

**TAXATION OF THE EXTRACTIVE INDUSTRY IN THE CONTEXT
OF CONTEMPORARY INTERNATIONAL FISCAL REGIMES:
LESSONS FOR SOUTH AFRICA**

by

ROSHELLE RAMFOL

Submitted in fulfilment of the requirements for the degree

PhD in TAX POLICY

in the

FACULTY OF ECONOMIC AND MANAGEMENT SCIENCES

at the

UNIVERSITY OF PRETORIA

SUPERVISOR: Prof. R.C.D. Franzsen

MARCH 2019

CERTIFICATE OF ORIGINALITY

I hereby certify that the work in this thesis has not previously been submitted for a degree nor has it been submitted as part of requirements for a degree except as fully acknowledged within the text.

I also certify and declare that this thesis and the work reported herein was composed by and originated entirely from me. Information delivered from the published and unpublished work of others has been acknowledged in the text and references are given in the list of references.

Name: ROSHELLE RAMFOL

Student Number: 14440165

Signature: R. RAMFOL

Date: 31 MARCH 2019

ACKNOWLEDGEMENTS

“Gratitude bestows reverence, allowing us to encounter everyday epiphanies, those transcendent moments of awe that change forever how we experience life and the world.”

John Milton

First and foremost, writing this thesis has been a richly rewarding experience, and through its vast possibilities has expanded my horizons.

For the accomplishment of this work, I wish to express my heartfelt gratitude to my supervisor, Prof Riël Franzsen for his guidance. He has inspired me and I hope to pass on his wisdom.

I honour the memory of my father, Mr Karamchand Ramfol, who fervently advocated educational advancement. His convictions have channelled me throughout the years. He continues to be a beacon in my life, propelling me forward.

I am grateful to many people who believed in me every step of the way.

- I am greatly indebted to my mum, for her selfless love, unwavering support, patience and prayers.
- I wish to express my deep appreciation and gratitude to my children, Shavez and Mika for their enduring patience and sacrifice.
- I would like to express my unreserved thanks to my colleagues at UNISA for their support and warm welcome into the Tax Department.
- I am thankful to my former colleagues at the Durban University of Technology for motivating me.
- I am appreciative for the valuable contributions of Dr Ashok Damarupurshad, Dr Avinash Bisnath and Dr Paul Macey who provided their time and expertise.
- I extend my gratitude to the external examiners for their guidance and contribution towards enhancing this study.
- I would like to acknowledge my “familia” and friends for their love, constant support and encouragement. A special “thank you” for your generosity of spirit.

National Research Foundation:

The financial assistance of the National Research Foundation towards this research is hereby acknowledged. Opinions expressed and conclusions arrived at, are those of the author and are not necessarily to be attributed to the National Research Foundation.

ABSTRACT

At 2.5 trillion dollars, South Africa is endowed with the world's most valuable mineral treasure. Simple logic suggests that the country's comparative geological endowment confers an advantage as a preferred mineral investment jurisdiction. On the contrary, South Africa was the only country out of 71 mineral-rich jurisdictions, not to benefit from the 2001 and 2008 resource booms. Furthermore, while its competitors grew on average by 5 percent, the South African extractive industry contracted by approximately 1 percent per annum. One of the proximate causes of the decline can be attributed to the increased production cost to extract minerals from mines operating at depths of approximately 4km underground. Globally, demand for resources is affected by the unpredictable nature of commodity prices and depressed levels of economic growth in key markets. Locally, labour strikes and power outages have hampered the supply of resources. Uncertainty around the issue of nationalisation of the mining sector, policy amendments to the mining industry and the taxation thereof have also affected the stability of the extractive industries.

Empirical evidence suggests that resource-rich countries are prone to poor economic performance. This phenomenon is termed the resource curse. Yet some resource-rich countries have averted the resource curse and benefited economically from their resource endowment. South Africa does indeed suffer from a resource curse. This is demonstrated by the country's inability to utilise resource revenue to improve human development, evidenced by worsening inequality, poverty and slow GDP growth. These negative outcomes are amplified by the prevalence of corrupt practices, abuse of state power, rent seeking behaviour and the resultant loss of international confidence in the country.

Case studies from Botswana, Norway and Alberta, Canada reflect the transformative outcomes that resource development can achieve. This study draws on these countries' strategic policy formulation experience governing their decision on awarding extractive rights, generating fiscal returns and revenue management.

The findings of this study reveal that a tax regime that is internationally competitive, stable, transparent and administered effectively can produce a fair return. The "shareholder value principle" provides an all-inclusive value-based approach to extractive sector policy

formulation. The competitiveness of the extractive sector can be enhanced by offering an exploration incentive. Furthermore, the mining charter requirements impose associated costs that impact the indirect sharing of resource rent. It is for this reason that these provisions can be regarded as fiscally equivalent to taxation and should therefore be included when evaluating the investor-state fiscal take.

There is merit in reviewing the extractive industry fiscal regime in a resource-intensive economy every ten years, due to factors such as resource depletion and new technologies that can affect resource demand. A dual licencing system is proposed that allocates licences in the least explored areas by discretion and by tender when there is confirmation of a known reserve. This together with an escalating area fee to promote the release of holding unproductive licences, all contribute to efficient exploration activities. Proactive investment in geomaps is essential to support the auctioning of extractive rights and support the competitiveness of the country's natural resources.

It is recommended that all non-renewable resource rent from oil and gas should be invested in a Natural Resource Fund (NRF). The NRF should have the objectives of stabilization and to save for future resource depletion. The stabilization objective of the fund acts as an income smoothing policy tool that aids in reducing the impact of commodity price volatility and currency appreciation. The savings objective is a mechanism to promote intergenerational equity and avoid excessive and non-sustainable government spending of natural resource tax revenue.

TABLE OF CONTENTS

CHAPTER 1.....	1
INTRODUCTION.....	1
1.1. BACKGROUND.....	2
1.2. RATIONALE FOR THE STUDY	6
1.3. HYPOTHESIS	15
1.4. PURPOSE STATEMENT	15
1.5. RESEARCH OBJECTIVES	15
1.6. RESEARCH QUESTIONS	16
1.7. RESEARCH DESIGN AND METHOD.....	16
1.7.1. Description of inquiry strategy and broad research design.....	18
1.7.2. Reliability.....	20
1.7.3. Validity and Trustworthiness.....	20
1.7.4. Ethical considerations	21
1.8. THE CONTRIBUTION OF THIS STUDY.....	21
1.9. STRUCTURE OF THE THESIS	21
CHAPTER 2.....	24
LITERATURE REVIEW: THEORETICAL PERSPECTIVES IN THE DESIGN OF FISCAL REGIMES FOR THE EXTRACTIVE INDUSTRY	24
2.1. INTRODUCTION.....	24
2.2. WHAT IS A TAX?	25
2.2.1. Objectives of tax.....	27
2.2.2. Criteria for evaluating the efficacy of a tax	28
2.2.3. Methods of taxation	33
2.3. RESOURCE CURSE THEORY.....	39
2.3.1. Diagnosing a resource curse.....	41
2.3.2. Prescriptions for the resource curse.....	44

2.4.	THE SHAREHOLDER VALUE PRINCIPLE	49
2.5.	VALUE BASED POLICY FRAMEWORK.....	53
2.6.	ALLOCATION OF EXTRACTIVE RIGHTS.....	56
2.6.1.	Designing an extractive rights allocation strategy.....	57
2.6.2.	Should prospecting and mining rights be awarded by tender?.....	65
2.6.3.	Speculation in oil, gas and mining rights	68
2.6.4.	Effect of the licencing regime on the competitiveness of the extractive sector	70
2.6.5.	Reflection on appropriate means to allocate oil, gas and mining rights.....	72
2.7.	EXTRACTIVE INDUSTRIES FISCAL INSTRUMENTS	73
2.7.1.	The unique facets of natural resource development.....	74
2.7.2.	Differentiation between mining, petroleum and gas industry	79
2.7.3.	Objectives of the extractive fiscal regime	82
2.7.4.	Criteria for evaluating extractive tax regimes	86
2.7.5.	Fiscal instruments	91
2.7.6.	Resource tax design.....	105
2.7.7.	International tax considerations.....	111
2.7.8.	Rehabilitation costs	114
2.7.9.	Remarks on designing a fiscal regime.....	114
2.8.	NATURAL RESOURCE FUNDS	115
2.8.1.	Defining a natural resource fund	116
2.8.2.	Fiscal rules	118
2.8.3.	Significance of natural resource funds in the world markets	121
2.8.4.	Investment strategies	123
2.8.5.	The case for a natural resource fund.....	125
2.8.6.	The contrarian perspective	126
2.8.7.	Good governance measures	129
2.8.8.	Policy for developing countries.....	132
2.8.9.	Conclusion on NRF	133
2.9.	CONCLUSION.....	135
CHAPTER 3.	136

SOUTH AFRICA'S EXTRACTIVE INDUSTRY FISCAL REGIME	136
3.1. INTRODUCTION	136
3.2. A BRIEF HISTORY OF THE SOUTH AFRICAN EXTRACTIVE INDUSTRY.....	137
3.2.1. Ownership of minerals and mining rights	141
3.2.2. Evolution of South Africa's mining tax regime	144
3.2.3. Lessons for the mining sector from the previous committees on gold mining taxation	156
3.3. DOES SOUTH AFRICA SUFFER FROM A RESOURCE CURSE?	160
3.4. SOUTH AFRICA'S EXTRACTIVE INDUSTRIES POTENTIAL.....	164
3.4.1. Minerals.....	165
3.4.2. Petroleum.....	167
3.4.3. Gas.....	167
3.5. OBJECTIVES OF THE SOUTH AFRICAN EI FISCAL REGIME	168
3.6. RISK EXPOSURE	170
3.6.1. Country risk	171
3.6.2. Mining risk	177
3.6.3. Global risk	177
3.6.4. Resource horizon	178
3.6.5. Concluding comments on risks.....	180
3.7. THE CURRENT SOUTH AFRICAN EI FISCAL REGIME.....	180
3.7.1. Allocation of extractive rights.....	181
3.7.2. EI fiscal instruments	186
3.7.3. The case for a South African NRF.....	190
3.8. CONCLUSION.....	192
CHAPTER 4.....	193
COMPARATIVE ANALYSIS.....	193
4.1. INTRODUCTION	193
4.2. SELECTION OF COMPARATIVE JURISDICTIONS.....	193
4.2.1. COUNTRIES THAT HAVE AVOIDED THE RESOURCE CURSE	193

4.2.2.	COMPARATIVE TAX REGIMES.....	196
4.3.	COMPARATIVE JURISDICTIONS.....	200
4.4.	BOTSWANA.....	201
4.4.1.	Background.....	201
4.4.2.	Aversion of the resource curse.....	204
4.4.3.	Allocation of extractive rights.....	205
4.4.4.	EI fiscal instruments.....	208
4.4.5.	The Pula Fund.....	212
4.4.6.	Policy lessons from Botswana.....	215
4.5.	ALBERTA, CANADA.....	218
4.5.1.	Background.....	218
4.5.2.	Aversion of the resource curse.....	220
4.5.3.	Allocation of extractive rights.....	220
4.5.4.	EI fiscal instruments.....	222
4.5.5.	Alberta Heritage Savings Trust Fund.....	227
4.5.6.	Policy lessons from Alberta.....	230
4.6.	NORWAY.....	232
4.6.1.	Background.....	232
4.6.2.	Aversion of the resource curse.....	234
4.6.3.	Allocation of extractive rights.....	237
4.6.4.	EI fiscal instruments.....	239
4.6.5.	Norway's Government Pension Fund Global.....	242
4.6.6.	Policy lessons from Norway.....	244
4.7.	CONCLUSION.....	246
CHAPTER 5.....		251
	EXTRACTIVE INDUSTRY FISCAL REGIME LESSONS FOR SOUTH AFRICA.....	251
5.1.	INTRODUCTION.....	251
5.2.	LESSONS ON AVOIDING THE RESOURCE CURSE.....	251
5.2.1.	Adequate fiscal framework supported by strong institutions.....	252
5.2.2.	Stable investment policies that provide for developmental diversification ..	253

5.2.3.	Adoption of an all-inclusive strategy incorporating the development of EI activities and related sectors for the benefit of their citizens	253
5.3.	LESSONS ON THE ALLOCATION OF EXTRACTIVE RIGHTS	255
5.3.1.	Assessing an appropriate allocation strategy: Direct negotiation vs Competitive bidding.....	255
5.3.2.	Curbing speculation of oil, gas and mining rights	257
5.4.	LESSONS ON EI FISCAL INSTRUMENTS	259
5.4.1.	Petroleum and gas sector	260
5.4.2.	Minerals sector	260
5.4.3.	Tax instruments for the EI	263
5.4.4.	State participation.....	271
5.4.5.	Production sharing	272
5.4.6.	Mining charter provisions classification as a tax instrument	272
5.5.	LESSONS ON THE ADOPTION OF A NATURAL RESOURCE FUND	273
5.6.	CONCLUSION.....	278
CHAPTER 6.....		280
CONCLUSIONS AND RECOMMENDATIONS		280
6.1.	INTRODUCTION.....	280
6.2.	FINDINGS OF THE STUDY	281
6.2.1.	Objective 1: Analyse the current South African EI fiscal regime in order to diagnose if South Africa suffers from the resource curse	281
6.2.2.	Objective 2: Conduct a comparative analysis of the EI fiscal regimes of jurisdictions that avoided the resource curse to identify strategies on how to avoid the resource curse	281
6.2.3.	Objective 3: Frame recommendations for South Africa based on the lessons learnt from the comparative analysis.....	283
6.3.	POLICY IMPLICATIONS OF THE STUDY.....	285
6.3.1.	Question 1: Does South Africa's extractive licencing regime maximise resource rent?	285

6.3.2.	Question 2: Does South Africa have the necessary EI fiscal instruments to enable it to capture a fair share of returns?	286
6.3.3.	Question 3: Can a natural resource fund offer a revenue management strategy for South Africa?	289
6.4.	LIMITATIONS OF THE STUDY	290
6.5.	SIGNIFICANCE AND CONTRIBUTION OF THIS STUDY	291
6.6.	RECOMMENDATIONS FOR FUTURE RESEARCH	292
6.7.	CONCLUDING REMARKS.....	293
	LIST OF REFERENCES	295

LIST OF FIGURES

Figure 1-1: World Bank EI value chain approach.....	14
Figure 2-1: Decision chart when awarding mining rights	61
Figure 2-2: The mining operation process	76
Figure 2-3: Life cycle of an mining project	77
Figure 2-4: Taxes generated as profitability progresses over the life of a mine	78
Figure 2-5: Fiscal instruments.....	91
Figure 2-6: Worldwide petroleum fiscal schemes	92
Figure 2-7: Typical revenue flows in a production sharing contract	93
Figure 2-8: Correlation between ability to collect tax and type of tax systems	109
Figure 2-9: Revenue flows in a tax and royalty system.....	111
Figure 2-10: Decision tree on fiscal rules for resource-rich countries	121
Figure 2-11: Largest SWFs worldwide as of August 2018 (billion USD)	124
Figure 2-12: Model NRF organisational structure	131
Figure 3-1: Macro-level mining contribution comparative	166
Figure 3-2: The most problematic factors for doing business in South Africa	175
Figure 3-3: Monthly gold production index, 1980-2015.....	179
Figure 3-4: Estimated resource horizon for gold, coal and platinum	179
Figure 3-5: South Africa's foreign exchange reserves 1998-2016	191
Figure 4-1: Total natural resources rents (% of GDP).....	198
Figure 4-2: Botswana's resource rent and mineral revenues, 1994 – 2012.....	209
Figure 4-3: Flow of funds	212
Figure 4-4: Pula fund	214
Figure 4-5: Alberta oil and gas royalties as a percent of total upstream revenue	222
Figure 4-6: Norway's NRF changes in market value (billion NOK)	244

