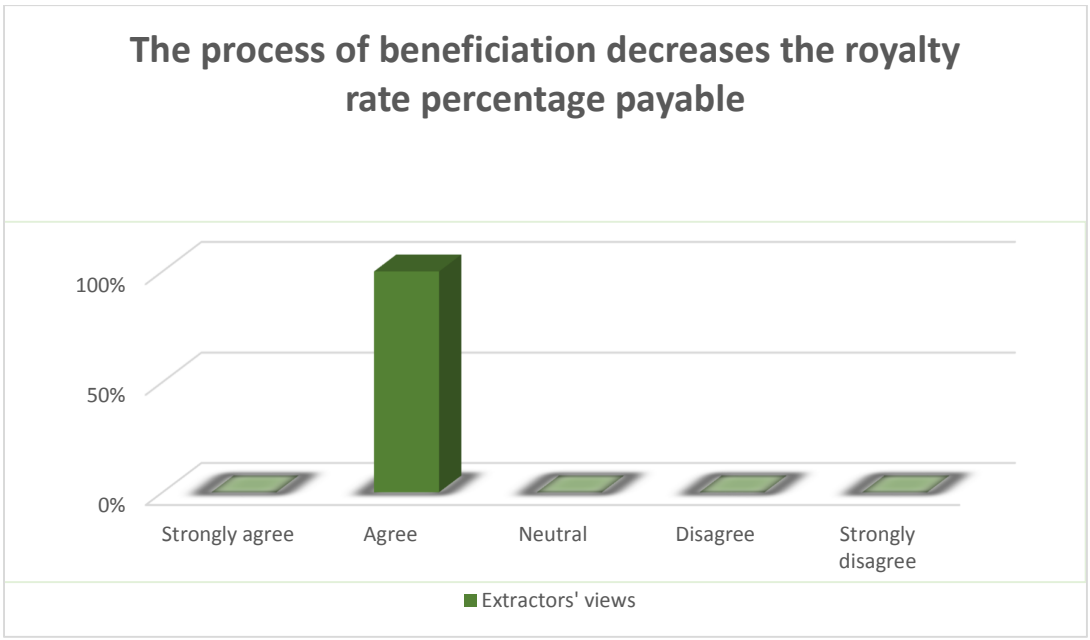

Figure 10. Decrease in royalty rate percentage

The results clearly reveal that 100% of the extractors agree with the mathematical workings of the formula. This result supports the facts identified in the literature review that process of beneficiation decreases the royalty rate percentage payable to the Commissioner due to the workings of the dual rate formula.

4.8.3 Royalty rate formula discourages decision to beneficiate

The study asked in sub-section 4.6.2 whether taxes could discourage refiners from beneficiating their mineral resources. The results were diverse, and it was questioned whether the types of minerals beneficiated and thereby the costs of refinement of that type of mineral may affect those specific circumstances. It was concluded in that sub-section that to further refine the influence of tax legislation, and whether it discourages extractors behaviour, it was necessary to consider the specific taxes involved, one of them being royalty taxes, that may affect the process of downstream beneficiation. This sub-section investigates whether the royalty rate formula discourages the extractors from beneficiating non-renewable resources.

The study enquired of the extractors as to whether there have been situations where the royalty rate has discouraged their decision to beneficiate mineral resources.

Figure 11 reflects the views of the extractors in response to the statement that, “There have been situations where the royalty rate has discouraged our company’s decision to beneficiate mineral resources.”

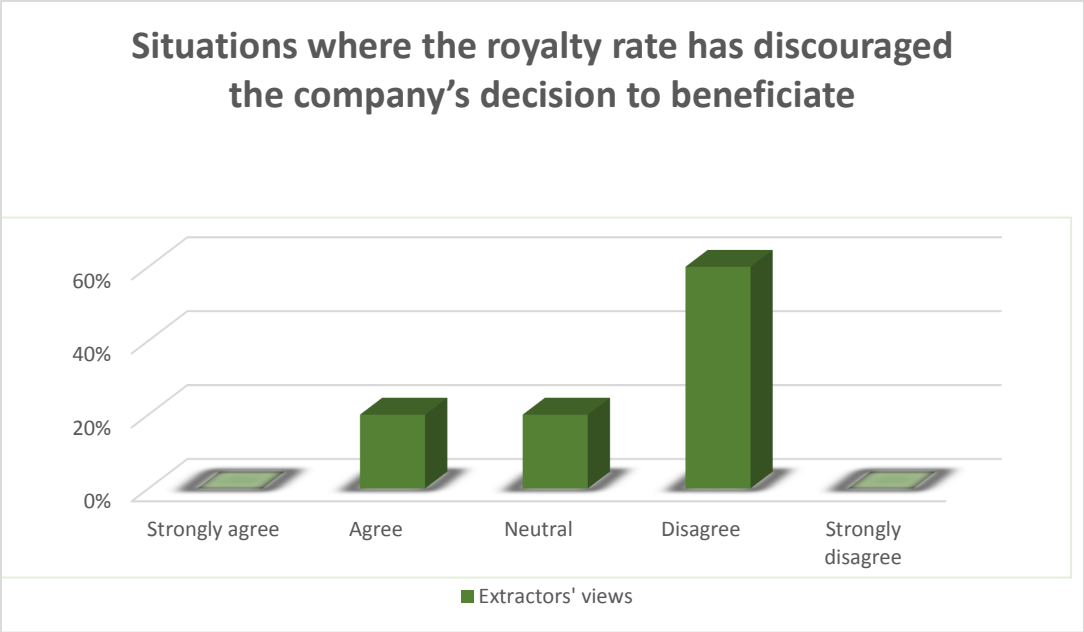

Figure 11. Royalty rate discourages

The figure shows that the extractors agree, are neutral, or disagree, with the majority disagreeing that the royalty rate has discouraged their refining activities in certain situations. Interestingly, the results are exactly the same as the results for the question regarding whether taxes in general discourage the extractors from beneficiating. The researcher concludes that although in some circumstances, the royalty rate does discourage extractors, in general the extractors are not discouraged from beneficiating their non-renewable mineral resources due to the royalty rate.

4.8.4 Impact on extractors profitability

The literature review identified that according to a previous study by van der Zwan (2010:75), the impact of the multiplier on the formula is that an increase in the multiplier will result in a decrease in the royalty rate. If the increase in the gross sales value of minerals because of beneficiation is less than 38% (12.5 divided by 9), the extractor would be incentivised to process the minerals to the required state of beneficiation. On the other hand, an increase in gross sales that exceeds 38% would result in a higher royalty being payable if the mineral resource is refined, and the extractor would no longer be incentivised. This information led the researcher to enquire about the percentage increase in gross sales value of the extractors due to beneficiation.