LIST OF TABLES

Table 2-1: Tax policy response to the unique attributes of a mining venture	79
Table 2-2: Features of the mining, petroleum and gas industries	81
Table 2-3: Fiscal objectives and instruments	83
Table 2-4: Fiscal mechanisms in the EI: evaluation against key objectives	84
Table 2-5: Propensity for risk-sharing or early and stable revenue streams	85
Table 2-6: Category of tax and policy objectives	96
Table 2-7: Fiscal instruments	110
Table 2-8: Framework of macroeconomic objectives of SWFs	119
Table 2-9: Summary of arguments for and against a NRF	128
Table 3-1: Contribution of gold mining to the South African economy, 1925	147
Table 3-2: Taxes on gold mining in various countries	148
Table 3-3: Government revenue from gold mining, 1932-1937	149
Table 3-4: Witwatersrand gold production compared with world output, 1932-1937	149
Table 3-5: Historical comparison of gold sector tax burden, 1975-2004	158
Table 3-6: Conventional petroleum reserves, 2014	167
Table 3-7: Conventional and unconventional gas statistics, 2014	168
Table 3-8: SWOT analysis of the South African mining sector	170
Table 3-9: Benchmarking the EI regulatory regime with good practice	183
Table 3-10: Allocation of the extractive rights in South Africa	185
Table 3-11: EI fiscal instruments in South Africa	186
Table 4-1: 2017 Resource Governance Index country scores	195
Table 4-2: EI perceptions on the taxation regime	195
Table 4-3: Natural resource funds in the comparative jurisdictions	199
Table 4-4: Botswana's mining sector	203
Table 4-5: SWOT analysis of Botswana's mining sector	204
Table 4-6: Allocation of extractive rights in Botswana	206

Table 4-7: Botswana EI fiscal instruments	210
Table 4-8: The Pula Fund	214
Table 4-9: Alberta’s EI sector.....	219
Table 4-10: SWOT analysis of Alberta’s extractive sector	219
Table 4-11: Allocation of the extractive rights in Alberta	221
Table 4-12: Alberta’s EI fiscal instruments.....	224
Table 4-13: Alberta resource revenues collected.....	226
Table 4-14: Alberta Heritage Trust Fund	228
Table 4-15: Norway’s EI sector.....	233
Table 4-16: SWOT analysis of Norway’s oil and gas sector	234
Table 4-17: Allocation of the extractive rights in Norway	237
Table 4-18: Norway’s EI fiscal instruments.....	239
Table 4-19: Norway’s Government Pension Fund Global.....	242
Table 4-20: Comparative jurisdictions EI fiscal regimes	248
Table 5-1: Division of responsibilities over fund management.....	275
Table 6-1: Policy lessons for South Africa	283

ACRONYMS AND ABBREVIATIONS

ANC	African National Congress
AUM	Assets Under Management
BEE	Black Economic Empowerment
BWP	Botswana Pula
CAD	Canadian Dollar
CGT	Capital Gains Tax
CIT	Corporate Income Tax
DMR	Department of Mineral Resources
Extractives	Non-renewable natural resources such as crude oil, natural gas and mining products
EI	Extractive Industries (refers to the entities involved in the extraction of oil and gas or dredging and quarrying of minerals)
EITI	Extractive Industries Transparency Initiative
FIFA	First-in, first-assessed, or First-come, first-served or open access
GDP	Gross Domestic Product
Hydrocarbons	Hydrocarbons are organic chemicals obtained from coal and petroleum
IMF	International Monetary Fund
Income Tax Act	Income Tax Act (58 of 1962)
JSE	Johannesburg Stock Exchange
Mining Charter 2018	Broad-Based Socio Economic Empowerment Charter for the Mining and Minerals Industry (2018)
Minister	Minister of Mineral Resources
MPRDA	Mineral and Petroleum Resources Development Act (28 of 2002)
MPRDAB	Mineral and Petroleum Resources Development Act Amendment Bill (2013)
MPRRA	Mineral and Petroleum Resources Royalty Act (28 of 2008).
Natural resources	Minerals, petroleum/oil and gas
NDP	National Development Plan
NOK	Norwegian Krone
NRF	Natural Resource Fund
RRT	Resource Rent Tax
SIMS	State Intervention in the Mineral Sector
SWF	Sovereign Wealth Fund
SWOT analysis	Strengths, weaknesses, opportunities and threats assessment
UAE	United Arab Emirates
USD	United States Dollar
VAT	Value-Added Tax
VITR	Variable Income Tax on Rent
ZAR	South African Rand

CHAPTER 1

INTRODUCTION

The exploitation of a natural resource deposit presents an opportunity to generate accelerated economic growth and development. Empirical evidence suggests that the perceived “resource blessing” from natural resource endowment can be tantamount to a resource curse, indicating that resources can either contribute to or hinder economic development. Sound economic policy decisions are critical for the transformation of resource revenues into sustainable development. For example, countries such as: Sweden, Malaysia, Norway, Canada, Botswana, Chile, Finland, Australia and the United States, have demonstrated the effective use of their resource endowments in order to improve human development (Cameron & Stanley, 2017; Jourdan, 2014; Wilde, 2016).

The harnessing of non-renewable resources often plays a pivotal role in the growth and development of a country. The fundamental role of government in a resource-rich country is to act as its steward, ensuring that the development of a finite resource translates into tangible intergenerational benefits. The presence of subsoil assets may indeed initiate a race of resource ownership between investors and the state (Ramfol, 2017). In an attempt to maximise revenue generation, governments generally explore the use of either tax instruments or resource nationalisation. Investors, on the other hand, often seek to shift profits to alternate jurisdictions and often embark on sophisticated tax avoidance mechanisms. Poor policies, as well as weak management and governance over natural resources can result in a country’s failure to realise the full developmental potential of these resources (Lundgren, Thomas & York, 2013).

Investors experience unique challenges that affect the viability of an extractive venture. The exploration for oil, gas and/or minerals can take a number of years, while the investor is required to inject a substantial amount of capital to fund expenditure into a project, with no guarantee of a discovery (Daniel, Keen & McPherson, 2010). Furthermore, the sophisticated technical experience that is required in the extraction of resources, access to funding, and the capability to take on long-term risk has resulted in the global participation of a few investors who ultimately possess monopoly market power (Mitchell, 2009). If successful,

extractive industries (EI) can experience a windfall of revenue (Aarsnes & Lundstøl, 2013). The tax liabilities of these mining operations affects the yield on investment. Thus, these investors tend to structure their operations in multiple jurisdiction in order to optimise their tax advantage.

Governments' face cumulative major macro-fiscal challenges from the time lag in revenue generation between the commissioning and production of a venture, the volatility of revenue arising from commodity market conditions, the risk of hurting the competitiveness of non-resource sectors and the effects of currency appreciation (Daniel *et al.*, 2010; Korinek, 2014). Thus, the EI fiscal regime must balance the interests of the country with those of investors. Government seeks to capture a "fair share" of mining revenues through fiscal returns in order to meet its developmental goals while EI's require a fair return on their investments (Natural Resource Governance Institute, 2016).¹

1.1. BACKGROUND

From as early as the 19th Century, South Africa supplied essential mineral resources such as copper, diamonds, gold and coal to the global market. The country's ability to capitalise on its geological endowment allowed for its rapid economic transformation and industrialisation (Davenport, 2013). Mining has driven technological advancements in mining services, created demand in consumer industries and provided the catalyst for the development of capital markets (Moncur & Jones, 2010).

During the early 1980s, mining contribution to the gross domestic product (GDP) peaked at 21 percent compared to the 8 percent contribution in 2016 (Statistics South Africa, 2017a). Although the mining industry no longer dominates the South African economy and may be in decline, it remains a key source of export earnings and employment, employing 490 146 individuals in 2015 (Statistics South Africa, 2017a). As at 20 December 2018, there were 55 mining companies and 10 oil and gas producers listed on the Johannesburg Stock Exchange

¹ "The tax system invariably affects the attractiveness of a jurisdiction for investors, and both parties benefit from a stable fiscal regime (Ramfol, 2017). A well-designed fiscal regime also attracts capable investors, promotes greater resource discoveries, controls production costs and creates competition for resource licences—which in turn promotes greater revenues" (Natural Resource Governance Institute, 2016:48).

(JSE), which is less than half of the 130 mining companies listed in 1994 (African Markets, 2018; FTI Consulting Inc, 2017).

For most of the 20th Century, South Africa had been the world's leading gold producer. The exploration and exploitation of gold has been the cornerstone of the South African economy, providing tax and export revenue, foreign exchange earnings and substantial fiscal savings (Ledger & Nicol, 1992). At 2.5 trillion dollars², South Africa is endowed with the world's most valuable mineral treasure (Davis Tax Committee, 2014). Simple logic suggests that the country's comparative geological endowment confers an advantage as a preferred mineral investment jurisdiction (Ramfol, 2017). On the contrary, South Africa was the only country out of 71 mineral-rich jurisdictions, not to benefit from the 2001 and 2008 resource booms (Solomon, 2012). Furthermore, during the same period while the global mining industry grew on average by 5 percent per annum, the South African mining sector contracted by approximately 1 percent per annum³ (Jeffery, 2016).

The South African extractive industry is in crisis (Baxter, 2017). In 2007, South Africa lost its long-standing global leader position in gold production (Statistics South Africa, 2015). The proximate causes include the increased production costs to extract minerals from mines operating at depths of approximately 4km underground. Globally, demand for resources is affected by Asian markets, together with volatility of commodity prices and depressed levels of economic growth in key markets. Locally, labour strikes and constrained power supply have hampered the supply of resources (Harvey, 2014). Uncertainty around the issue of nationalisation of the mining sector, policy amendments to the mining industry and the taxation thereof have also affected the stability of the EI (PricewaterhouseCoopers, 2015).

Global EI capital is limited and there must be sufficient return from the industry to induce risk takers to provide the capital and bear the risks necessary for its continuance. Despite a conservative increase in global exploration capital expenditure, South African EI companies are considering disinvesting in South African assets and scaling back on new investments

² It should be noted that platinum reserves comprise a substantial portion of these reserves. Furthermore, this estimate was reported in 2010 when the platinum price was significantly higher than the current market price.

³ Leon, (2010:1) substantiates that the South African mining industry experienced a "one percent negative growth rate, measured in value add to GDP, between 2001 and 2008".

in the country. The focus has shifted in favour of increasing mining investment in Botswana, Côte d'Ivoire and Ghana, as regimes in these countries offer lower opportunity costs and more stable investment terms (Mining Weekly, 2017). The Fraser Institute Annual Survey of Mining Companies 2017, reported a decline in South Africa's mining overall attractiveness position to 48 out of 91 jurisdictions, where 56 percent of respondents indicated that the mining tax regime is a deterrent to some degree on investment (Stedman & Green, 2018). The Davis Tax Committee was commissioned in 2013 to initiate a review of the tax policy framework. Their mandate encompassed the appropriateness of the current mining tax regime (National Treasury, 2013). The Davis Tax Committee highlights that the tax system cannot address all impediments to economic growth. Noting that increased complexity and the lack of assurance that taxpayers' money is spent prudently add to compliance related challenges. Recommendations include creating certainty and simplicity in the tax legislation in order to stimulate local and foreign direct investment (Davis Tax Committee, 2018).

Sachs and Warner's (1995) study show that some natural resource-rich countries exhibit poor economic performance, compared to countries lacking resources. The macro economic performance of a resource-rich country is destabilized by corruption, whereby only a group of elites with vested interests in the natural resources benefit to the detriment of the populace (Elbra, 2013; Leite & Weidmann, 1999; Torres, 2015).

South Africa's upper-middle income status (World Bank, 2018a), industrialised economy and sophisticated financial system conceal the negative effects of resource abundance on long run economic growth. However, Elbra (2013) socio-political study shows that South Africa does indeed suffer from the resource curse. Elbra's assertion is based on the country's inability to utilise mineral extraction to improve human development, reflected by worsening inequality, poverty and slow GDP growth. Further negative outcomes of mineral extraction are evident from the prevalence of corrupt practices, abuse of state power, rent seeking behaviour in the EI sector and the resultant loss of international confidence in the country.

The root of policy problems lies in the perception of a lack of broad-based distribution of benefits from the EI to the citizens of South Africa (Solomon, 2012). Research to inform multi-stakeholders on state participation in mining, revealed that nationalising the mining

sector would result in a net financial deficit. The acquisition cost for government to purchase a 60 percent stake in mining companies would be approximately ZAR 970 billion. The cash outflow from the interest charge on financing this acquisition would amount to ZAR 46.6 billion, while the cash inflow from increased revenue from a 60 percent stake in the industry, plus tax collection, would total only ZAR 20.9 billion. Excluding capital repayments, the resultant shortfall is ZAR 25.7 billion per annum (Keeton & White, 2011).

The State Intervention in the Mineral Sector Report (SIMS report) was commissioned to establish an equitable distribution of benefits from the mining sector. The key recommendations of the SIMS report do not support nationalisation, but suggest (African National Congress, 2012):

- state promotion of beneficiation⁴;
- a review of the tax structure to promote the use of progressive tax instruments to capture resource rent of 50 percent;
- the investment of resource rents in a sovereign wealth fund (SWF); and
- the award of mining rights by means of a tender process.

From an EI investor's perspective, the South African extractive rights administration regime is cited as "protracted, corrupt, arbitrary, inconsistent, and a nightmare" (McMahon & Cervantes, 2012:47). Further, the regime is faced with constant changes to the mining regulatory framework and hampered by bureaucratic red tape and lengthy delays (Green, Wilson & Cervantes, 2014). The Department of Mineral Resources (DMR) also notes that there are irregularities, administrative inefficiencies and lack of transparency in the award of prospecting rights (Corruption Watch, 2017). In Africa, countries such as Botswana and Namibia are gaining momentum on global competitiveness from improved ratings on policy factors (Jackson & Green, 2017).

The legislative uncertainty shrouding the industry stems from the non-finalization of the draft Mineral and Petroleum Resources Development Act Amendment Bill (2013) (hereafter referred to as the MPRDAB) that was subsequently withdrawn in 2018. Amongst the several

⁴ The Department of Mineral Resources (2011:ii) defines beneficiation as the process whereby mineral/s are transformed into a "higher value product" for export or local consumption.

issues of contention in the MPRDAB was the wide ministerial discretionary powers granted by the bill (South Africa, 2013).

Along with uncertain policy issues, the unfriendly business rhetoric featured in the draft versions of the Broad-Based Socio Economic Empowerment Charter for the Mining and Minerals Industry (2018) (hereafter referred to as the Mining Charter 2018) resulted in a significant loss of value in mining shares of approximately ZAR 50 billion (Ritchie, 2018).

The South African EI is at a cross-road, with nationalisation and the commensurate costs associated being unaffordable to government, and proposals to the tax regime documented in the SIMS Report being unaffordable to investors (Antin, 2013). The mining industry is experiencing poor performance due to rising production and labour costs, uncertainty of mining regulatory legislation and the negative economic climate from commodity price fluctuations arising from changing demand for minerals on the world market (Leon, 2012). These factors have cumulatively reduced the prospect of international investment.

1.2. RATIONALE FOR THE STUDY

Resource curse theory suggests that the basis of underperformance of resource-rich countries lies in government's inability to address the institutional and policy challenges inherent with resource endowment (Brunnschweiler, 2008). Weak policy and administration, poor governance, coupled with defective laws and regulations and inadequate bargaining power to deal with the EI, result in countries often not receiving fair compensation for their resources. Nonetheless, the compensation collected, once spent, does not generate the anticipated social or economic benefits for the country (International Monetary Fund, 2010).