This study queried the percentage increase in the extractors' gross sales value as a result of further processing? Table 8 reflects the responses from the extractors.

Table 8. Increase in gross sales value

Respondents answer	***Percentage***
0 to 37%	75%
38% or more	25%

This table shows the percentage increase in gross sales value of the participant extractors as a result of further processing of unrefined minerals. The results indicate that the percentage increase for the majority of extractors lies in the region of 0 to 37%, with 25% of the extractors showing an increase of 38% or more. According to the literature above, this means that 75% of the extractors would be incentivised by the dual rate formula, and 25% would no longer be incentivised. It is interesting to note that the gross sales value of 25% of the extractors does not fit into the norm for this sample, and then to correlate this percentage with the often diverse results obtained for this research that the tax legislation does influence some extractors to a limited extent, but not all.

The study went on to enquire about the percentage increase in earnings before interest and tax that results from beneficiating minerals. Table 9 shows the responses obtained from the extractors.

Table 9. Increase in EBIT

Respondents answer	***Percentage***
0 to 9%	50%
10 to 19%	0%
20 to 29%	25%
30% or more	25%

A wide rage is displayed in the responses, showing that the percentage increase in earnings before interest and taxation that results from beneficiating minerals of extractors range from the 0 to 9% category on the lowest scale to 30% or more on the highest scale. The conclusions drawn on this table are combined with the conclusions in table 10 below.

The study went on to enquire of the extractors about what percentage of sales price do their refinement costs represent? Table 10 shows the response from the extractors.

Table 10. Refinement costs as a percentage of sales price

Respondents answer	***Percentage***
0 to 9%	25%
10 to 19%	25%
20 to 49%	25%
50% or more	25%

The extractors are divided as to the percentage of sales price that refinement costs represent, with one extractor in each of the categories of 0 to 9%, 10 to 19% 20 to 49% and 50% or more. The answer to this question shows that due to the diverse nature of the type of operations as a result of the various different types of minerals beneficiated, the cost of refinement for the different participants to the study have a wide range. This result may also partly if not fully explain the diversity of the answers received from the extractors. The researcher concludes that due to the different types of minerals extracted by the participants, it is necessary to investigate Schedule 1 of the MPRRA, which provides different states at which a mineral is considered to be transferred to a refined mineral resource.

4.9 SCHEDULE 1 OF THE ROYALTY ACT

4.9.1 Sufficiency of the lower percentage for refined mineral resources

The literature review identified that the percentage calculated in the royalty formula is limited to a maximum of 7% in the case of unrefined minerals, and 5% in the case of refined minerals. This difference of 2% between the maximum royalty percentage leviable reduces the incentive to beneficiate. Cawood (2011:450) suggested that the royalty formula requires a larger difference in the minimum and maximum rates before mines will beneficiate to the levels required in Schedule 1 of the MPRRA. He stated that the royalty formula is not sufficient to motivate miners to become refiners, as he believes that the benefit of the reduced rate on the refined minerals is insufficient to justify the additional costs that would need to be incurred to refine the mineral resource to the specified level of beneficiation in Schedule 1. This theory prompted the

researcher to enquire of the extractors as to the sufficiency of the lower percentage contained in the MPRRA for refined mineral resources.

Figure 12 reflects the level of agreement by the extractors to the statement that, “Our company considers the reduced rate on refined minerals to be sufficient to justify the additional costs to refine our mineral resources to the prescribed state of beneficiation as set out in Schedule 1 of the MPRRA.”

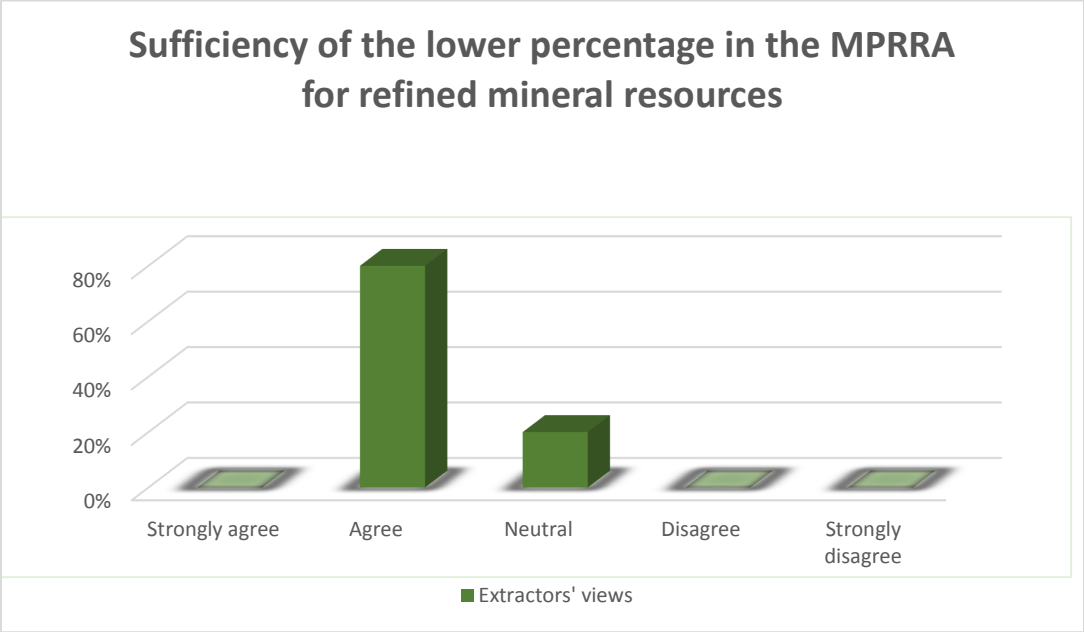

Figure 12. Sufficiency of lower percentage

The figure shows that most the extractors agree that the dual rate formula is sufficient to promote downstream beneficiation with less than 20% of the extractors being neutral, and no extractors in disagreement. This response from the extractors does not support the assumption by Cawood in the literature review that the 2% difference between the maximum royalty percentages payable for refined and unrefined minerals is not sufficient to incentivise miners to beneficiate. In conclusion, the majority of respondent extractors believe that the lower percentage is sufficient to support beneficiation, with the minority being neutral.

4.9.2 Practical distinctions between refined and unrefined minerals

This study enquired of the extractors as to whether it is practical to apply the different distinctions between a refined and unrefined mineral resource as required by Schedule 1 of the MPRRA.

Figure 13 reflects the views of the extractors to the statement that it is practical to apply the different distinctions between a refined and unrefined mineral resource as required by Schedule 1 of the MPRRA.