The mineral fiscal regime in South Africa has evolved from the various commissions of inquiry that were tasked to investigate the effectiveness of tax policy. The Holloway Commission was set up in 1945 to establish the optimal benefit derived from the country's gold mines (Holloway, 1946). The Holloway Commission elaborated on the significance of mining to the South African economy, factors affecting the decision to invest and the importance of tax policy design in attaining the maximum economic benefit of the mineral resources of the country. Holloway (1946:61) explains that when investors consider opening

a new mine, they are faced with mining risks that affect profitability; tax risks affecting the residual after-tax return on investment; and, the opportunity cost of a more efficient use of capital. Equally, the state has three key considerations⁵ in gold mining: to collect a lease consideration for the mining right, to collect a fair share of the mineral wealth, and to create intergenerational equity.

Otto (1998:79) outlines that “while attractive geology remains the driving force behind exploration investment, government policies, laws and fiscal systems play an important supplemental role in exploration decision-making and a pivotal role in mine investment decisions”. An optimal level of taxation suggests that the government receives an equitable share of revenue from the EI, while encouraging a sustainable level of production and investment. Therefore, if the tax imposed on the industry is too high, investment and production are sub-optimal. Alternatively, if the tax levied is too low, the fiscus suffers a significant loss of revenue. Weijermars (2015:385) points out that taxation can “either incentivize, attract and stimulate or des-incentivize, repel and deter resource development”. A key consideration is that resource-rich jurisdictions compete for market share of EI investment. This competition makes the EI vulnerable to sub-optimal policies due to political capture and rent seeking behaviour. Achieving a balanced scorecard between designing a fiscal regime that stimulates growth and investment while ensuring adequate revenues for government spending confers both challenges and opportunities for a country (Korinek, 2014; OECD, 2013). Transparent and effective tax policy design and implementation provide an essential financial platform for sustainable development. Therefore, tax policy design in a resource-rich country needs to account for the following factors (Daniel, Gupta, Mattina & Segura-Ubier, 2013):

- non-renewable resources are exhaustible, resulting in a decline of export earnings once the resource is depleted;
- volatility of commodity prices can affect government spending; and

⁵ “As lessor of the mining rights it makes a contract with the operating company to pay it a lease consideration. As fiscus it is entitled to a share in the wealth produced in the country to assist in defraying its running costs... As representative of the community, it has the duty to ensure that the natural endowment in a wasting asset is not exploited in such a way that the community is left in an impoverished condition when the natural resources have been exhausted. It is the duty of the state to prevent the dissipation of the country’s patrimony” (Holloway, 1946:125).

- long-term revenue is difficult to forecast thereby constraining decision-making regarding productive public investment spending.

In the advancement of economic development, extractive tax revenue management and distribution is of equal significance as achieving an optimal level of taxation. Due to the exhaustibility of natural resources, government spending financed from the EI tax revenue is temporary. Therefore, mismanagement of extractive revenue can lead to volatile and wasteful public spending, an unsustainable increase in consumption and “Dutch disease” (Matsen & Torvik, 2005). Dutch disease refers to the phenomenon where an increased demand in the economy for commodities causes inflation or currency appreciation. Higher inflation increases costs and reduces the competitiveness of exported goods. Higher commodity prices increase profits and wages in the non-traded sector, thus resulting in the movement of domestic capital from the traded to the non-trade sector, with most traded goods being imported (Wilde, 2016). Commodity booms create a surge in revenue, providing the incentive to increase government spending (Arezki, Gylfason, & Sy, 2011). The polarization between periods of high consumption during commodity booms and low consumption coupled with high unemployment during bust cycles can de-stabilise the economy (Venables, 2016). Thus, sound revenue management policies are an imperative in resource-intensive countries. One way of smoothing government expenditure is by utilising a stabilization fund (International Monetary Fund, 2012). A stabilization fund accumulates surplus government revenue during resource boom periods and then uses the surpluses saved to fund government expenditure during depressed commodity market conditions when EI tax revenues are low (Korinek, 2014).

Stiglitz (2004:1) states that we “can now cure Dutch disease”, indicating that remedies are available to address poor performance in resource-rich countries. The Overseas Development Institute (2006) points out that Norway, the United Kingdom, Botswana, Chile, Colombia and Indonesia, as well as Alaska in the United States, successfully managed their natural resource wealth by focusing on revenue management strategies and adopting suitable economic policy. In the investment phase, consideration was given to adopting model production sharing, royalty and tax regimes that suited local and market conditions, thus maximising “local content” provisions and utilising early revenue streams to build up a capital fund. As the extractive sector advanced, in order to achieve attractiveness in other

tradeable sectors, focus moved “towards medium and long-term budget stabilisation and investment of revenues” (Overseas Development Institute, 2006:1).

The United States of America, Scandinavian countries, Canada and Australia became rich through the prudent utilisation of their natural resource returns (Lederman & Maloney, 2007). Chile and Botswana have also each created a natural resource fund (NRF), also known as a SWF, as an investment plan that provides intergenerational savings (Havro & Santiso, 2008).

Hartwick’s (1977)⁶ rule for sustainability promotes the transfer of intergeneration equity by reinvesting resource rents in reproducible capital assets. The rule prescribes that for consumption to be sustained, the investment value should equate to the value of the extractive resource rent. Botswana’s adoption of this rule has increased the country’s *per capita* wealth over the past 30 years and successfully transformed their resource capital into other forms of wealth (Lange & Wright, 2004).

In the case of Norway, successful policy measures resulted in the NRFs investment returns exceeding EI tax revenue collections. In Alaska, a different approach is followed. A dividend is distributed from revenue generated from publicly owned oil production to every Alaskan citizen, effectively transferring the benefits from natural resource endowment to citizens (Goldsmith, 2002). South Africa adopted the New Growth Path Framework in 2010 as a guiding economic policy framework to attract investment and drive employment creation. The framework notes the “policy consensus on the need for a more competitive and stable exchange rate” and acknowledges that in so doing, the build-up in foreign reserves would result in diverting resources from other social needs, “investing accumulated foreign reserves in productive projects with a higher yield than investment in developed-country bonds” (South Africa, 2011:21). The 2010 framework also recommends the creation of an African Development Fund for developmental purposes, functioning as a NRF to:

- promote investment in the region;

⁶ “Invest all profits or rents from exhaustible resources in reproducible capital such as machines. This injunction seems to solve the ethical problem of the current generation short-changing future generations by ‘overconsuming’ the current product, partly ascribable to current use of exhaustible resources” (Hartwick, 1977:972).

- protect and expand competitiveness of domestic markets;
- increase exports from a competitively-priced currency;
- counter appreciation of the rand (South Africa, 2011).

An international trend has emerged of employing fiscal policies to increase control and share of rent from the extractive sector. This trend is driven by the sentiment that resource-rich countries are not receiving a fair share of rent (Weijermars, 2015). Termed “resource nationalism”, policies include state participation, increased taxes and royalties, mandating local beneficiation, infrastructure investment and contribution to social programmes (Ballard, Cline, Neubig & Phillips, 2012). Determining a fair share⁷ of rent is inextricably linked to the associated risks borne to develop the resource. Ballard *et al.* (2012) add that the sharing of risks and rewards should be robust to accommodate changes in circumstances. While Weijermars (2015) raises the dimension that the concept of fairness needs to be further qualified in terms of the geological uncertainties, infrastructural requirements and distance from market.

Historically, mining sector revenues comprised a substantial share of South Africa’s total revenue. A clear indicator of an existential problem is evident from the considerable decline in mining tax revenue, which averaged around 29 percent in the 1980s but has diminished to 2.5 percent of total tax revenue (Daniel, Grote, Harris & Shah, 2015). In 2011, South Africa ranked 21st out of 58 countries on quality of governance in the mining sector, with a failing score on reporting practices for poor mining contract and environmental impact transparency. Despite a contribution of 46 percent to exports, the extractive sector GDP contribution has gradually declined from the 1970s (Natural Resource Governance Institute, 2013d).

The landscape of active EI participants is changing. During the 1990s, half of mineral sales were accounted for by the sale of gold. Platinum mining has overtaken the dominance of gold mining. It is estimated that South Africa’s gold will be depleted in 39 years, while coal

⁷ Weijermars (2015:385) poses the question: “What is a fair taxation regime for natural resource extraction in a particular geological setting and a given geographical location, taking into account subsurface uncertainty about the quality and volume of the resource, infrastructure needs and proximity to the world’s major markets and trade centers?”

reserves have 256 years available and platinum group metals have 335 years remaining (Statistics South Africa, 2017b). Analysis conducted to determine whether South Africa's decline in gold production could be arrested identified the lack of exploration as a critical cause for the declining production levels (Phillip, 2013). Exploration of minerals has evolved in tandem with global manufacturing demand, and consequently, fiscal policy decisions are required to account for a revenue horizon projecting the period for which extractive commodities will produce revenues (Daniel *et al.*, 2013). Holloway's outlook regarding mining taxation remains relevant, as the longevity of the South African extractive sector is dependent on encouraging exploration.

The issuance of permits to explore the country's oil and gas reserves implies impending exploitation of these reserves (Oberholzer & Davidson, 2017). The current fiscal instruments applicable to South African oil and gas companies accounts for taxes on corporate profits subject to the Income Tax Act (58 of 1962) (hereafter referred to as the Income Tax Act), with specific tax provisions incentivising exploration and post-exploration activities. Royalties are levied in accordance with the Mineral and Petroleum Resources Royalty Act (28 of 2008) (hereafter referred to as the MPRRA). Following the active interest of multinational companies to participate in South Africa's petroleum and gas sector and the change in economic importance of certain designated minerals consideration should be given to whether the current fiscal regime governing the EI is adequate to generate maximum returns from the sector.

South Africa's poor mining sector performance and the state's objective to embark on petroleum and gas exploration warrant a review of the fiscal package, as extractives possess distinctive characteristics that command a separate fiscal regime. Importantly, the fiscal regime determines how rent is shared between the EI and the state, and in the absence of an available benchmark, determining what a fair share⁸ represents is difficult. Cameron and Stanley (2017) recommend that selecting of good practice guidelines ensures that a country establishes a fiscal regime that is considered fair by both parties, the investor and the country.

⁸ Otto (2018) asserts that jurisdictions design their EI tax regime on attaining a theoretical fair share between the state and investor interest. While tax revenue collection is hindered by EI transfer mispricing.

On the issue of determining an equitable return from EI, “fair share is a lot like beauty; different people look at the same share and come up with different attitudes about it. It's not like there's a definition of fair share” (Caldwell, 2016:1). Nakhle (2008:12) adds that “fair” is a difficult word: “in this sense, an equitable tax will ensure that future generations get a fair share of the resources or compensation for those that are depleted”. While both the investor and state share the objective of profit maximisation, they are competitors when it comes to revenue sharing. Evidence on the subjectivity of the concept of fair share has culminated in a rise in international litigation between 2001 and 2010. Stevens, Kooroshy, Lahn & Lee (2013) report that the significant increase in arbitration in the extractive sector highlights the tension amongst stakeholders. During this period, oil and gas litigation increased more than tenfold with mining litigation increasing nearly fourfold. In essence, the issue of equity stems from the fact that a global benchmark for revenue sharing does not exist. Over 30 countries reformed their petroleum fiscal regimes while 25 countries reformed their mining fiscal regimes during 2009 and 2010. Adding that perceptions of “fairness” are informed by the historical, domestic and international background, “questions of who is in control and who benefits from the extraction remain relevant to a company’s presence and operations in a country long after the ink on the contract is dry” (Stevens *et al.*, 2013:10). Weijermars (2015) concurs that defining what is fair has often lead to a renegotiation of fiscal terms which thereby impinges on fiscal stability.

The Freedom Charter statement that “the people shall share in the country’s wealth” sets the South African context on the issue of sharing in mining sector benefits (African National Congress, 1955). Ultimately, establishing a fair share of revenue is located in the terms of a country’s fiscal regime. The design of a fiscal regime requires choosing from numerous fiscal instruments and their commensurate rules, which together make up the “fiscal package” (World Bank, 2013).

Given the uniqueness of each country’s natural resource endowment, revenue objectives and policy goals in relation to the relative development of their EI, the fiscal package adopted within these parameters is unique to the circumstances of a particular country and is therefore, not transferrable to another country (Cameron & Stanley, 2017). Thus, a standard approach to EI fiscal design may not be feasible. However, South Africa can learn from the

inclusive decision making frameworks adopted in designing EI fiscal packages by countries that have successfully avoided the adverse effects of the resource curse.

The Natural Resource Governance Institute⁹ has brought global collaboration from approximately 120 stakeholders representing: academia¹⁰, civil-society actors, government and industry who have contributed towards The Natural Resource Charter.

The Natural Resource Charter encourages resource-rich countries to adopt twelve good practice precepts to manage the decision chain in the conversion of resources into assets for sustainable development (Natural Resource Governance Institute, 2014). In my opinion, the Natural Resource Charter is a credible document, providing an all-inclusive and structured approach towards policy formulation in resource-intensive economies.

Four of the twelve precepts¹¹, are principles that underpin this thesis: precept three, four, seven and eight and can be summarised as follows:

⁹ Non-profit research organisation that assist resource-rich countries to convene reform-oriented dialogue towards improving resource governance.

¹⁰ Seminal authors on fiscal policy for EI that have contributed to the Charter include: Dr Phillip Daniels (IMF specialist on resource-rich economies, notably for oil, gas and mining taxation), Sir Paul Collier (professor of economics at the University of Oxford), Prof Anthony Venables (director of the Centre for the Analysis of Resource Rich Economies), Prof Peter Cameron (director of the Centre for Energy, Petroleum and Mineral Law and Policy at the University of Dundee), Dr Charles McPherson (IMF tax policy adviser specialising on fiscal and financial policies in natural resource-rich countries and Dr Carole Nakhle (energy economist, specialising in international petroleum contractual arrangements and fiscal regimes) to name a few.

¹¹ “Domestic foundations for resource governance

PRECEPT 1: Resource management should secure the greatest benefit for citizens through an inclusive and comprehensive national strategy, clear legal framework and competent institutions.

PRECEPT 2: Resource governance requires decision makers to be accountable to an informed public.

Discovery and deciding to extract

PRECEPT 3: The government should encourage efficient exploration and production operations, and allocate rights transparently.

Getting a good deal

PRECEPT 4: Tax regimes and contractual terms should enable the government to realize the full value of its resources consistent with attracting necessary investment, and should be robust to changing circumstances.

PRECEPT 5: The government should pursue opportunities for local benefits, and account for, mitigate and offset the environmental and social costs of resource extraction projects.

PRECEPT 6: Nationally owned companies should be accountable, with well-defined mandates and an objective of commercial efficiency.

Managing revenues

PRECEPT 7: The government should invest revenues to achieve optimal and equitable outcomes, for current and future generations.

PRECEPT 8: The government should smooth domestic spending of revenues to account for revenue volatility. Investing for sustainable development

PRECEPT 9: The government should use revenues as an opportunity to increase the efficiency of public spending at the national and sub-national levels.

PRECEPT 10: The government should facilitate private sector investments to diversify the economy and to engage in the extractive industry.

- How to **allocate extractive rights**? (precept 3),
- How to **generate resource revenues** and other benefits? (precept 4), and
- How to **manage resource revenue**? (precept 7 and 8).

The World Bank advocates an inclusive value chain methodology characterised by five links. The methodology follows that transforming non-renewable resources into sustainable development requires an intergrated and holistic policy approach to manage the EI value chain (Alba, 2009). These policy choices can be guided by “good international practice” of successful “resource-led development” (Cameron & Stanley, 2017:55-56). Figure 1-1 illustrates the framework that guides the decision making links in the EI value chain.

Figure 1-1: World Bank EI value chain approach



Source: Cameron & Stanley (2017:11)

Key common themes emerge from the twelve precepts identified in The Natural Resource Charter and the five links in World Banks EI value chain approach. Precept three on allocation of rights can be matched with the World Bank’s first link on policy, legal and contractual framework. Precept four on EI revenue generation aligns with the third link on fiscal design and administration. Lastly, revenue management and distribution are identified by both the Natural Resource Charter’s precept seven and eight and the fourth link in the World Bank EI value chain (refer to note 9 and Figure 1-1).

The advice of the Holloway Commission, the SIMS Report, the Natural Resource Charter and the World Bank reiterate the importance of a holistic inclusive decision chain approach to policy formulation in the extractive sector. The South African EI is evolving and the

International foundations for resource governance

PRECEPT 11: Companies should commit to the highest environmental, social and human rights standards, and to sustainable development.

PRECEPT 12: Governments and international organizations should promote an upward harmonization of standards to support sustainable development” (Natural Resource Governance Institute, 2014:1-39).

extraction of oil and gas by multinational companies are imminent events. Within this context, a review is required of South Africa's extractive fiscal regime addressing the three policy areas of:

- promoting an efficient and transparent extractive rights licencing regime that maximises resource rent;
- a tax system that allows government to capture an equitable share of resource rent; and
- a policy for the investment of resource rent in productive assets.

1.3. HYPOTHESIS

From a competitiveness perspective, the current South African extractive fiscal regime is sub-optimal, demonstrated by declining exploration spend, mining and beneficiation. In addition, South Africa is lagging behind its competitors in terms of innovation, efficacy and cost-benefit. Furthermore, South Africa's has slower economic growth when compared to other middle income countries. Socio-political issues of inequality, unemployment and corruption are prevalent. These negative factors suggest that South Africa suffers from the resource curse on the premise that the country is unable to utilise its natural endowment to further economic development.

1.4. PURPOSE STATEMENT

The purpose of this study is to explore the design of a sustainable fiscal regime that supports the economic viability of the South African extractive industry.

1.5. RESEARCH OBJECTIVES

The main objective of the study is to examine the adoption of fiscal policy in respect of natural resource extraction in South Africa. In so doing, the study will seek to:

1. Analyse the current South African EI fiscal regime in order to diagnose if South Africa suffers from the resource curse.
2. Conduct a comparative analysis of the EI fiscal regimes of jurisdictions that avoided the resource curse to identify strategies on how to avoid the resource curse.

3. Frame recommendations for South Africa from the lessons learnt from the comparative analysis.

1.6. RESEARCH QUESTIONS

The study is further guided by the following research questions:

1. Does South Africa's extractive sector licencing regime maximise resource rent?
2. Does South Africa have the necessary EI fiscal instruments to enable it to capture a fair share of returns?
3. Can a natural resource fund offer a revenue management strategy for South Africa?

1.7. RESEARCH DESIGN AND METHOD

A growing number of countries have used the EI to drive economic development, thus providing an evolving body of generally accepted principles and policy comparatives (Cameron & Stanley, 2017). In extracting lessons from the extensive practical experience of countries that have avoided the resource curse, good practices can be identified and offer solutions for the underlying fiscal policy issues facing the South African EI. Comparing different jurisdictions can provide alternate policy options and thereby afford a better understanding of one's own jurisdiction (Buijze, 2016).

This study is conducted within the interpretive paradigm. Adopting this lens enables the researcher to interpret phenomena constructing an understanding and acquiring knowledge from experience and perspective (Denzin & Lincoln, 2018). Qualitative inquiry seeks meaning from insight and discovery (Hesse-Bieber, 2017). Establishing a benchmark for "good practice" in the extractive sector requires an analysis of the effectiveness of policy choices. Therefore, the study takes a qualitative¹² approach through an in-depth review and comparative analysis of the extractive sector fiscal policies in selected jurisdictions that have avoided the resource curse.

¹² Researcher pursues "illumination, understanding, and extrapolation to similar situations" (Hoepfl, 1997:48).

Taxation is a multi-dimensional social science that is embedded in the disciplines of law, economics, accounting (McKerchar, 2008) and fiscal sociology (Heij, 2012). Regardless of the discipline paradigm a basic understanding of comparative law provides a fundamental reference point (Thuronyi, 2003). McKerchar (2008:18) identifies two types of legal research: doctrinal (also known as “black letter law”) and non-doctrinal. Doctrinal research involves scholarly analysis of statutes and judicial commentary. Whereas, non-doctrinal research focuses on reform-orientated and theoretical methodologies designed to understand legal principles and recommend changes to the law. This study establishes the de jure and de facto application of the law encompassing both doctrinal and non-doctrinal research.

The research method involves a review of academic literature that is supported by textual analysis of legislative provisions. Bowen (2009) states that document analysis requires data to be examined and evaluated in order to discover insight and understanding on the research problem thereby producing empirical knowledge. The EI fiscal policy choices framed in each jurisdiction is explored and evaluated through analysis of technical legislative content¹³. While the effective application of policy choices is evaluated in reports and scholarly literature¹⁴.

Electronic library database searches yield comprehensive data and information on the design of fiscal policy for the effective management and sustainability of the EI. The extensive review of literature includes legislation, textbooks, journals, working papers and reports from the Natural Resource Governance Institute, International Monetary Fund (IMF), Organisation for Economic Co-operation and Development (OECD), United Nations and World Bank. The credibility of the data is secured by obtaining primary information from publicly available evidence on legislation and regulation from government institutions i.e. Ministry of Finance or Central Banks. Secondary information on resource governance is sourced from libraries. Searches were conducted using words such as “resource curse”, “Dutch disease”, “allocation of extractive rights”, “designing fiscal policy for extractive industries”, “natural resource funds” and “sovereign wealth funds”.

¹³ De jure

¹⁴ De facto

The evaluation of documents selected in the study is based on four interdependent criteria cited by Scott (2011:4), as “authenticity, credibility, representativeness, and meaning”.

- Establishing authenticity involves appraising the reliability and authorship of the document.
- Credibility required an assessment of factors such as the authors justification and standpoint and considerations towards the accuracy of a document.
- Representativeness is determined by the accessibility and availability of documents.
- Meaning includes both literal and interpretative. Literal refers to readability which can be affected language limitations. Interpretative involves acquiring a shared meaning from the underlying social context and concepts in a document.

Thematic analysis allows the identification of commonalities in the data and establishes patterns of meaning (Braun & Clarke, 2012). The broad themes in this study focus on policy mechanisms to avoid the resource curse, allocation of extractive rights, fiscal instruments and revenue management strategies. The study is structured in a series of focused questions on the broad themes. Thereby allowing the researcher to identify patterns of similarity and divergence in the data. Thus, the inclusion criteria to retain data was guided by securing adequate evidence from multiple sources to secure suitable answers.

1.7.1. Description of inquiry strategy and broad research design

This investigation employs case study analysis to compare the fiscal extractive sector regimes of Botswana, Norway and Alberta, Canada with the aim of informing policies and good practice within the context of the South Africa EI framework. The literature on the management of the resource curse phenomenon suggests that to achieve developmental outcomes for the country, an integrated approach is required to assess critical decisions regarding the allocation of rights, the generation of tax revenue and the management of tax revenue.

Desai and Jarvis (2012:114) advocate the adoption of a holistic policy approach. The concept of a decision value chain for the EI development and management process “is only as strong as its weakest link”. An efficient revenue distribution system is of limited value if the initial contract does not provide for sufficient taxes and royalties, or if the revenue

collection system is weak as in the cases of Sierra Leone and Ghana. This is illustrated by Angola, which is strong at petroleum and mining deal negotiations, but lacks capacity to translate the revenue into investments that promote human development (Desai & Jarvis, 2012).

Garbarino (2007:7) points out that even though countries have different tax systems with regard to legal statute and procedures, they share “common tax problems”. A functional approach to comparative tax research avoids the inherent limitations arising from the incomparability of countries created by “rapid legislative change, complexity of tax systems, and heterogeneity of local tax concepts”. This approach enables comparative tax policy analysis by answering identically formulated questions comparing “the functions of domestic tax rules and grouping domestic mechanisms in homogeneous “clusters’ on the basis of the shared function”.

A case study offers a strategy to investigate “how things work” within a context that “focuses on understanding the dynamics present within single settings” (Oats, 2012:26). Merriam (1998) states that the particularistic nature¹⁵ of the case study¹⁶ can suggest options and drawbacks in a similar situation. While the descriptive nature can illustrate complexity and contributory factors, the heuristic nature brings about new meaning or confirms what is known. Thus, the case study research method offers the most suitable strategy of inquiry to address the research objectives and questions posed. The study therefore adopts a functional approach to compare fiscal regimes of the selected case study jurisdictions by examining policy decisions on how these jurisdictions:

- award extractive rights;
- generate fiscal returns; and
- manage revenue from their EI’s.

¹⁵ Merriam (1998:16) adds that “a qualitative case study is an intensive, holistic description and analysis of a single entity, phenomenon or social unit...Case studies are particularistic, descriptive and heuristic, and rely heavily on inductive reasoning in handling multiple data sources”.

¹⁶ As Yin (2014:16) puts it, “a case study is an empirical inquiry that investigates a contemporary phenomenon in depth and within its real-life context, particularly when the boundaries between phenomenon and context are not evident...to understand a real world case and assume that such an understanding is likely to involve important contextual conditions pertinent to the case”.

Due to subjectivity on the part of the researcher involved in qualitative data analysis, considerations arise regarding the validity of findings and their reliability to be replicated (Mangioni & McKerchar, 2013). Thus, an appraisal of credibility and rigor in a study requires a discussion on the reliability, validity, trustworthiness and ethical considerations. These concepts are discussed below.

1.7.2. Reliability

Reliability involves an interpretation of the ability to replicate the findings of a study (Mangioni & McKerchar, 2013). Reliability closely correlates with “dependability”. Lincoln and Guba (1985) recommend conducting an inquiry audit to determine dependability. This is achieved by examining the consistency of the process and product of the research. In the foremost place, dependability is provided by the use of reliable sources. Secondly, the research process provides a consistent approach to evaluating the fiscal regimes in the selected jurisdictions. Lincoln and Guba (1985) assert that there can be no validity without reliability. Therefore, to confirm reliability in this study, requires an examination of validity or trustworthiness.

1.7.3. Validity and Trustworthiness

Validity requires an interpretation of the quality of a study concerning the appropriateness of data and accuracy of conclusions (Mangioni & McKerchar, 2013:179). Lincoln and Guba (1985) propose four criteria as guidelines to link the quality of a research project with ethical practice. They purport that trustworthiness in research is attained in terms of the transferability, credibility, dependability and confirmability.

- Credibility assesses the accuracy of the findings of a study.
- Transferability considers the generalisability of the findings of one study to other scenarios.
- Dependability appraises whether consistent results will be achieved if the study was replicated.
- Conformability evaluates the objectivity and impartiality of the results from researcher bias.

By increasing the rigor in the study it is suggested that validity concerns are addressed. From a trustworthiness perspective, maintaining authenticity and objectivity ensures that the findings are trustworthy. It should be noted that the findings of this study are not transferable as the policies benchmarked in the comparative jurisdictions merely offer lessons and may not be replicated due to a country's context. In other words, there is no "one size fits all" when it comes to policy analysis.

1.7.4. Ethical considerations

The research is designed and undertaken to ensure integrity and adherence to research standards and ethics. Documentary evidence used in this study is available in the public domain. Academic integrity and authenticity was maintained by using credible sources and peer-reviewed publications. Thus, no ethical considerations arose from the use of secondary data.

1.8. THE CONTRIBUTION OF THIS STUDY

The study contributes to the evaluation of the principles that inform the design of an EI fiscal regime. Another contribution is the proposal and assessment of the adoption of a revenue management mechanism as a tool to mitigate against the resource curse (refer to section 6.5).

1.9. STRUCTURE OF THE THESIS

Chapter 1: Introduction

Chapter 1 introduces the challenges facing the extractive fiscal regime in South Africa and provides the rationale and objectives of the study. The chapter presents the importance of adopting the right fiscal policy to harness a once-off opportunity at transforming non-renewable natural resource capital into sustainable economic growth. There are three policy areas of significance, namely: maximizing resource rent by promoting efficient resource extraction, capturing an equitable share of resource rent, and investing resource rent in productive assets.

Chapter 2: Literature review- theoretical perspectives in the design of fiscal regimes for extractive industries

Chapter 2 is organised in nine sections. The first section introduces the importance of fiscal regimes in the EI. The second section defines a tax and describes the proponents of a good tax. The third section reviews literature on the resource curse theory and the policy options available to combat the resource curse. The fourth section expands on the adoption of the “shareholder value principle” as a holistic objective to harness revenue-raising potential in the EI. The fifth section discusses a value based policy framework. The sixth section discusses the strategies to award extractive rights. The seventh section provides an overview of the fiscal instruments available and main policy issues pertaining to EI taxation. The eighth section investigates the revenue management policies applicable to natural resource funds (NRF) in a resource-intensive economy. The ninth section presents the conclusion to the chapter.

Chapter 3: South Africa’s extractive industry fiscal regime

Chapter 3 provides a contextual overview of the development of mining rights and the tax regime in South Africa. The chapter reflects on the historic lessons, strengths and shortcomings of the gold mining tax regime in response to the contributions of the various commissions of inquiry. An analysis is then conducted to determine if South Africa shows characteristics of a resource cursed state. This is followed by an overview of South Africa’s mineral, petroleum and gas resource potential. The objectives and challenges that affect the management of the South African extractives sector are identified. Thereafter the chapter focuses on the policies governing the awarding of extractive rights, generation of fiscal returns and revenue management strategies in South Africa.

Chapter 4: Comparative analysis

This chapter describes the criteria applied to select the jurisdictions that comprise the comparative for this study. The chapter discusses the EI fiscal regimes in Botswana, Norway and Alberta, Canada. This chapter seeks to draw on the accumulated experience of these jurisdictions in the management of their extractive sector.

Chapter 5: Extractive industry fiscal regime lessons for South Africa

Chapter 5 contains a comparative analysis on the policy governing the decision on awarding extractive rights, generating fiscal returns and revenue management in South Africa,

Botswana, Norway and Alberta, Canada. Studying other regimes may reveal good practice policy benchmarks for South Africa's fiscal regime.

Chapter 6: Conclusions and recommendations

Chapter 6 concludes on lessons learnt in the management of the EI regimes in the comparative countries, and proposes recommendations to South Africa's fiscal framework for the EI sector.

CHAPTER 2

LITERATURE REVIEW: THEORETICAL PERSPECTIVES IN THE DESIGN OF FISCAL REGIMES FOR THE EXTRACTIVE INDUSTRY

2.1. INTRODUCTION

There is a necessity to implement fiscal policy that will realise maximum economic value from depleting natural resources¹⁷. The fundamental challenge in designing an equitable fiscal regime is managing the conflicting expectation of investor, profit maximisation and repatriation, with the state motive of generating maximum returns from the exploitation of its resource base. Governments often compromise adequate rent capture required for developmental needs against the trade-off of encouraging exploration and development investment. Countries are frequently pressurised into entering tax stabilization agreements to their detriment by forgoing substantial government revenue during periods of high prices and profits from global commodity market booms (Daniel *et al.*, 2010). Regardless of the profitability of an extractive venture, compensation is payable to the host country on the extraction and sale of the resource as a reward for the exploitation of a non-renewable resource (Nakhle, 2008). Resource rent in excess of the return on investment to the investor should be shared with the country (Aarsnes & Lundstøl, 2013). At the expiration of a mining right, the state receives an exhausted asset, compelling the state to maximise fiscal and economic payback while the extractive venture is productive (Holloway, 1946).