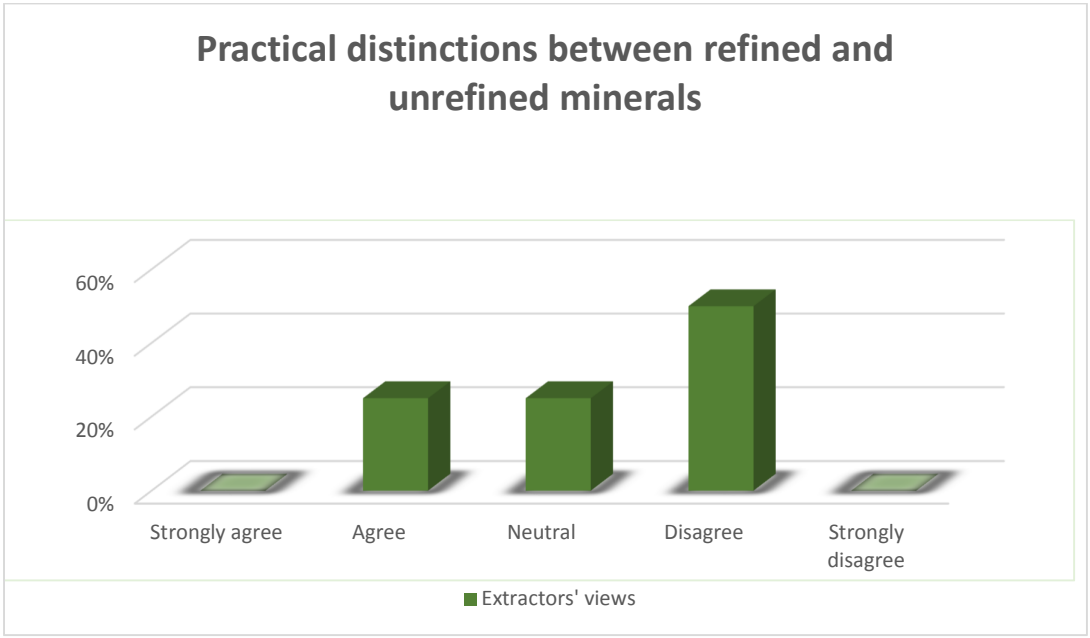

Figure 13. Practical distinctions between refined and unrefined resources

The figure shows that the majority of the extractors disagree that it is practical to apply the different distinctions between a refined and unrefined mineral resource as required by Schedule 1 of the MPRRA.

4.10 SECTION 12I TAX ALLOWANCE INCENTIVE

The literature review identified that section 12I of the Income Tax Act as a beneficiation initiative from the Department of Trade and Industry. The section 12I Tax Incentive aims to support new industrial projects that utilise new and unused manufacturing assets, as well as expansions or

upgrades of existing industrial projects (Department of Mineral Resources, 2015:1). Qualifying potential beneficiators of unrefined mineral resources or companies that expand existing refining activities may make use of this incentive.

The researcher considered it important to determine if the extractors were encouraged to beneficiate refined minerals due to the section 12I initiative. This is important to the study as the extractors' views on the influence of tax legislation on the promotion of downstream beneficiation involves not only the reduced rate of royalty taxes but also the incentives provided for in section 12I of the Income Tax Act. The extractors were asked if their company was encouraged by the section 12I beneficiation initiative to refine minerals.

Table 11 reflects the answers from the extractors as to whether section 12I encouraged their refining activities.

Table 11. Section 12I tax allowance incentive

Respondents answer	***Percentage***
Yes	75%
No	25%

This table shows the answers as to whether the extractors were encouraged to beneficiate due to the section 12I tax allowance incentive from the DTI. It can be seen that three-quarters of the participant extractors were encouraged by the incentive, while 25% of the respondents were not encouraged to beneficiate due to the incentive. In conclusion, it is evident that the section 12I tax allowance incentive identified in the literature review has encouraged the majority of extractors to refine mineral resources. This demonstrates that the allowance is in the main successful in influencing new industrial projects or existing industrial projects in the mining industry relating to the beneficiation of mineral resources.

Following on from the section 12I incentive allowance, the next incentive to beneficiate that was identified in the literature review was the saving in taxation provided for by the accelerated capital expenditure write off.

4.11 CAPITAL EXPENDITURE

The literature review identified that the DTC (2015:62) recommends the discontinuance of the upfront capital expenditure write off regime which in the Committee's opinion should be replaced with a write off period in line with manufacturing entities on the 40/20/20/20 basis. The researcher considered it necessary to determine if the extractors make use of the upfront capital expenditure write off as a means to stimulate beneficiation in their entity and if the proposed change would affect the consideration of beneficiation in their company.

Figure 14 reflects the level of agreement to the statement that. "The DTC's recommendation to discontinue the upfront capital expenditure write off and replace it with a 40/20/20/20 write off period would affect the consideration of beneficiation in our company"

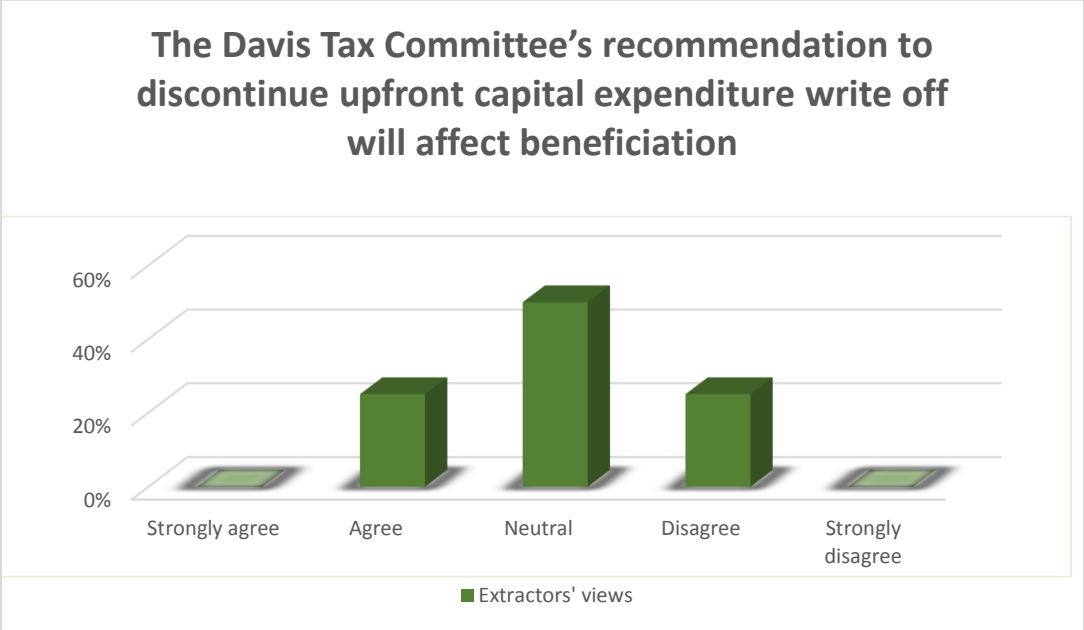

Figure 14. Capital expenditure write off

The figure shows that the extractors agree, are neutral, or disagree with the majority being neutral to the effect of the discontinuance of the upfront capital expenditure write off on their refining activities. There is a distinct difference between the participants' views on the topic of upfront capital expenditure write off. This may be because if the refiner cannot claim the capital

expenditure up front, then the allowance may still be claimed, however, there is a timing difference.