Taxes are one of the principal sources of revenue required to fund public services (Brunori, 2016). The economic development of a country and the wellbeing of its citizens is incumbent on the revenue generated by taxes and the optimum usage of such funds to promote welfare and progression (Mirrlees & Adam, 2011). This chapter discusses the definition of a tax, principles to consider when designing a tax regime and the different methods of taxation

¹⁷ The Holloway Commission (1946:3) states that: "A wrong policy - a policy which fails to make the most economic use of mineral resources - can be more fatal to the long range of the interests of the Union than any other country. In following such a policy, the Union can dissipate its patrimony; much like a spendthrift son lives on the hard earned capital bequeathed to him by a frugal father, till none is left...we shall attempt to show how taxation policy can encourage and how it can retard the most economical utilisation of our gold mining resources".

available in section 2.2. Section 2.3 explores the literature on the evolution of resource curse theory, the causes and suggested policies available to mitigate the negative effects. Section 2.4 expounds on the shareholder value principle, highlighting the value-enhancing strategic management tool's significance in a resource-rich country. Section 2.5 discusses a value based policy framework. Section 2.6 considers the allocation of extractive rights. Section 2.7 analyses the fiscal instruments applied in the EI and then focus on the main policy issues pertaining to the design of the EI tax regime. Section 2.8 studies the effectiveness of a NRF as a revenue management tool. Section 2.9 presents the conclusion to the chapter.

2.2. WHAT IS A TAX?

This section defines the word “tax”. A comprehensive account of taxes includes all imposts borne by a taxpayer. This discussion refers to tax in a general sense and serves to create context to the concepts that follow. A detailed discussion of the objectives, principles and design of specific fiscal instruments applicable to the extractive sector follows in section 2.7.2 to 2.7.4.

Heij (2012) explains that there is no universal definition of tax to encompass the multitude of contrasting taxes, levies and duties that vary amongst different countries, including variations present within individual taxing jurisdictions in a country. Furthermore, she highlights that there is a distinction between the definition of tax and taxation, where taxation refers to both the act of imposing a tax and the revenue generated.

Cooley (1868:479) defines taxes as “burdens or charges imposed by the legislative power upon persons or property to raise money for public purpose”. James and Nobes (2000:10) refer to taxes as a “compulsory levy by a public authority for which nothing is received directly in return”. Lymer and Oats (2018:3) also describe a tax as “a compulsory levy, imposed by government or other tax raising body, on income, expenditure, or capital assets, for which the taxpayer receives nothing specific in return”.¹⁸ The judicial definition of tax, as established in the Australian decision given by Chief Justice Latham in *Mathews v Chicory*

¹⁸ Similarly, the OECD (2017:315) defines taxes “... [a]s confined to compulsory unrequited payments to general government. Taxes are unrequited in the sense that benefits provided by government to taxpayers are not normally in proportion to their payments”.

Marketing Board¹⁹, is “a compulsory exaction of money by a public authority for public purposes, enforceable by law, and... not a payment for services rendered”. Thuronyi (2003:45) extends the economic consideration for a tax to include “any imposition of costs on individuals or firms by the government” adding that regulatory provisions can have the same intended consequence of a tax.

While taxes are compulsory payments regardless of public services consumed, user charges and fees are payments made for public goods and services used. Thus, unlike a tax, direct recipients of services can adjust the amount of services consumed in relation to the user charges borne. The rationale for a user charge is therefore not to produce revenue but to improve the efficiency with which government makes use of resources. Accordingly, economic efficiency is achieved by establishing the amount recipients are willing to pay for those public services (Bird, 2001).

Similarly, the taxation of extractives is compensation received for the use of non-renewable resources.²⁰ Providing the EI with the right to exploit a non-renewable resource equates to the sale of a public asset. “Resource taxes and auctions of exploration permits are therefore different from most other sources of tax revenue in that they are a charge for the sale of a public asset” (Henry, 2010:C1-1).²¹

Taxation of natural resources assumes a supplementary role, where taxation is the mechanism for the state and investor to share in an investment.²² The taxation of extractives extends beyond the basic provision of raising, redistributing and managing revenue. Governments are frequently custodians of natural resources.²³ Non-renewable resources can produce windfall revenues and taxation therefore becomes a means to capture economic rent. The taxation of extractives can affect economic choices, such as

¹⁹ (1938) 60 C.L.R 263, 276.

²⁰ Krautkraemer (1998:2065) defines the stock of a non-renewable resource as: “an asset that generates returns over [its life] time [and] an important opportunity cost of the current extraction and consumption of a unit of the resource, is that there is less to extract and consume in the future”.

²¹ In 2008, Australia’s Future Tax System Review was established under the Chairmanship of Dr Ken Henry.

²² As Nakhle (2008:5) puts it, the proposition of taxation: “...[i]s to acquire for the state in whose legal territory the resources in question lie, a fair share of the wealth accruing from their extraction, whilst encouraging investors to ensure optimal economic recovery of those resources”.

²³ Thus, taxation is the: “owner’s claim to net resource value, defined as the net value of revenues received from the sale of the recovered product less all claimed production costs. It is, at least in theory, the means that divides rewards between the investor and the government” (Nakhle, 2008:7).

encouraging efficient exploitation of resources during strong commodity market prices. The non-renewable nature of oil, gas and minerals implies that resource tax payments need to account for intergenerational equity. The opportunity cost attached to exploiting natural resources today is that once extracted, the resource will not be available for future use (Nakhle, 2008).

2.2.1. Objectives of tax

Taxation has a fundamental purpose of financing government costs. To this end Brunori (2016) asserts that what one considers as good tax policy is subjective and is based on an individual's perceptions. Perceptions on what share of government's cost should be borne and who should bear the responsibility, shape the trajectory of a country's tax regime. Thus, the starting point of policy design is the identification of the objective of imposing a tax. The sequence is then, determine the objective²⁴ and then design the tax. A seemingly simple task. However, complexity arises because designing a tax regime involves trade-offs between competing objectives (Muli & Steyn, 2015).

The overall objectives of tax can be summarised as being:

- To raise revenue to fund government expenditure. The objective of revenue generation is based on two taxpayer assumptions: government's revenue requirements are valid, and a taxpayer, who also acts as a beneficiary of government services is responsible to finance the cost of the services (Carter, 1966);
- To bring about a reallocation and redistribution of resources. By implementing a progressive tax, the social policy objective of increasing the living standard of low-income earners is addressed (Brunori, 2016);
- To provide an instrument for the government to manage the economy and influence public policy objectives. The imposition of a tax affects economic behaviour. These decisions start with who bears the economic burden of the tax, followed by the influence

²⁴ Mirrlees and Adam (2011:22) state that "for a given distributional outcome, what matters is:

- the negative effects of the tax system on welfare and economic efficiency should be minimised;
- administration and compliance costs - all things equal, a system that costs less to operate is preferable;
- fairness other than in the distributional sense - fairness of procedure and avoidance of discrimination;
- transparency - a tax system that people can understand is preferable to one that taxes by 'stealth'".

taxes have on consumer spending arising from market repricing of goods and services (Mirrlees & Adam, 2011);

- To play a “role in helping to smooth macroeconomic fluctuations as part of a wider fiscal and macroeconomic framework”. Macroeconomic stability can only be achieved through a stable and flexible fiscal framework (Fiscal Commission Working Group, 2013:54); and
- To support growth, employment and a diversified industrial base. The tax regime can support industrial policy through targeting policy interventions in certain key sectors thereby gaining a competitive advantage against other countries (Fiscal Commission Working Group, 2013).

In a modern economy operating in a globalised context, these are crucial objectives as poor tax policy can lead to loss of tax revenue and stifle investment and growth. In particular these objectives are of significance to the discussion in section 2.4 that addresses the adoption of the shareholder value principle as a key objectives for EI. Having set out the theoretical perspective that underly taxation their applicability can then be extended to the extractive sector in Section 2.7.2 to 2.7.4. The next section builds on this framework by exploring the maxims for evaluating the efficacy of a tax.

2.2.2. Criteria for evaluating the efficacy of a tax

The principles of an ideal tax system are: equity, certainty, convenience and economy (Smith, 1776). These principles are the foundation for designing tax policy, upon which effective taxes that satisfy the stated objectives of a tax system can be implemented. The principles have a distinct meaning within a general, legal and economic context. They can be referred to as goals that will be transformed into enforceable rights and obligations once the law is developed (Alley & Bentley, 2005). Therefore, proposals for tax reform should be guided by an assessment of the tax principles framework to ensure that the constructs of good tax policy are adhered to.

2.2.2.1. *Equity*

The principle of equity states that a nation’s subjects ought to contribute to the support of the government based on their ability to pay (Smith, 1776). The term fairness stems from the principle of equity and is a difficult concept to define or measure (Williams, 2015). The

OECD (2001:18) defines fairness from the tax administrator's perspective as "producing the right amount of tax at the right time". Generally, the amount of tax and the due date in a tax system is prescribed in the legislation. In fairness to a taxpayer, this infers that the tax administrator cannot enforce the collection of more than the right amount of tax or payment on an earlier date. The taxpayer's paramount concern is fairness within a tax system and an equitable distribution in the tax burden. As Carter (1966:17) states, "unless a tax system is generally accepted as fair, the fundamental purpose of taxation is lost".

From the taxpayer's viewpoint, the tax system should treat taxpayers sharing the tax burden fairly. This is achieved by ensuring that taxpayers with equal abilities to pay, do pay the same amount of tax. This is known as horizontal equity. Vertical equity, suggests that taxpayers with a greater ability to pay should pay more tax. The criterion of vertical equity has historically been satisfied in a progressive tax (Alley & Bentley, 2005; Nakhle, 2008; Williams, 2012).

When considering the principle of equity or fairness, it is important to include inter-nation equity, or the "equitable division of tax revenue between countries" (Alley & Bentley, 2005:602). This concept relates to general international tax principles on allocating taxing rights, the application of the tax treaty system and approaches to transfer pricing and harmful tax competition. Central to these issues is whether a tax system is based on a residence or source basis of taxation. Alley & Bentley (2005) point out that it is at this juncture where tax policy and implementation diverge, and a different interpretation to the meaning of effectiveness²⁵ and fairness emerges.

Mirrlees and Adam (2011) state that in order to engender tax compliance the process and institutions that determine tax levels and structures in a tax regime must be perceived to be fair. One way of creating legitimacy in a tax system is to provide transparency. While a neutral tax system treats similar activities in the same way, enhancing neutrality inadvertently enhances simplicity and thereby increases fairness. Another way to increase

²⁵ When defining "effectiveness" the HM Revenue and Customs (1999:23) states that "the tax rules should not result in either double or unintentional non-taxation, and risks from increased evasion and avoidance should be kept to a minimum. The overriding aim should be that the right amount of tax is paid at the right time and in the right country".

fairness is to provide a stable tax system, as continually amendments can negatively affect investment decisions and impose greater compliance costs on taxpayers.

Within the domain of an extractive venture, incorporating the principle of horizontal equity implies that EI's in the same economic circumstances are taxed in the same way. While vertical equity suggests that EI's with a greater ability to pay, pay more tax. Intergenerational equity is achieved by policies that "discourage rapid depletion of resources when prices are low at the expense of future generations" (Nakhle, 2008:12). An additional caveat to equity arises from the state's ownership of natural resources, suggesting it should receive fair and equitable payment for the right to exploit a resource (Nakhle, 2008). Considering the complexity within determining vertical, horizontal, inter-nation and intergenerational equity, measuring equity is not easy (Asprey Tax Committee, 1975).

2.2.2.2. Certainty

Smith (1776:1774) states that there needs to be certainty regarding the rules for the determination, timing and manner of payment of a taxpayers' liability. A tax system designed on the principles of simplicity²⁶ and certainty supports compliance without unreasonable complexity (Evans, Hasseldine, Lymer, Ricketts & Sandford, 2017).

Certainty in a tax system enables a taxpayer to anticipate future tax consequences and establish clarity regarding "when, where and how the tax" is to be accounted for (HM Revenue and Customs, 1999:29). Taxpayers should thus be able to determine their tax liability by establish what is subject to tax (tax base) and the tax rate (American Institute of CPAs, 2017). In this way, certainty enhances compliance with tax laws.

Certainty develops over time as the tax laws and rules are interpreted and applied. Initially, new tax rules may appear complex as there will be differences in how they are interpreted and subsequently applied (Evans *et al.*, 2017). An evaluation of the principle of certainty can often result in a trade-off with the principle of simplicity. The greater the uncertainty of the

²⁶ During the 1975 Australian tax review, The Asprey Tax Committee (1976:45) pointed out that: "after equity, simplicity is perhaps the next most universally sought after of qualities in individual taxes and tax systems as a whole: like fairness it is a word that, in this context, points to a complex of ideas".

rules, the greater the complexity in interpreting the rules (James & Nobes, 2000). Moreover, it should be noted that complexity can support aggressive tax planning (OECD, 2014).

Certainty is achieved from timely, readily available statutes that are clear and provide understandable administrative guidance (Alley & Bentley, 2005). Due to the complexity of tax law, legislation may appear ambiguous. Furthermore, frequent changes to tax policy add to uncertainty. From the tax authority's perspective, a degree of certainty is required to predict the incidence of tax and the country's revenue raising ability (Muli & Steyn, 2015). Thus, it is evident that both the taxpayer and the tax authority benefit from certainty.

2.2.2.3. Convenience

Tax compliance is fostered when a tax is due at a time and in a manner that is convenient to the taxpayer (Smith, 1776). High compliance costs cause the tax system to be inconvenient. Collection convenience varies according to the tax type where general payment mechanisms include withholding and periodic payments of estimated tax liability (Alley & Bentley, 2005). The payment mechanism can either be collected at source or directly via a self-assessment system (Lymer & Oats, 2018). The most suitable method is subject to an assessment of the "amount of the liability, ease of collection as well as the equity of collection from all taxpayers" (American Institute of CPAs, 2017:11). In this way, difficulty in paying a tax can thus impede tax compliance.

2.2.2.4. Economy

Costs to administer the tax system on the part of the revenue authority and compliance costs to the taxpayer should be economical (Smith, 1776). Fundamentally, the tax system should not diminish the productive capacity of the economy (American Institute of CPAs, 2017). Taxpayer compliance costs are the cost incurred in order to pay tax and include any intrinsic distortionary costs associated with the specific tax (Evans *et al.*, 2017). Administrative costs are the collection cost sustained by the taxing authority (Lymer & Oats, 2018). The cost of tax distortions on economic behaviour results in a loss of efficiency and relates to both administrative and compliance costs. Simplicity can also affect the principle of economy as complexity in a tax increases government's administrative costs and the taxpayer's compliance costs. Thus, aligning a tax system with the economic goals of a jurisdiction mitigates against reducing the productive capacity of the economy (Evans *et al.*, 2017).

Tax rules can affect economic growth and efficiency by influencing the movement of capital and labour to other industries and potentially harming investments and the economy (American Institute of CPAs, 2017). When the neutrality of tax rules is impinged, distortions to taxpayer behaviour may hinder economic efficiency. In this event, good tax policy can minimise these effects. Another element is enforceability of tax rules. Tax collection and administration are dependent on enforceability. Therefore, an essential measure to ensure efficiency of the tax system is to have rules that are enforceable (OECD, 2014). American Institute of CPAs (2017) adds that risks should be assessed when countering evasion or avoidance.

An ideal tax can be said to be “simple to understand, inexpensive to administer, levied on a well-defined tax base and easy to collect” (Fiscal Commission Working Group, 2013:53). A simpler tax base lowers the administrative costs to both the taxpayer and tax authority (Lymer & Oats, 2018). Transparency is fostered when taxpayers know the true cost of transactions. Industry risk perceptions are reduced when government is transparent on their sources of revenue which in turn enables investors to take informed business decisions (Nakhle, 2008). Mirrlees and Adam (2011:19) add that good tax policy requires effective government processes and “open, transparent and well-informed public debate”.

In a globalised environment, flexible tax systems are required to adapt to changing policy contexts on account of rapid developments on the technological and commercial frontiers (OECD, 2014). Thus, designing a durable tax system that can respond to changes in economic and social conditions requires balancing between stability and flexibility while encouraging predictability and certainty.