In conclusion, it is evident that the majority of extractors are neutral with regards to the incentives provided by the upfront deduction from income tax of the capital expenditure, and this does not affect the consideration of beneficiation in their company. This demonstrates that the upfront capital expenditure write off is not an incentive that motivates miners to become refiners.

Following on from upfront capital expenditure write off, the next incentive to beneficiate that was identified in the literature review was the research and development allowance.

4.12 RESEARCH AND DEVELOPMENT

4.12.1 Research and development allowance

The researcher considered it important to determine if the extractors have made use of the research and development tax incentive specifically for research and development to refine minerals. Thereafter, to continue with the study to determine if the extractor was specifically encouraged to fund research and development activities because of the opportunity to make use of this tax incentive. This is another incentive available to beneficiators of minerals that is important to the study and the extractors views on the influence that this tax legislation has had on promoting downstream beneficiation was obtained.

This study enquired the following of the extractors:

- Has your company made use of the research and development tax incentive specifically for research and development to refine minerals?

Table 12 provides the responses by the extractors to this question. It is clear that 25% of the extractors have made use of this incentive specifically for research and development in the process of beneficiation and 75% of the respondents have not.

Table 12. Use of the research and development tax incentive

Respondents answer	*Percentage*
Yes	25%
No	75%

From the results, it is evident that the majority of extractors did not make use of the incentive with regards to beneficiation in their company, demonstrating that the research and development tax incentive has not been utilised by the majority of participant extractors to refine mineral resources. Following on from whether the extractor has made use of the research and development incentive, the researcher believed it was necessary to consider whether this incentive encouraged the extractors to beneficiate.

4.12.2 Encouragement by the research and development incentive

This study enquired if the extractors were encouraged to fund research and development activities because of the opportunity to make use of this tax incentive.

Table 13 provides the responses obtained from the participant extractors.

Table 13. Encouragement by the research and development incentive

Respondents answer	*Percentage*
Yes	25%
No	75%

This table demonstrates that the research and development tax incentive does not motivate the majority of participant extractors to refine mineral resources.

It is evident that the majority of extractors have not made use of the incentive with regards to beneficiation in their company, and do not consider this tax incentive to be a motivator for the process of beneficiation in their entity.

Following on from the research and development allowance the next incentive to beneficiate that was identified in the literature review was the possible imposition of export taxes to encourage beneficiation.

4.13 EXPORT TAXES TO ENCOURAGE BENEFICIATION

The literature review identified that export taxes are a potential instrument at governments disposal to effectively implement the beneficiation strategy. These export taxes have the intent of discouraging exports and thereby encouraging beneficiation. The researcher considered it necessary to determine if the possible imposition of export taxes would affect the miners' decision to beneficiate minerals. This contributes to the research objective in that it partly answers the question of the influence of taxes on the promotion of beneficiation in the South African mining sector.

The study enquired of the extractors as to whether the possible introduction of export taxes on the exports of unbeneficiated products would encourage their company to beneficiate products that are currently exported as unrefined minerals.

Figure 15 reflects the level of agreement by the extractors to the statement that, "The possible imposition of export taxes on the exports of non-beneficiated products would encourage our company to beneficiate products that are currently exported as unrefined minerals."

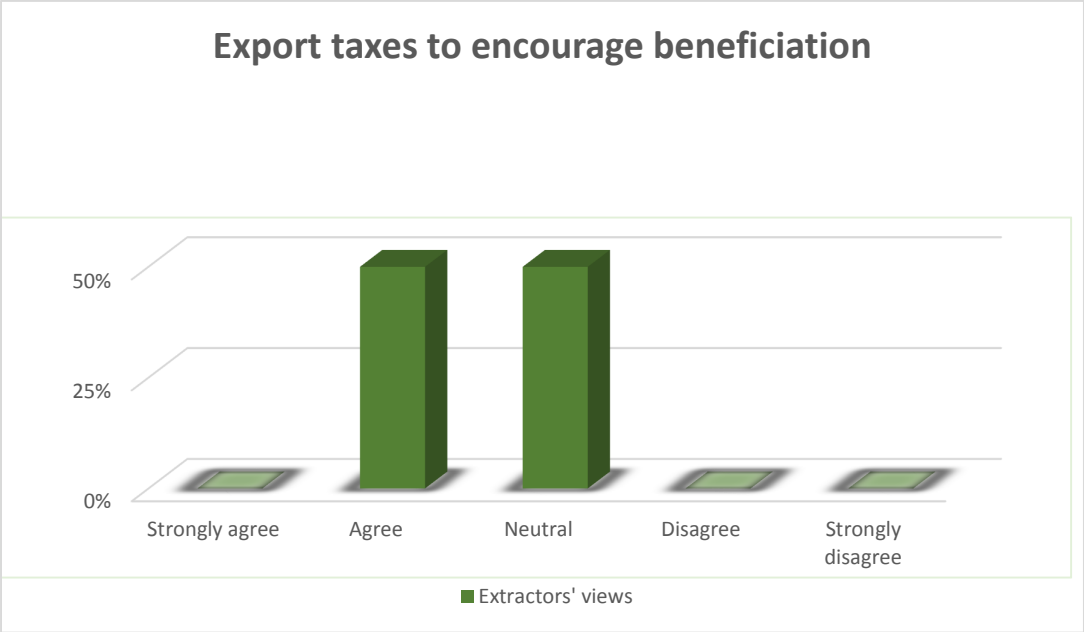

Figure 15. Export taxes to encourage beneficiation

The figure shows the level of agreement by the extractors to the statement that the possible imposition of export taxes on the exports of unbeneficiated products would encourage their company to beneficiate products that are currently exported as unrefined minerals. The figure shows that the extractors are neutral or agree that the possible introduction of export taxes on the exports of unbeneficiated products would encourage their company to beneficiate products that are currently exported as unrefined minerals.