I submit that the complexity of assessing competing tax principles within a tax regime should be guided by the maxims of an optimal tax regime which fosters fairness, promotes economic welfare while simultaneously minimising the excess burden of taxation and the costs of compliance and administration.

A detailed discussion of the criteria for evaluating an extractive sector fiscal regime follows in Section 2.7.3. Since taxes are classified by a tax base, this then leads to a discussion on the methods of taxation.

2.2.3. Methods of taxation

Designing a tax-system requires the assessment of a multitude of tax measurements²⁷ (Gamage, 2015). On aggregate, there are four broad bases of taxes available, namely: taxes on income, consumption, wealth and on natural resources (rent tax). Meeting the objectives of a tax regime requires the application of tax principles to the different tax bases. Identifying and choosing the form of tax is important to mitigate against competing objectives²⁸ (Garnaut & Clunies Ross, 1983). There may be significant advantages of utilising multiple forms of taxation that have non-overlapping imperfections (Gamage, 2015).

Thus, a holistic view of the tax regime is important to ensure that the trade-offs against competing objectives and other considerations are accounted for. To illustrate this point, when addressing inequality, personal income taxes maybe a good choice to provide macroeconomic stabilisation and deliver progressivity. However, they can negatively affect the incentives to work and discourage savings. While consumption taxes are efficient, can encourage behavioural change and are simple to understand and collect, they can be regressive and thus not well suited to address inequality. Similarly, wealth taxes can achieve redistribution of resources and are economically efficient and effective. In a developing economy they have limited potential to generate significant revenue due to the narrow tax base (Fiscal Commission Working Group, 2013).

2.2.3.1. *Income Taxes*

Taxes on income and consumption represent substantial sources of government revenue (OECD, 2014). An income tax is defined as: “a tax on consumption plus any change in

²⁷ “Taxation is largely the art of measurement. Essentially all forms of taxation are built around measuring some activities or characteristics of taxpayers and then setting tax liabilities based on these measurements. Furthermore, when it comes to real world tax policy, all plausible forms of tax measurement are imperfect-and imperfect in numerous different ways. A major reason for this is that taxpayers respond to taxation through a variety of techniques for altering their activities and adjusting or concealing their characteristics so as to game measurements in order to pay less tax. In other words, because taxpayers actively seek to pay less tax, anything measured by a tax system will likely be altered in response to the specifics of the tax measurement.” (Gamage, 2015:357).

²⁸ “Many people believe that the only important characteristic of a tax is how much it takes. This is far from true. The form of the tax may have extremely weighty effects in encouraging some activities or discouraging others. It is easy to assume, as governments often seem to have done in meeting the question of taxing mining companies, that there is a simple dilemma between heavy taxation, which discourages mining, and light taxation, which yields little in the way of revenue. On the contrary, provided that the form of the tax regime is chosen prudently, it is possible to improve the trade-off considerably...” (Garnaut & Clunies Ross, 1983:1).

savings during the taxable period” (Weisbach & Bankman, 2005:4). A comprehensive income tax incorporates income from all sources including the distributions received by the providers of capital, natural resources and labour (Mirrlees & Adam, 2011). The concept of accretion was initially theorised by Haig (1921:27) stating, "income is the money value of the net accretion to one's economic power between two points of time".²⁹ Thus, using this definition for the tax base provides a taxpayer's taxable capacity (Lymer & Oats, 2018).

The primary taxes on income include and are not limited to: personal and corporate income tax (CIT) and capital gains tax (CGT)³⁰. Income tax can be structured in one of two ways: schedular or global. A schedular approach to income tax imposes distinct taxes on different categories of income. Gross income and deductible expenses are determined separately and the rates of tax applied may vary per category of income. A global approach to income tax is indifferent to the category of income and the resultant net gain after considering all expenses incurred to derive the income, is subject to a single tax on all income. Schedular systems used to be more prevalent; however only a few countries still impose such a system (Thuronyi, 1998). Three possible models exist, when it comes to designing income tax legislation. One option is to separate company income tax law from the individual income tax legislation. Another approach is to use the same rules for calculating the tax base but separate the company income tax rate levied from individual income tax rate. The third model has a single income tax act for individuals and companies that cross-references the company tax rules to the individual tax base rules. This can also be achieved by including supplementary provisions with special rules applicable to either companies or individuals (Thuronyi, 1999).

From a corporate income tax perspective, multinationals engage in operations in multiple jurisdictions. Consequently, this has increased the international mobility of the corporate tax base because corporations can relocate both real activities and capital profits to more favourable tax jurisdictions (Mirrlees & Adams, 2011). CIT includes a normal return on equity

²⁹ Simons (1938:50) later built on this theory adding: “Personal income may be defined as the algebraic sum of the market value of rights exercised in consumption and the change in the value of the store of property rights between the beginning and end of the period in question. In other words, it is merely the result obtained by adding consumption during the period to ‘wealth’ at the end of the period and then subtracting ‘wealth’ at the beginning.”

³⁰ Taxes on income include: bank taxes, gambling taxes or digital taxes etc.

capital plus “pure rents” or “economic rents” i.e. a corporation income from competitive advantages or market related advantages (OECD, 2014:32-33).

2.2.3.2. Wealth Taxes

Income is generated from returns on assets. The accretion of wealth³¹ is the accumulation of a stock of assets. A wealth tax is levied on the total stock or surrender of wealth. A distinction exists between accumulated wealth relative to wealth obtained through inheritance, gift or transfer (Lymer & Oats, 2018). Wealth taxes³² levied on property are easy to value leading to higher compliance and are a good tax to administer due to low economic distortions. A wealth tax could provide a source of information on income and property, thereby assisting with the administration of other taxes (Mintz, 1991). Kuypers, Figari and Verbist (2018) argue that the imposition of a wealth tax improves fairness of the tax regime by addressing both vertical and horizontal equity considerations. An income tax does not tax wealth, only an aggregation of wealth. The separation of a wealth and income tax base can therefore circumvent tax avoidance or evasion by ensuring that taxes not collected from income tax will be collected from wealth tax (James & Nobes, 2000). Particularly, in the case where asset appreciation escapes the tax net due to the non-realisation event (Thuronyi, 1996). An opposing argument, views taxing wealth as a form of double taxation where the accumulated stock of wealth represents taxed income (Mirrlees & Adam, 2001).

Two types of wealth taxes can be applied on a person's wealth, net wealth taxes, or on a transfer of wealth, transfer taxes (Thuronyi, 2003). Generally, net wealth taxes are assessed on a taxpayer's net taxable assets value. Transfer taxes are assessed on the net value of the taxable assets transferred, and are levied on either the transferor or recipient. From an administration perspective, wealth transfer taxes may be easier to administer than net wealth taxes. Transferor-based taxes such as donations tax can be imposed on inter vivos transfers and estate taxes can be imposed on transfers at death. Recipient based taxes can also be charged donations tax on inter vivos transfers and inheritance tax on transfers at

³¹ Boadway & Wildasin (1984:269) define wealth as: “the stock of purchasing power that an individual has accumulated. In principle, an individual's wealth is the present value of his future income”.

³² In defining a wealth taxes, Musgrave & Musgrave (1989:410) pointed out that: “...such taxes may be imposed on pieces of property (payable by the owner) and thus be of the impersonal, in rem type; or they may be imposed on the combined property holdings of a person, or on his or her net worth, thus being in the nature of a personal tax”.

death (Thuronyi, 1996). While property based wealth taxes may be cheap to collect, a drawback from using wealth as a primary tax base is the increased administration cost arising from the difficulty to fairly value wealth (Lymer & Oats, 2018).

2.2.3.3. Consumption Taxes

Consumption or expenditure is another broad tax base. The earliest proponent for a tax on consumption traces to 1848, when J.S Mill argued that a direct tax on consumption is fairer than a tax on income (Ahsan & Tsigaris, 2003). Up until Haig conceptualised accretion income, most advocates believed that a consumption tax was impracticable. Following on from the Haig-Simons income tax definition “a consumption tax is then equal to an income tax minus the tax on the change in savings” (Weisbach & Bankman, 2005:4). While an income tax, taxes what is contributed to society a consumption tax, taxes what is taken out of an economy (Lymer & Oats, 2018).

The OECD (2014) makes the following distinction between consumption taxes:

1. General taxes on goods and services, comprising of Value-Added Tax (VAT) or sales taxes.
2. Taxes on specific goods and services, including excise taxes, customs and import duties.

A consumption tax can be implemented through a cash flow system that effectively allows the non-taxation of capital income by providing an immediate deduction on the acquisition of an investment and subsequently taxes the full proceeds on the sale of the investment. Essentially, the key difference between an income tax and consumption tax is that capital income is taxed in an income tax, whereas it is exempt in a consumption tax (Weisbach & Bankman, 2005). Moreover, consumption taxes are more flexible to respond to inflation than an income tax (Lymer & Oats, 2018).

Ahsan and Tsigaris (2003) describes four different models to design a consumption tax. The first model is a simple flat business tax, referred to as a two-tiered cash flow tax, that excludes employee compensation and is implemented in combination with a separate tax on employee compensation. The second model is a cash flow tax and differs from a flat tax in that individuals receive an exemption on income earned from the business. The third model, the Blueprints cash-flow tax system, combines a cash flow system with a pre-

payment mechanism. The taxpayer can smooth their tax liability over time by choosing between the standard and tax-prepayment treatment of savings. The last model is one where adjustments are made to the income tax until it resembles a tax on consumption.

2.2.3.4. Rent taxes

Cottarelli (2012:9) states that “rents’ are the excess of revenues over all costs of production, including those of discovery and development, as well as the normal return to capital”. The potential to generate economic rents is a distinguishing characteristic of EI. The key objective of extractive taxation is to capture rents. It then follows that the most appropriate tax base is economic rent. Economic rent is defined as “the true value of the natural resource, the difference between the revenues generated from resource extraction and the costs of extraction” (Nakhle, 2008:16). Alternatively, economic rent can be summed as the differential between a commodity’s existing market price and its opportunity cost (Cordes, 1995). For oil, gas and mining resources, the capture of economic rents is referred to as the fiscal rent-sharing process. Economic rent is categorized as scarcity rent, Ricardian rent and quasi rent (Nakhle, 2008).

2.2.3.4.1. Scarcity rent

Scarcity rent relates to the finite nature of resources and represents the opportunity cost of future profits, because reserves exploited today are not available in the future. Hotelling (1931) introduced the theory that the production cost for non-renewable resources does not include the opportunity cost, or in other words the replacement cost for the reduction in available resource. This cost is referred to as scarcity rent and “equals the net present value of the loss in future profits associated with producing one more unit of output today” (Nakhle, 2008:17). Thus, the EI will only increase their output up to the level at which the market price equals the production costs of the last unit plus its opportunity cost (Otto *et al.*, 2006). When commodity prices are insufficient to cover both the production and scarcity costs, EI may consider ceasing or postponing production to take advantage of future higher prices (Nakhle, 2008). Thus, the value of non-renewable resources can be maximised by extracting resources at a rate that the expected value of the residual reserves increases over time at the required rate of return. The rate of exploitation should be synchronised with the optimal production rate determined by the market's required rate of return (Henry, 2010). Hotelling’s observation of an opportunity cost is referred to as scarcity rent or user costs. In general,

user cost reflects a real cost and is not really an economic rent (Otto *et al.*, 2006; Nakhle, 2008).

2.2.3.4.2. Ricardian rent

Ricardo (1817) posits that farming land could be categorised according to its levels of productivity as determined by its fertility. The land that enjoys the largest rent is the land that can produce food at the least cost. The next best land, though assuming higher costs, can still earn rent if the unit production cost can be maintained at levels lower than the market price. No rent is earned on marginal land since unit production costs equal the unit market price. Thus, the land with better soil quality benefits from greater productivity and consequently higher rent.

Likewise, the same categorisation of farming land can be applied to mines. Mines can be categorised according to production costs based on the quality of the ore grade and its geological location (Nakhle, 2008; Otto *et al.*, 2006). Taxing economic rent is preferred in a mining context, as a rent tax does not distort the economic choice of allocating labour, capital and other factors of production. Furthermore, a tax on rent is justified as being fair, since economic rents are seen as “gifts” for which recipients contribute nothing (Otto *et al.*, 2006).

2.2.3.4.3. Quasi rent

Quasi-rent reflects the projects return on its capital and other fixed costs. This rent only occurs in the short-run and comprises of the excess earnings above the required rate of return to maintain a firm in business. “Short-run rent is the difference between the market price and the supply prices of variable inputs”. In the long-run, a project that is not able to recoup its fixed costs will eventually cease operations (Nakhle, 2008:18).

Having discussed the elements, objectives and methods of taxation, a notable consideration was raised that a tax system should not impede a country’s economic goals, including “economic growth, capital formation, and international competitiveness” (American Institute of CPAs, 2017). It is therefore necessary when designing the fiscal regime to understand how resource abundance can affect economic growth in a resource-intensive economy. The following discussion expounds on the resource curse theory. In particular, the first step is to diagnose the presence of a resource curse which is then followed by an assessment of

suitable prescriptions to arrest the negative effects of resource abundance on a country's economic performance.

2.3. RESOURCE CURSE THEORY

Resource curse theory suggests that, on average, resource-rich countries have poor economic performance. At the outset, resource curse theory relates to non-renewable natural resources. Elements that occur in nature such as minerals, forests, water and land are referred to as "natural resources". Within these natural resources oil, gas and minerals are non-renewable assets and need to be extracted while renewable natural resources need to be produced (Badeeb, Lean & Clark, 2017). Humphreys, Sachs and Stiglitz (2007:4) point out that natural resource are "from an economic aspect, less like a source of income and more like an asset." If these assets are extracted profitably and transformed into human or physical capital they can stimulate economic growth (United Nations, 2017). Similarly, if these assets are expended they can decrease current levels of poverty. Natural resources provide developing countries with opportunities. Germany, the United States and Britain have used these opportunities to promote economic development (Davis & Tilton, 2005). Indonesia and Nigeria, both oil dependent economies, have experienced different economic outcomes. The same can be acknowledged for the two-dominant exporters of diamonds in Africa, Botswana and Sierra Leone. Over a 30-year period, Indonesia's per capita income grew four fold, whilst Nigeria's decreased. Similarly, Botswana's annual economic growth averaged 8.7 percent, whilst Sierra Leone embarked on civil war reporting an 8.1 percent decline in 1999 (Stiglitz, 2004). The phenomenon exists: certain resource-rich countries experience rapid economic growth from their natural endowment while others stagnate.³³ Some scholars believe that poor economic performance of resource-rich countries is linked to the existence of a resource curse (Aytac, Mousseau & Orsunc, 2016; Badeeb, Lean & Clark, 2017). Distinct, is the case of South Africa, a country that experienced rapid sustained growth from its mining heritage and is in a current state of decline (Statistics South Africa, 2015). This begs the question: is South Africa plagued by the infamous resource curse?

³³ Natural Resource Governance Institute (2014:4) has observed that: "countries with non-renewable resource wealth face both an opportunity and a challenge. When used well, these resources can create greater prosperity for current and future generations; used poorly, or squandered, they can cause economic instability, social conflict, and lasting environmental damage."

Early scholars such as Adam Smith and David Ricardo believed that natural resources promoted economic development (Atkinson & Hamilton, 2003). This view was supported until the early 1980s. Conventional wisdom then changed in 1982, after the onset of Dutch disease. Gelb (1988) noted that during the period 1971 to 1983, oil economies experienced inefficiency in their domestic capital formulation when compared to non-oil economies. Auty (1993) coined the term resource curse explaining that lower economic growth was reported in resource-rich countries compared to those countries without resources. He showed that foreign investors in resource-rich countries repatriated earnings offshore, resulting in the collection of lower withholding taxes. He further advocates the abandonment of the doctrinal policy tenet of sectoral neutrality: "instead, the mineral sector should be regarded as a bonus with which to promote competitive economic diversification rather than as the backbone of the economy" (Auty, 1993:10). Sachs and Warner (1995) subsequently produced seminal empirical econometric evidence supporting the resource curse thesis. Gylfason's (2001) investigations corroborated these findings expanding the study by examining how savings, investment and human capital can mitigate the resource curse and contribute to sustained economic growth.