In conclusion, it is evident that the possible imposition of export taxes will encourage some, but not a clear majority of the extractors to beneficiate.

4.14 INCOME TAX DEDUCTIONS

4.1.1 Section 11(a) deduction

The literature review identified that the amount of mineral royalty payable qualifies under section 11(a) as deductible expenditure in terms of the Income Tax Act. Due to this being unusual that an amount of taxation is allowed as a deduction, the researcher enquired of the extractors if they

were aware of this deduction, and whether the tax effect of this deduction was considered as an incentive to beneficiate.

This study enquired the following of the extractors:

- Does the company deduct the mineral royalty paid as an expense in terms of section 11(a) of the Income Tax Act?

Table 14 shows the responses received from the extractors.

Table 14. Section 11(a) deduction

Respondents answer	***Percentage***
Yes	80%
No	0%
Unknown	20%

The table shows the answers as to whether the extractor has deducted the mineral royalty paid as an expense in terms of section 11(a) of the Income Tax Act. It is clear that 80% of the extractors have claimed the allowable deduction to reduce taxable income. This result confirms that the extractors were aware of this deduction.

It follows that if the extractors claim the deduction, do they correspondingly calculate the effect of the reduction on their income tax bill.

4.1.2 Effect on income tax bill

This study enquired the following of the extractors:

- Does the company calculate the effect that this deduction has on their final tax bill?

Table 15 reflects the responses received from the extractors.

Table 15. Effect on income tax bill

Respondents answer	*Percentage*
Yes	75%
No	0%
Unknown	25%

The table reflects the response as to whether the extractors have calculated the effect of the deduction on their income tax bill. It is clear that 75% of the extractors have performed the calculation. This result indicates that the extractors calculate the effect of the reduction on their income tax bill. As this calculation is performed, it is possible that the section 11(a) deduction is also considered to be an incentive to beneficiate. This was investigated below.

4.1.3 Incentive to beneficiate

This study enquired the following of the extractors:

- Does the company view the above reduction in income tax payable as a result of the royalty paid as a further incentive to beneficiate?

Table 16 reflects the responses received from the extractors.

Table 16. Further incentive to beneficiate

Respondents answer	*Percentage*
Yes	25%
No	50%
Unknown	25%

The table shows that the majority of extractors do not consider the section 11(a) deduction as an incentive to beneficiate.

4.15 OTHER TAX INCENTIVES

The literature review identified the following available tax legislation to promote beneficiate in South Africa:

- Reduced royalty rate formula;
- section 12I tax allowance incentive;
- upfront capital expenditure write off;
- research and development allowance; and
- export taxes.

The researcher speculated if there were any other provisions in tax legislation that promoted beneficiation. The literature review did not identify other tax legislation that stimulated the process of beneficiation. The researcher however, considered it appropriate to enquire of the extractors if there was any other tax legislation that motivated them to beneficiate.

One of the extractors advised that the Critical Infrastructure Programme has promoted beneficiation in their company. This programme was investigated by the researcher, and it was found that the aim of the programme is to stimulate investment growth in line with the National Industrial Policy Framework and Industrial Policy Action Plan. However, this programme does not relate to taxation, which this study pertains to and was thus not investigated further.

Other tax incentives in the form of tax deductions in respect of learnership agreements was not considered by the extractors as a means for them to promote beneficiation.

4.16 ALTERNATIVE INCENTIVES

The researcher considered it important to determine the views of the extractors as to their expected increase in turnover if alternate incentives were provided by government. This is important to the study as the extractors views on the extent to which alternative incentives could increase their turnover specifically relating to beneficiation provides an insight into the extent that extractors are willing to beneficiate with the appropriate level of encouragement.

The extractors were asked to provide the expected percentage increase in turnover if alternate incentives were provided by government. The extractors were given the following percentage ranges to choose from:

- 1%-4% increase in turnover;
- 5%-9% increase in turnover;
- 10%-19% increase in turnover; and
- 20% increase in turnover or more.

Table 17 reflects the assessment of the extractors of the expected increase in their turnover if alternate incentives were provided by government to promote beneficiation.

Table 17. Increase in turnover

Respondents answer	***Percentage***
1 to 4%	50%
5 to 9%	25%
10 to 19%	25%
20% or more	0%

Table 17 shows that the extractors are of the opinion that their expected increase in turnover if alternate incentives were provided by government would be in the 1 to 19% range, with half the extractors assessing the increase in turnover to be in the 1 to 4% range. In conclusion, this result indicates that tax legislation does have the ability to increase turnover in the opinion of the extractors and thus encourage the process of beneficiation. This demonstrates the ability of tax legislation to promote beneficiation to the South African mining industry.

4.17 OVERALL DISCUSSION

This chapter presented the empirical findings of the study. The research endeavoured to find the answer to the influence that tax legislation has had on promoting downstream beneficiation in the South African mining sector. The research commenced with a literature review which prompted the questions that the researcher raised with the research respondents.

4.17.1 Conclusions on the acceptability of the sample

The demographics of the respondents were recorded. This included relevant information such as the age of the mining operations, number of years refining minerals, the type of minerals extracted, provinces in which the respondents operate, annual gross turnover as well as the designations and qualifications of the respondents. The results reflected that the respondents had conducted mining operations from 5 years to over 20 years, thus both new and experienced refiners' responses were included in the study. Numerous diverse types of minerals included in the sample ensured a wide spread of the population in this regard. Many geographical regions were represented by the sample. The high level of the positions of authority of the respondents provided a good level of assurance of the quality of the answers and the high educational levels provided assurance that informed and educated responses were received. The annual gross turnover of the respondents indicated that a wide spread of mining companies were included in the sample with turnover ranging from under R150 million to over R10 billion. Discussions with the extractors revealed that obtaining information in the mining sector is a challenging task for any researcher. Consequently, the researcher was fortunate to have obtained such a diverse and quality sample of extractors that were willing to contribute their views for this study. The researcher concluded that the diverse sample obtained was reliable and acceptable for this study.

4.17.2 Influence of taxes on refining activities

The respondents were provided with the opportunity to express their views on the influence that tax legislation had on promoting downstream beneficiation in their entity. They were asked certain questions and the results were shown throughout the chapter in the form of graphs and tables. The information obtained commenced with determining the contribution of mining beneficiation to the economy, and then continued on to the underlying decision making. Taxes in general were then discussed followed by specific taxes and tax incentives. Specific taxes included royalty taxes and a discussion of the royalty rate formula and Schedule 1 of the MPRRA. Other tax incentives were then discussed, including the section 12I tax incentive allowance, the capital expenditure allowance, research and development allowance, export taxes, and alternative tax incentives. These questions were asked in order to demonstrate the ability of tax legislation to promote beneficiation to the South African mining industry.