Disparate views on the resource curse theory emerged with Manzano and Rigobon (2001) explaining that Sachs and Warner's findings of a resource curse were inaccurate. They commented that the correlation of negative growth to resource dependence was a consequence of countries' using their natural resource wealth accumulated during the commodity boom in the 1970s as collateral to secure debt. Subsequently, when commodity prices fell in the 1980s, these same countries fell into debt. Alexeev and Conrad (2009) assert that the resource curse thesis is unsubstantiated. They claim data was misinterpreted due to the application of an incorrect time interval, resulting in the omission of more than 15 years from the analysis. While studies by Lederman and Maloney (2007) have shown that if the variable, resource abundance, is interchanged with resource dependence, the outcome changes, such that resource abundance positively affects economic growth. Brunnschweiler and Bulte (2008) argue that Sachs and Warner's cross sectional regression of growth was flawed and reintroduced Adam Smith's initial hypothesis that a positive correlation exists between resource endowment and growth. Subsequently, Brunnschweiler and Bulte's findings were criticised by Van der Ploeg and Poelhekke (2010) based on the omission of variable bias. They conclude that good institutions, free trade and investment in

El technology can be beneficial to harnessing economic development (Badeeb *et al.*, 2017; Millar & Rietveld, n.d).

According to the International Monetary Fund (2012), 51 countries derive more than 20 percent of their fiscal revenue from the export of extractives, classifying them as “resource-rich”. Australia, Botswana, Canada, Chile, Ireland, Malaysia, New Zealand, Norway, Oman, Thailand and the United States are cited as countries that have escaped the resource curse (Davis & Tilton, 2005; Torvik, 2009; Wright & Czelusta, 2004). While Algeria, Congo, Mexico, Nigeria, Saudi Arabia, Sierra Leone, Trinidad and Tobago, Venezuela, Zambia and Ecuador are examples of countries that are “resource cursed” (Torvik, 2009).

2.3.1. Diagnosing a resource curse

Amongst scholars, there is little consensus on the origins or existence of the resource curse. According to Stiglitz (2004:1), “abundant natural wealth often creates rich countries with poor people”. Economists suggest the following reasons for the poor economic performance of some resource-rich countries:

- Resource-rich countries are predisposed to weaker institutions. Government officials may be tempted to engage in rent-seeking and corrupt practices; using resource wealth to create personal benefit instead of benefiting the country. In certain instances, the product of this malaise is civil war. Likewise, investors may be tempted to take the easier route, bribing a government official instead of investing and developing an industry (Auty, 2005).
- Commodity price volatility creates fluctuations in revenue and export earnings. This in turn poses a challenge in planning and financing public expenditure. Atkinson and Hamilton (2003) add that poor economic performance maybe a manifestation of government’s incapacity to sustainably manage windfall resource rents.
- The effects of Dutch disease results in the crowding out of other economic sectors. While currency appreciation can sterilise export of manufactured or agriculture goods, this affects domestic producers who cannot compete with imports, consequently widening the unemployment gap (Gelb, 1998).

To aid in the diagnosis of whether a country suffers from the resource curse, these reasons are broken down and explored further to identify specific resource curse symptoms under the headings of Dutch disease, democracy, conflict, inefficient spending and borrowing, limited government capture of benefits and weaker institutional development.

2.3.1.1. Dutch disease

The term “Dutch disease” was used to explain the decline of the Dutch manufacturing sector after the discovery of natural gas at the Groningen fields in 1959. Davis and Tilton (2005) state that the name is a misnomer; the term is neither a disease or particularly Dutch, as other countries have shared a similar experience. Arezki, Gylfason and Sy (2011:57) describe it as “a syndrome of factors that cause countries to lose rather than to benefit from resource wealth...[i]t is real for some countries even if it is not inevitable”.

Initial studies by Corden and Neary (1982) show an increased demand in the economy for resources causes inflation or currency appreciation. Consequently, non-resource commodity prices increase relative to the world market prices thereby reducing competitiveness of non-resource commodities. Concurrently, higher commodity prices increase profits and wages with labour and materials shifting to the resource sector, resulting in most traded goods being imported. Thus, the increased production costs in manufacturing and agriculture cause the contraction of these sectors. Dutch disease weakens competitiveness, impedes economic diversification and increases reliance on unpredictable commodity revenue. After the resource boom, it will be difficult to revert to the country’s traditional sources of exports from agriculture and or manufacturing (Badeeb *et al.*, 2017; Davis & Tilton, 2005).

2.3.1.2. Democracy

Natural resource-rich countries tend to maintain an authoritarian rule. Aytac, Mousseau and Orsunc (2016:71) state that a rentier state is created when “resource-rich regimes tax less and spend more than other regimes, enabling them to resist, buy off, or more effectively repress opponents; thus destabilizing democracy and stabilizing autocracy”. Thus, governments’ reliance on natural resource rent diffuses the pressure to democratise since the government is not reliant on domestic taxes from citizens (Stevens & Dietsche, 2008). Brunnschweiler and Bulte (2008:51) attribute the poor performance of resource-intensive

economies to “executive discretion over resource rents”. Stevens and Dietsche (2008:51) contend that “well-endowed countries with the wrong political regimes should leave their natural resources in the ground, or ...[e]xternal forces should drive domestic regime change”. Consequently, “citizens feel less invested in the government budget and government officials in turn feel less accountable to meet citizens’ demands” (Natural Resource Governance Institute, 2015d:2). The lack of morale can be avoided by fostering public participation and creating transparency in the budgeting and distribution of resource rents. Good governance can thus prevent the economic incentives to engage in rent seeking (Natural Resource Governance Institute, 2015d; Davis & Tilton, 2005).

2.3.1.3. Conflict

Research has proven that conflict and civil war are linked to dependence on natural resources (Badeeb *et al.*, 2017). The fight for control over natural resources can lead to violent conflict. In certain instances, natural resource revenue is used to finance wars. Civil war does not bode well for economic growth, citizen wellbeing and development (Natural Resource Governance Institute, 2015d).

2.3.1.4. Inefficient spending and borrowing

The volatility of natural resource revenues makes it difficult to spend effectively (Matsen & Torvik, 2005). Sometimes governments’ over invest when commodity prices are booming and are conversely susceptible to bankruptcy when the commodity cycle reverses (Davis & Tilton, 2005). Typically, governments assume more debt when revenues are high which eventually leads to a debt crisis when revenues decline as in the case of Mexico, Nigeria and Venezuela (Natural Resource Governance Institute, 2015d).

2.3.1.5. Limited government capture of benefits

The fiscal regimes in some resource-rich countries are inadequate to capture sufficient returns to compensate for depletion of their resources and the concomitant environmental degradation. These circumstances arise when governments hastily enter into contracts that offer investors lower tax and royalty rates, short-changing the true value of their resources (Natural Resource Governance Institute, 2015d). Atkinson and Hamilton (2003:1804) add that the resource curse presents itself in those countries where the “combination of natural resource, macroeconomic and public expenditure policies have led to a low rate of genuine

saving (net saving adjusted for resource depletion)". It is recommended that these countries can benefit from policies aimed at encouraging the prudent saving and investment of resource rents (Venables, 2016).

2.3.1.6. *Weaker institutional development*

Good governance and transparency are the core of creating good institutions. Rent-seeking behavior undermines institutions (Badeeb *et al.*, 2017). While rent-seizing is the process whereby government officials obtain access to resources for private gains by either bypassing checks or creating new regulations (Davis & Tilton, 2005). Thus, countries with rent-seekers and rent-seizers are susceptible to deficient institutions, inadequate levels of public service delivery and poor economic growth. Further, there is no consensus whether good institutions are the cause or the result of good economic performance. Policies are only as effective as the institutions that support them. Botswana, Chile and Indonesia have shown that strong, independent and accountable institutions can support economic performance (Arezki, Gylfason, & Sy, 2011). A reliable property rights system can foster financial sector development, allowing the financial system to play a role in the growth of small and medium enterprises operating in the non-resource sector (Millar & Rietveld, n.d; Natural Resource Governance Institute, 2015d).

2.3.2. Prescriptions for the resource curse

Harnessing resources to sustain economic growth while avoiding the resource curse can be ameliorated by the adoption of sound policies that are underpinned by good institutions and spending decisions (Lahn & Stevens, 2018). The most popular prescriptions available for the resource curse are: sound fiscal and monetary policies; economic diversification; NRFs; transparency, accountability and public involvement; and direct distribution to the general population (Weinthal & Luong, 2006).

2.3.2.1. *Fiscal and monetary policy*

From inception, policies need to be implemented to counter the negative effects of Dutch disease, protect the local economy from volatile resource rents and support stability of the budget (Arezki, Gylfason, & Sy, 2011). This can be achieved by following two steps:

- **Step 1:** to avoid the appreciation of the real exchange rate requires resource-rich countries to accrue income-generating foreign assets.
- **Step 2:** countries are advised to accumulate budget surpluses and avoid foreign debt, thereby enabling expenditure smoothing during a commodity boom and minimising the need to borrow when markets reverse.

Botswana is an exemplar of how countries can avoid the Dutch disease by implementing sound macroeconomic policies and preventing overspending. By way of a legislative procedure, Botswana maintains a stable budget, requiring parliamentary authorisation for any additional public project expenditure after its national development plan (NDP) is passed (Weinthal & Luong, 2006).

2.3.2.2. *Economic diversification*

Economic diversification offers another avenue for resource-rich countries to reduce commodity dependence and safeguard their economies from commodity market volatility (Humphreys, Sachs & Stiglitz, 2007). Theoretically, economic diversification limits decline in the traded sectors thereby suppressing local currency appreciation. This particular policy prescription has been widely followed, but unsuccessfully applied. The failure has been attributed to “historic, state-owned inefficient investments that perpetuated import substitution industrialisation and protectionism” which have led to static growth rates (Weinthal & Luong, 2006:45). The lack of resilient state institutions and the absence of an explicit and transparent decision making process, predispose resource-rich countries to making poor investment decisions and an increase in rent-seeking and corruption (Arezki & van der Ploeg, 2010). Lahn and Stevens (2018) point out that developing resource-rich economies may not be able to compete with industrialised economies. In these instances, policies to encourage diversification, by offering favourable tax rates, have been found to be unsustainable as they create dependence on government support and finances (Auty, 1993).

2.3.2.3. *Natural resource funds (NRF)*

NRFs are created with the objective of creating fiscal prudence by acting as a stabilization or savings fund or both (Lahn & Stevens, 2018). A stabilization fund’s objective is to mitigate against the effects of commodity price volatility and stabilize spending patterns. A savings

fund's objective is to create intergenerational equity. The successful implementation of an NRF can be achieved by adopting transparent institutions, proper accounting systems and legislative authority devoid of political influence (Venables, 2016). In the absence of the appropriate governance and institutional framework, a NRF can be counter-productive and susceptible to government manipulation (Weinthal & Luong, 2006:40).

2.3.2.4. *Transparency, accountability, and public involvement*

International non-governmental organizations advocate for transparency, accountability, and public involvement in the governance of resource rents (Corrigan, 2014). They have encouraged countries to provide public disclosure of resource revenues received and spent and likewise lobby for EIs to disclose payments to host countries in their reporting frameworks (Lambrechts, Darimani & Kabemba, 2009). Furthermore, by advocating human rights protection and promoting freedom of media they have increased opportunities for public involvement in the decision making process on the spending of resource revenues (Weinthal & Luong, 2006).

2.3.2.5. *Direct distribution*

Another mechanism available to avoid the Dutch disease is to directly distribute resource revenues to the citizens of the country. Direct distribution offers a measure to curtail corruption, promote democratic governance and address inadequate institutions (Smith, 1991). This proposition is based on the opinion that citizens that receive benefits as a direct distribution, instead of via government services, are better capacitated to make appropriate investment and savings decisions than government officials do. Furthermore, direct distribution may coerce citizens to actively participate and demand accountable governance over the management of resource rents (Desai & Jarvis, 2012).

Direct distribution can be achieved in two ways: one method is where interest in the NRF is distributed to citizens, as in the Alaskan model, and the second method eliminates the use of a NRF. However, this system of distribution is not without its drawbacks (Smith, 1991). As in the case of Alaska, the direct distribution of resource rents is counter-productive to its intended objectives as Alaskans are primarily focused on consumption rather than investment. It has also negatively impacted entrepreneurialism among young Alaskans.

Alaska, may be the only example of a direct distribution system, however its success is questionable (Weinthal & Luong, 2006).

2.3.2.6. *A prescription offered by Professor J.A Frankel*

Frankel³⁴ (2012:15) proposes the following for resource-intensive economies to avoid and, possibly, cure the natural resource curse:

- Ensure that the indexation of commodity contracts is fair to both the EI and the state whereby contract clauses can respond to automatic price adjustments in world markets. These clauses can remove the painstaking and expensive task of renegotiating a contract.
- Ensure hedging of export proceeds in commodity futures markets enables effective risk sharing and adjustments to the automatic fluctuations in global commodity prices. Mexico retains the upside risk while decreasing the downside risk of a fall in the price of oil by using options.
- By denominating debt in terms of commodity prices, servicing obligations automatically respond by the value of exports, thus avoiding the worsening of debt service ratios, when the price of exports fall in the world markets.
- Essentially consisting of three rules, Chile's fiscal institutions can offer useful lessons:
 1. a budget target is set on the projected long-run price of the export commodity;
 2. the target is formulated in structural terms;
 3. the ten-year trend projections are set by two independent panels of experts.
- Ensure adoption of sound exchange rate policies to control inflation and alleviate currency appreciation during a rally in commodity markets.
- Modify inflation targeting for the reserve bank with the price index as a measure. It is output-oriented instead of consumption-oriented. The index should provide a higher weighting for exported commodities and a lower weighting for imported commodities.
- Successful NRF's are typically, transparent, professionally managed and free of political pressure. The Pula Fund of Botswana is a model in this respect, as the fund's management is delegated to independent professionals and is undistorted by any political agenda.

³⁴ Frankel is an international macroeconomist and professor at Harvard University's Kennedy School of Government. His noteworthy suggestions on minimising the effects of resource curse provide valuable insight into managing the phenomenon.

- The Alaskan Permanent Fund distributes half of its' investment earnings on an equal per capita basis to citizens, thus making Alaskans feel like active shareholders. The distribution is based on the theory that citizens can take better decisions on spending their money than government officials.

Frankel (2012) offers valuable suggestions on dealing with volatility and structuring fiscal rules. However, the adoption of policies depends on the circumstances and nuances of a particular country at a given point in time. This raises an important point that there is no single prescription to suit every country.

While diagnosing the presence of Dutch disease is the first step, finding a prescription to cure the disease may not be as easy as simply applying a prescription that worked well in another country. A one-size-fits-all prescription may not be the correct approach. Diversification should start at the outset and be well-established before production reaches maturity with the forward and backward linkages being integrated with the rest of the economy. It is also important to adopt an optimal pace of resource development with regard to reaching the resource horizon (Lahn & Steven, 2018).