4.17.3 Benefit to the economy

Sub-sections 4.4.1 and 4.4.2 of the study examined the contribution of the process of beneficiation to the economy through increased taxation due and the positive impact on the economy through the increase in South Africa's labour force. The majority of the extractors were of the opinion that the process of beneficiation had increased the amount of tax payable and created additional jobs. These combined results signified the importance of the labour-intensive process of beneficiation that is vital to the economy, and why it is essential for government to encourage extractors to beneficiate.

4.17.4 Measurement of impact of tax incentives

The study confirmed in sub-sections 4.5.1 and 4.5.2 that the majority of extractors carried out mineral project feasibility studies on extending trade to include downstream beneficiation as a result of tax incentives, including the establishment of a baseline to measure the possible impact of tax incentives. The researcher was satisfied that this information assisted the extractors in making informed decisions on tax incentives, and informed answers for the purposes of this research.

4.17.5 Understanding of the workings of a tax incentive

In sub-section 4.8.2 the extractors agreed with the mathematical workings of the royalty formula identified in the literature review that process of beneficiation decreases the royalty rate percentage payable to the Commissioner due to the workings of the dual rate formula. The researcher was satisfied that the extractors understood the workings of the formula.

4.17.6 Incentives that encouraged extractors

Three quarters of the extractors were encouraged to beneficiate due to the section 12I tax allowance incentive from the DTI (sub-section 4.10). One of the extractors advised the researcher that they have invested in new infrastructure and employment as they consider the section 12I incentive as a means to improve the return on their beneficiation project. The researcher concluded that the section 12I tax allowance incentive had encouraged the majority of extractors to refine mineral resources. This demonstrated that the allowance is in the main

successful in influencing new industrial projects or existing industrial projects in the mining industry relating to beneficiating mineral resources.

Sub-section 4.9.1 revealed that most of the extractors agreed that the lower percentage for refined mineral resources is sufficient to promote downstream beneficiation and sub-section 4.13 revealed that the extractors were neutral or agreed that the possible introduction of export taxes on the exports of unbeneficiated products would encourage their company to beneficiate products that are currently exported as unrefined minerals.

The researcher concluded that the section 12I tax incentive, the dual rate formula and the possible imposition of export taxes encouraged some extractors, but not a clear majority of the extractors to beneficiate.

4.17.7 Incentives where extractors were divided

Sub-section 4.6.1 identified that approximately one third of the extractors considered that taxes can encourage new investment into beneficiation while other extractors were divided on the matter. Due to the sample of participants ranging from new to experienced beneficiators, and representing many geographical regions, and numerous types of minerals resources beneficiated, the researcher considered that because of the diverse sample, the individual perceptions of each of the extractors were similarly diverse. Due to the differences in opinion of the extractors, the researcher believed that further study should be carried out to determine whether tax incentives are too simplistic to effectively apply in all circumstances or whether more advanced formulas are required based on the various types of minerals beneficiated. The literature review stated that tax incentives available would need to have a decisive impact on the extractors to encourage new beneficiation. One of the extractors explained that there is a vast market for uncut diamonds, whereas there is only a smaller market for polished diamonds, as they sell very slowly in South Africa. In these circumstances, it is questionable whether the miner of this type of mineral resource, even with incentives available, would choose to beneficiate the uncut diamonds. The researcher concluded that it is thus also possible that the available incentives do not have a sufficiently decisive impact on the extractors to beneficiate, and the extractors require greater incentives to motivate them to invest in the capital required to beneficiate. The extractors advised that a proper beneficiation policy needs to be supported by tax legislation, infrastructure and Trade and Industry programmes.

Varied results were obtained in sub-section 4.8.1 from the extractors as to whether the dual rate mechanism in the MPRRA has promoted value added activities in their company. The researcher concluded that as the results were divided, further study is required relating to how the dual rate formula affects different types of mineral resources. Another conclusion drawn was that it also appears that the intention of the lower royalty rate for refined minerals to promote downstream beneficiation was not consistently achieved. One of the extractors explained that the refining process requires an advanced infrastructure, and in order to refine a mineral for the first time, there would need to be a large captal layout to build the plant and machinery required for the process. Discussions with extractors revealed that profits generated from exporting the mineral resource in its raw form without beneficiating the products are higher than the profits generated through domestic beneficiation. The researcher concluded that the dual rate formula had influenced certain extractors, however, as it had not consistently promoted beneficiation, the influence was not necessarily as intended by the MPRRA.

The study found in sub-section 4.11 that extractors have differing opinions regarding the effect of the discontinuance of the upfront capital expenditure write off on their refining activities. This demonstrated that the upfront capital expenditure write off is not a consistent motivator of the process of beneficiation.

Sub-section 4.12 revealed that the majority of extractors did not make use of the research and development incentive with regards to beneficiation in their company. This demonstrates that the research and development tax incentive has not been utilised by the majority of participant extractors to refine mineral resources and does not successfully motivate the majority of extractors to refine mineral resources.

Due to these varied results, further discussions were held with the extractors. One of the extractors advised that they were of the opinion that tax incentives are clearly designed to incentivise particular mining sectors, of which they were not one of the fortunate recipients. On the other hand, another extractor that developed a R1.2 billion beneficiation plant, advised that the process was promoted through both the growing demand in the South African market and government's support initiative for their multiple downstream levels and value added processes. To put these differing opinions into perspective, it was determined that the latter extractor enjoys an exponential increase in the value of the mineral resource after it has gone through processing. This information revealed that the type of mineral to be beneficiated is of such importance that it can determine whether tax legislation is of benefit to the potential refiner or not. The researcher

concluded that further study is required that draws similarities between the specific circumstances that encourage beneficiation and the types of minerals beneficiated as it is possible that taxes encourage refiners of a certain type/s of minerals.

4.17.8 Incentives where extractors were neutral

The influence of royalty taxes on the decision making of the extractors was found to be mainly neutral by the extractors in sub-section 4.7.1.

4.17.9 Incentives do not discourage extractors

The majority of extractors in sub-section 4.6.2 did not perceive tax legislation to discourage existing value-added activities. Sub-section 4.8.3 also revealed that the majority of extractors were of the view that the MPRRA in particular had not discouraged their refining activities. It was meaningful to draw similarities in that the two results were exactly the same. The researcher concluded that tax and royalty legislation have not discouraged refiners from beneficiating minerals.