I posit that as a corporate governance model, the shareholder value principle in the context of the objective of a company is an important principle to consider when designing a tax regime for the EI. Minerals, petroleum and gas are non-renewable assets because they are economic resources, ideally under the control of the state, that generate returns over their useful life. The taxation of extractives is therefore compensation received for the use of non-renewable resources and can thus, be viewed as payments received for the disposal of an asset. This argument is framed on the assumption that the taxation of extractives represents a return on investment to the shareholder. Therefore, the custodians or management, representing government, have an accountability to take appropriate business decisions to actively contribute in creating an enabling environment to support the EI performance. Under this context, I propose that when designing the EI fiscal regime a resource-rich country should first adopt the role of a company with the objective of maximising shareholder value. Then in its subordinate role as administrator, government needs to evaluate the tax principles that underpin the design of the tax regime for EI.

2.4. THE SHAREHOLDER VALUE PRINCIPLE

A company's objective indicates what the company seeks to achieve, the principles identify the reason why the company is in business and the policy stipulates "how it conducts its activities in order to accomplish its purpose and attain its objectives" (Deitzer, Karl & Michael, 1979:126). The central hypothesis in the study of organisational theory is the determination of measurable effectiveness of some organisations over others. Organisational theorists propose that a company's objective is to maximise profit. The most popular model of measuring organisational effectiveness focuses on profit maximisation. The rationale is based on the assumption that a company seeks to maximise the difference between costs and revenue, provided that the difference is greater than or equal to zero. Thus, profitability is a measure of the effectiveness of a company (Dessler, 1980). The notion that management's principal accountability is to increase shareholder value offers a standard for measuring business performance, but is also a strategic management tool. Shareholder value is created by establishing a sustainable competitive advantage in the market. This rudimentary assumption evolves the shareholder value concept into an all-inclusive management approach, linking the operating performance of a company to an external market view (Figge & Hahn, 2008).

Traditionally, there are two contrasting theories on the corporate objective of a company, known as the shareholder value theory and the stakeholder theory. An alternative model of corporate governance, known as enlightened shareholder value theory strikes a balance between shareholder primacy and corporate stakeholder interests by extending a corporate social responsibility management mandate (Keay, 2007). Proponents of the shareholder value principle justify the theory on the grounds that shareholders are the owners, bear investment risks in supplying equity capital and the residual claimants on the business (Stelios, 2012). Furthermore, an increase in shareholder value does not contradict the long-term interests of other stakeholders as "shareholders are the only stakeholders of a corporation who simultaneously maximise everyone's claim in maximizing their own" (Keay, 2011:65). Opponents to this view substantiate their argument on the grounds that other stakeholders also bear risks (Shin, 2013). The genesis of the stakeholder-shareholder debate commenced in the early 1930s between Berle and Dodd (Stelios, 2012). Berle (1932) asserted that management's main responsibility is to maximise shareholder value. Dodd

(1932) upheld a contrarian view because there is no legal principle that can enforce managers to unequivocally act for the benefit of enhancing shareholders value. Thus, Dodd claimed that greater management accountability is achieved when management's mandate is extended to all company stakeholders instead. Jensen (2002) later supported this view noting that by maximising all stakeholders' interests the company contributes to the general welfare of society.

The shareholder value doctrine arose from the separation of ownership and control from their shareholding (Dolenc, Stubelj & Laporsek, 2012). The premise supporting the shareholder value principle is about implementing strategies to create long-term value. Value is established by allocating resources with a goal of earning a return in excess of the opportunity cost of capital. To achieve this requires difficult trade-offs. A resource-rich country operates in a similar context to a "company" in this regard. "The objective of the company, under this principle, is to maximise the market value of the company 'through allocative, productive and dynamic efficiency'" (Keay, 2007:581). According to Shin (2013), this principle is a decision making technique that determines the optimal business or investment strategy amongst competing objectives that will maximise economic returns for shareholders. By identifying investment alternatives that create shareholder value, management can apply a consistent basis to evaluate, monitor and control managerial decisions over time (Rapp, Schellong, Schmidt & Wolff, 2011).

The goal of sustainable development is aligned with maximizing shareholder value. Logic follows that companies use economic, environmental, and social resources to create value for their shareholders. Limitations on economic capital imply that a company that uses its resource efficiently will increase the company's value (Figge & Hahn, 2008). This bears relevance for extractives where governments are faced with decisions regarding the rate at which to exploit a depleting resource. Further complexity arises because these decisions are affected by global commodity market cycles and demand for commodities are driven by technological innovation. Sarma and Chaudhury (2009) illustrate how the global demand for copper was reduced by technological advancements in nanotechnology. Their study highlighted the effect of innovation on resource dependent countries like Chile and Zambia that are dependent on commodity export earnings and the copper mining industry.

Technological advancements in wireless capabilities led to the substitution of copper wire and cable functions to optic fibre technology.

Agency theory provides the universal framework for examining managerial decision-making in the context of the separation of ownership and control. In essence, the company shareholders are the owners of the company (principals). The principals recruit managers (agents) who are delegated the responsibility of the technical and strategic operating decisions of the company (Baker & Anderson, 2010; Dine & Koutsias, 2013). Management is considered a universal, and virtually undifferentiated, process irrespective of its sphere of operation: be it governmental, industrial or institutional. Managers create a conducive environment to accomplish the company's collective objective (George, 1968). Managers in turn have a fiduciary obligation to advance the interests of shareholders exclusively (Mansell, 2013). Shareholders hold a claim over the residual profit from production while simultaneously carrying the inherent risk of their investment. Shareholder primacy is the notion that the pursuit of value for the shareholder is the fundamental business function driving production efficiencies. Principal-agent conflict arises when the manager's interests are not aligned with those of the shareholder. For instance, managers may focus on strategies to maximise short-term earnings rather than long-term shareholder wealth. Dine and Koutsias (2013) identify information asymmetry between principals and agents as the central reason for conflict. As agents have a superior information advantage over their principals on the decisions regarding the daily administration of the company, it is difficult to monitor the divergence of the agent's decision from an optimum decision that will maximise the principal's position (Keasey, Thompson & Wright, 1999). Thus, the need for corporate governance arose whereby mechanisms were required to regulate the relationship between managers, shareholders and other stakeholders (Baker & Anderson, 2010).

The shareholder value principle is a value-enhancing management and strategy tool. Maximizing long-term shareholder value as an objective for a resource-rich country depends on the individual circumstances of the country and thus, there is no prescribed approach. Resource-rich countries are required to take decisions and use resources that will achieve long-term value-creating outcomes for the citizens of the country. I contend that to keep policy focused and principles based, the shareholder value maximisation objective of creating acceptable thresholds of value for citizens should be adopted in formulating the

long-term policy framework for the EI. This allows the decision-making process to determine an optimum tax regime to remain aligned with the shareholder value principle. Such a framework could be used across the entire government sector, building a focused and clear model to work from which enhances efficiency and productivity in the extractives sector. Formulating policy within the same methodology would facilitate the streamlining of institutions and enhance decision-making involved in the tax, resource administration and macroeconomic stability domain.

The state has a dual role with regard to realisation of extractive investments. The first role is that of a company, in substance operating in the capacity of a joint venture with the investor, to bring its assets (mineral, petroleum and gas) to market. Global EI capital is limited and countries experience risks and competition from alternate jurisdictions, similar to those encountered by companies operating in the free-market. The second function is that of a tax administrator, mandated to administer, enforce tax laws and collect taxes. Unlike other industries, extractive investments require enabling policies to support investment and ensure that the best outcomes are delivered for the citizens (shareholders in the context of a company) of the country, being the effective resource owners. Under the corporate system, ownership of wealth has become widely dispersed from appreciable control (Keasey, Thompson & Wright, 1999). Likewise, ownership of extractive resources vest with the citizens of the country,³⁵ while government controls the management of extractives as the country seeks to realise its asset in the global marketplace.

Thus, the analogy is that a resource-rich country operates similarly to a company with the objective of realising its assets to its best advantage. Secondly, from the company's perspective, the managers of the resources are tasked with maximising value for the shareholders, in the same way that government in a resource-rich country are tasked to maximise value for the citizens. In an environment where countries compete against each other for EI investments, much like company's face competition, value-based decisions are required to harness the revenue raising potential of a country's resource base, thereby maximising returns for the investor, the state and its citizens. Thereafter, a fair sharing of the investment returns can be established when the state returns to its original role as tax

³⁵ The United States allows private ownership of extractive resources (International Finance Corporation, 2011).

administrator. This functional convergence in the paradigm of a company, its management and shareholders with that of a country, its government and its citizens and the recognition of the primacy of shareholder interests, exemplifies corporate governance theoretical frameworks.

2.5. VALUE BASED POLICY FRAMEWORK

Policy formulation involves identifying a plan to meet stated objectives or address specific problems. The plan is informed by particular goals and objectives, in terms of which available options are assessed. The positive and negative externalities for each alternative are weighed up to generate the most effective policy recommendation (Sidney, 2007).

Forstater (2018:8) states that there are three *raison d'être* for reforming a tax regime: “a financing argument, a spending argument and a governance argument”, which can be classified under the following goals:

- Improve tax revenue collection.
- Improve the tax system in terms of simplicity and certainty.
- Improve accountability to citizens over tax policy and government spending.

The EI fiscal regime comprises a package of fiscal instruments designed to meet government’s objectives. The choice of fiscal instruments selected depends on a combination of the propensity for risk-sharing or early and stable revenue streams (refer to Table 2-4).

As referred to in Section 2.4, creating shareholder value should be the paramount objective in an extractives fiscal regime. It would therefore follow that the policy framework guiding this objective will seek to refine value creation strategies for the EI. A value based strategy is a holistic management approach that helps determine the allocation of resources to various value creating activities (Rappaport, 1987). Applying this principle to the extractive sector enables a value based approach to integrated strategy, structure and processes for the benefit of maximising shareholder value.

Competitiveness is a dynamic characteristic; whether at a product, firm, industry or national level of analysis. This concept links the effectiveness of management with decision making in the pursuit of an organisations objectives. Essentially assessing competitiveness entails analysing “competitive performance, its sustainability through the generation of competitive potential and the management of the competitive process” (Buckley, Pass & Prescott, 1988:175). Porter (1980) defines a competitive product as being comparatively cheaper with enhanced differentiation, relative to other products. Defining the term “competitive” in relation to a business implies that the business can produce its output at the same or lower cost relative to similar businesses, or the business possesses a comparative advantage over its competitors such as a unique product or superior quality product (OECD, 2011). Dunning (1998) claims that a business’s unique resource or competency and the ability to harness them is closely related to ownership advantage. A competitive business arises from cost efficiency or any other comparative advantage over its competitors, enabling it to generate returns in excess of its cost of capital (OECD, 2011). Likewise, when comparing the competitiveness of an economy, the “structure of its production and the pattern of its trade will depend on its comparative advantage relative to other economies” (OECD, 2011:1). Buckley, Pass and Prescott (1988) assert that a jurisdiction has a comparative advantage when they possess the factors of production to produce the product. Furthermore, they add that net exports are a metric to evaluate comparative advantage. López (2005) highlights that in a changing environment acquiring knowledge based assets are essential to maintain a sustainable competitive position. An economy will have to establish its competitive advantage³⁶ by creating an enabling environment through better terms of trade that yield increased levels of productivity which subsequently translate into higher living standards for its citizens. Thus, there is a connection between the competitiveness of the extractive sector and the overall levels of productivity and an improvement in citizens living standards (OECD, 2011). The Minerals Council of South Africa (2018:16) concede that a “competitive industry produces minerals that are able to be sold on the world market, while delivering returns to the owners of the mines concerned. If the industry is competitive – producing minerals that are attractively priced – the industry can grow, will draw investment, will be able to build more mines, produce more minerals,

³⁶ Establishing where an economy’s comparative advantage is greatest, can allow for specialization thereby increasing levels of productivity which in turn enhances terms of trade, ultimately increasing living standards.

employ more people, engage more suppliers, obtain more foreign exchange and the end result is that all stakeholders benefit”.

Acknowledging that a resource-rich country operates like a company, harnessing the country’s extractive sector potential requires an assessment of the threats, risks and competitive³⁷ advantages, similar to assessments performed by companies when adopting new strategies to grow market share. A strategic plan is therefore important to deploy the allocation of scarce resources to achieve the country’s objectives. Applying López (2005) rationale to formulate strategies for the extractive sector, requires an understanding of the varying extractive assets of a country and the conditions under which to turn them into an enduring and sustainable competitive advantage. Thereafter the organizational dynamic capabilities enable responsiveness to changing external conditions, emphasizing “the capacity to learn and adapt” (López, 2005:668). Rappaport (1987) elaborates that strategy formulation requires an analysis of the attractiveness of the industry and the competitive position of the business. Thus a holistic view is required to manage the extractive sector and to determine value based oriented policies that seek to enhance performance variables of the extractive sector in the interest of maximising shareholder value (benefits to citizens). A sound strategic plan is underpinned by an understanding of the contextual setting of the operating business environment (Phadermrod, Crowder & Wills, 2019) or as Wehrich (1982) refers to it as situational analysis. One method to identify a country’s strategic position and competitive advantage is to perform a “strengths, weaknesses, opportunities and threats” assessment, known as a SWOT³⁸ analysis (SWOT). A SWOT matrix is a particularly useful tool to identify the external and internal environment that can influence a country’s EI strategic position. Hill and Westbrook (1997:47) state that this analysis tool originated in the 1960’s and is based on the premise that “good strategy means ensuring a fit between the external situation a firm faces (threats and opportunities) and its own internal qualities or characteristics (strengths and weaknesses). This framework therefore enables a country to choose its theory of how to obtain an EI competitive advantage (Porter, 1980)

³⁷ Porter (1980:15) identifies “competitive forces: threat of new entrants, threat of substitute products, bargaining power of buyers, bargaining power of suppliers, and rivalry among current competitors... Customers, suppliers, potential entrants, and substitute products also affect competitive structure”.

³⁸ “SWOT analysis is a simple but powerful tool for sizing up an organization’s resource capabilities and deficiencies, its market opportunities, and the external threats to its future” (Thompson, Strickland & Gamble, 2007: 97).

and thereafter design an organisational strategy (Dessler, 1980). Phadermrod, Crowder and Wills (2019:195) suggest that by analysing these factors “the organisation can recognize its core competencies for decision-making, planning and building strategies”. Therefore, the SWOT matrix offers a suitable framework to analyse the risks borne and competitive advantage of a country’s extractive sector in order to harness its strengths while mitigating its weaknesses.

Understanding a country’s extractive sector competitive advantage, threats and risks in the global market place ultimately defines the country’s position and informs the strategic plan. Thus, the first management decision a government has to make regarding maximising shareholder value in the EI is deciding how to allocate extractive rights.

2.6. ALLOCATION OF EXTRACTIVE RIGHTS

Global technological advancements have created a hunger for natural resources required to sustain the growing demand for products on the world market (Cameron & Stanley, 2017). Barma, Kaiser, Minh Le and Viñuela (2012) state that a country’s goal is to acquire adequate exploration investment to secure future resource rent. Natural resource-rich countries face the challenge of setting an optimal fiscal regime that accounts for taxes, while countering the volatility of commodity prices. The exploration for extractives can take a number of years before both the investor and state yield any return (Daniel *et al.*, 2010). Therefore, security of tenure is a critical consideration to an investor seeking the exclusive right to exploit the resource at the end of the exploratory phase (Girones, Pugachevsky & Walser, 2009).

Barma *et al.* (2012) put forward three central policy choices on rent generation and capture as follows:

1. ownership structure of natural resources and state involvement in the extractive industry;
2. contractual arrangements governing licencing between criteria based or direct negotiation (section 2.6); and
3. a tax regime that maximises revenue generation while accounting for the time horizon of the resource, associated costs, revenue within the cycle of an extractive project while ensuring that there is tax administration capacity to implement the system (section 2.7).

This section is organised as follows. Section 2.6.1 discusses the specific design issues relating to the choice of allocation strategy. In as much as the markets and milieu are very different for mining and petroleum, this discussion does not distinguish between awarding rights for oil, gas and minerals. The objective of this discussion is to establish how the design of the licencing system affects the revenue raising capability of competitive