4.17.10 Financial estimates

The percentage increase in gross sales value of the participant extractors as a result of further processing of unrefined minerals was investigated in sub-section 4.8.4 and revealed that the majority of extractors estimated increases were in the region of 0 to 37%, which means that the majority of extractors were incentivised by the dual rate formula. The researcher concluded that the tax legislation does influence certain extractors to some extent, but not all.

The extractors were divided as to the percentage increase in earnings before interest and taxation and the percentage of sales price that refinement costs represent. The answers received reflected the diverse nature of the type of operations due to the various different types of minerals beneficiated. One of the extractors provided an insight into their choice of percentage increase in earnings. The extractor stated that after the initial setup cost of beneficiation, there are other main cost factors. One of the major cost factors is the daily cost of energy. In South Africa, the supply of energy is erratic due to load shedding, which could halt production capabilities. These expenses have a direct impact on the earnings of the company due to the process of refinement. Another main cost incurred by the extractor due to the process of

beneficiation is the production cost, of which the main portion is the labour cost. The extractor referred to the current wage negotiations, and explained that the increases in wage costs directly impacted on the net earnings resulting from beneficiated products, which is labour intensive due to its nature. A further factor that the extractor pointed out is that the cost of beneficiating their product in India or China was substantially less than the cost of local beneficiation.

The extractors were of the opinion that the expected increase in their turnover if alternate incentives were provided by government would be in the 1 to 19% range. The researcher concluded that the result indicated that tax legislation does have the ability to increase turnover in the opinion of the extractors and therefore encourage the process of beneficiation.

4.17.10 Practicality of the tax legislation

Sub-section 4.9.2 found that the majority of the extractors disagree that it is practical to apply the different distinctions between a refined and unrefined mineral resource as required by Schedule 1 of the MPRRA. This ties in with the various types of minerals that are beneficiated.

4.17.11 Discussions with extractors

On discussing the issue of beneficiation with the extractors, it was determined that the extractors can get very passionate about this topic, with all the participant extractors supporting government's initiative to beneficiate domestically. However, this support did not necessarily result from tax incentives provided by the government.

Discussions with extractors revealed that the incentives provided by government would need to be more than favourable to counter the problems and costs associated with beneficiation before the mining industry would turn to these incentives.

The extractors explained that certain types of minerals lend themselves better to beneficiation than others. They further explained that the different types of industries needed to be considered when designing tax incentives, as an industry that refines base metals enjoys a relatively straight forward process as it is comparatively easier to beneficiate the ore. The extractors believed that a more effective system to promote beneficiation would need to differentiate between copper and diamonds as an example. If this approach was used, they believed that there would be a better chance of incentivising the industry. One of the extractors advised that they have been working

with the Chamber of Mines to investigate proposed measures to declare certain mineral resources as strategic, and to encourage local beneficiation of these minerals. The extractors also felt that it was important to mention the South African steel industry, and express concern that government was not effective in saving this industry, which beneficiates raw iron ore and manganese into steel. This non-renewable mineral resource which is considered to be of exceptional quality is now sadly exported from South Africa in its raw form without beneficiating the mineral.

4.18 CONCLUSION

Available tax and royalty incentives do influence some extractors, however these incentives do not consistently achieve their objectives. The research found that the incentives do not have a sufficiently decisive impact on extractors to encourage beneficiation, revealing that they are limited in their application.

Although the results were often divided as to whether tax incentives have promoted or discouraged beneficiation in their entities, this chapter has demonstrated the ability of tax legislation to promote beneficiation in the South African mining industry.

The overall conclusion is that due to the diverse types of minerals beneficiated by the respondent extractors, it is possible that tax legislation is too simplistic to effectively promote beneficiation in all circumstances and possibly more advanced tax legislation is required based on the various types of minerals beneficiated.

From a practical perspective, the research is particularly valuable as it provides information on the current views of extractors in the context of the promotion of beneficiation by our tax legislation. This information can therefore be of benefit to both extractors and the State, as a possible gap exists between the various role players.

The next chapter presents the conclusions and recommendations of the study. In addition to this, areas identified for future study are discussed.

CHAPTER FIVE: CONCLUSIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

This chapter concludes the study which was undertaken to determine what provisions are contained in South African tax legislation that may have an influence on promoting or discouraging downstream beneficiation in the mining sector and if these available incentives sufficiently influence South African extractors to beneficiate unrefined mineral resources.

The study commenced by providing a background which detailed the purpose and aims of the study. These aims were supported by three specific research objectives.

5.2 OBJECTIVES AND LITERATURE REVIEW

The first objective of the study was to formulate a theoretical analysis of tax legislation to determine existing provisions in the law that could:

- Stimulate the process of downstream beneficiation;
- or alternatively discourage potential beneficiators; or
- frustrate the activities of existing refiners.

The second objective was to determine the influence that tax legislation had on the economic decision making of the extractors in response to the legislation either supporting or deterring downstream beneficiation in their value chain.

The final objective of the study was to interpret the data by translating it into integrated and meaningful findings.

In order to achieve the objectives of the study, a literature review was carried out in chapter two which reviewed and analysed existing literature. The literature review prompted questions that the researcher discussed with participant extractors in chapter four.

The results of the discussions with extractors indicated that they were often divided as to whether tax incentives influenced beneficiation in their entity. Overall, the research found that tax

legislation does influence some extractors to some extent but not all. The researcher concluded that the intent of tax legislation to promote beneficiation was not consistently achieved. The available incentives did not have a sufficiently decisive impact on the extractors to beneficiate, and the extractors require alternative incentives to motivate them to beneficiate, however, it was also determined that tax legislation does have the ability to promote beneficiation in the South African mining industry. Additionally, tax legislation was not found to discourage refining activities. In conclusion, the influence of available tax incentives does not sufficiently influence South African extractors to beneficiate unrefined mineral resources.

5.3 RECOMMENDATIONS AND AREAS OF FURTHER STUDY

Owing to the diverse types of minerals beneficiated by the respondent extractors, the legislation may be too simplistic to effectively promote beneficiation in all circumstances. It is recommended that further study should be carried out to determine whether tax incentives are too simplistic to effectively apply in all circumstances or whether more advanced formulas are required based on the various types of minerals beneficiated. It is further recommended that the impact of the dual rate formula on different types of mineral resources is evaluated to draw similarities between the specific circumstances identified in the literature review and the types of minerals beneficiated to determine if taxes encourage or discourage refiners of certain types of minerals.

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ANNEXURE1 - STUDY QUESTIONNAIRE

SECTION A – GENERAL INFORMATION

DETAILS OF THE COMPANY:

1. Name of company:

2. Types of minerals beneficiated:
   a.
   b.

DETAILS OF PERSON/S COMPLETING THE QUESTIONNAIRE:

3. Name of person/s completing the questionnaire:
   a.
   b.

4. Designation/s:
   a.
   b.

5. Highest qualification/s:
   a.
   b.

SECTION B – DEMOGRAPHICS

Please click the option button below.

6. Age of business:

Under 1 year	1 to 5 years	5 to 10 years	10 to 20 years	more than 20 years
○	○	○	○	○

7. Number of years beneficiating minerals:

Under 1 year	1 to 5 years	5 to 10 years	10 to 20 years	more than 20 years
☐	☐	☐	☐	☐

8. Province/s where minerals are extracted (tick multiple answers if appropriate)

Gauteng	☐
North West	☐
Limpopo	☐
Mpumalanga	☐
Northern Cape	☐
Eastern Cape	☐
Western Cape	☐
Free State	☐
KwaZulu-Natal	☐

9. Annual Gross Turnover

Under R150 million	R150 million to R1 billion	R1 billion to R10 billion	over R10 billion
☐	☐	☐	☐

SECTION C – THE VIEWS OF THE EXTRACTORS

Please indicate your level of agreement with the following statements:

10. Taxes relating to beneficiation can influence corporate activities by encouraging new investment into beneficiation.

Strongly agree	Agree	Neutral	Disagree	Strongly disagree
☐	☐	☐	☐	☐

11. Taxes relating to beneficiation can discourage our company from existing value-added activities.

Strongly agree	Agree	Neutral	Disagree	Strongly disagree
☐	☐	☐	☐	☐

12. The introduction of the MPRRA motivated our company to beneficiate unrefined minerals.

Strongly agree	Agree	Neutral	Disagree	Strongly disagree
☐	☐	☐	☐	☐

13. The lower royalty rate had a positive influence on our company's decision to beneficiate.

Strongly agree	Agree	Neutral	Disagree	Strongly disagree
☐	☐	☐	☐	☐

14. The increase in profit from the conversion of unrefined mineral resources to refined resources is sufficient to justify the lower percentage for refined mineral resources.

Strongly agree	Agree	Neutral	Disagree	Strongly disagree
☐	☐	☐	☐	☐

15. There have been situations where the royalty rate has discouraged our company's decision to beneficiate.

Strongly agree	Agree	Neutral	Disagree	Strongly disagree
☐	☐	☐	☐	☐

16. Our company considers the reduced rate on refined minerals to be sufficient to justify the additional costs to refine our mineral resources to the prescribed state of beneficiation as set out in Schedule 1 of the MPRRA.

Strongly agree	Agree	Neutral	Disagree	Strongly disagree
☐	☐	☐	☐	☐

17. It is practical to apply the different distinctions between a refined and unrefined mineral resource as required by Schedule 1 of the MPRRA.

Strongly agree	Agree	Neutral	Disagree	Strongly disagree
☐	☐	☐	☐	☐

18. The Davis Tax Committee's recommendation to discontinue the upfront capex write off and replace it with a 40/20/20/20 write off period would affect the consideration of beneficiation in our company.

Strongly agree	Agree	Neutral	Disagree	Strongly disagree
☐	☐	☐	☐	☐

19. The possible imposition of export taxes on the exports of non-beneficiated products would encourage our company to beneficiate products that are currently exported as unrefined minerals.

Strongly agree	Agree	Neutral	Disagree	Strongly disagree
☐	☐	☐	☐	☐

20. The process of beneficiation has created additional jobs in our company.

Strongly agree	Agree	Neutral	Disagree	Strongly disagree
☐	☐	☐	☐	☐

21. The process of beneficiation has increased the amount of taxation payable by your company to the Commissioner.

Strongly agree	Agree	Neutral	Disagree	Strongly disagree
☐	☐	☐	☐	☐

22. The process of beneficiation has decreased the royalty rate percentage payable to the Commissioner due to the workings of the dual-rate formula.

Strongly agree	Agree	Neutral	Disagree	Strongly disagree
☐	☐	☐	☐	☐

Please tick the appropriate block:

23. Were mineral project feasibility studies carried out by extractors on extending trade to include downstream beneficiation due to the MPRRA?

☐ **YES** ☐ **NO** ☐ **n/a**

24. Did the company establish a baseline of beneficiation so as to measure the impact of tax incentives?

☐ **YES** ☐ **NO** ☐ **n/a**

25. Does the company deduct the mineral royalty paid as an expense in terms of section 11(a) of the Income Tax Act?

☐ **YES** ☐ **NO** ☐ **unknown**

26. Does the company calculate the effect that this deduction has on its final income tax bill?

☐ **YES** ☐ **NO** ☐ **unknown**

27. Does the company view the above reduction in income tax payable as a result of the royalty paid as a further incentive to beneficiate?

☐ **YES** ☐ **NO** ☐ **n/a**

28. Has the company made use of the research and development tax incentive specifically for research and development to refine minerals?

☐ **YES** ☐ **NO** ☐ **n/a**

29. Was the company encouraged to fund research and development activities because of the opportunity to make use of this tax incentive?

☐ **YES** ☐ **NO** ☐ **n/a**

30. Was the company encouraged to refine minerals due to the section 12I tax allowance incentive due to beneficiation?

☐ **YES** ☐ **NO** ☐ **n/a**

31. Was the company encouraged to invest in manufacturing assets and expend funds on the training of personnel because of the allowance available?

☐ **YES** ☐ **NO** ☐ **n/a**

32. Does the company utilise any other tax incentives which promote beneficiation in the company?

☐ **YES** ☐ **NO**

If YES, please specify

33. What is the increase in gross sales value of the minerals as a result of further processing?

0 – 37%	**38% or more**
○	○

34. What percentage of sales price do refinement costs represent?

0 – 9%	**10% to 19%**	**20% to 49%**	**50% or more**
○	○	○	○

35. What is the percentage increase in earnings before interest and tax (EBIT) that results from beneficiating minerals?

0 – 9%	**10% to 19%**	**20% to 29%**	**30% or more**
○	○	○	○

36. Expected increase in turnover if alternate incentives were provided by government?

0 – 4%	**5% to 9%**	**10% to 19%**	**20% or more**
○	○	○	○

SECTION D – COMPANY INFORMATION

37. If possible, please provide the following company information for the most recently completed financial year:

Annual sales value of refined minerals:

Annual expense from beneficiating above minerals:

Accounting profit for the year:

Total royalty tax for the year:

EBIT (refined minerals) for the purposes of royalty calculation:

Royalty tax on refined products only:

Capital expenditure on beneficiated products: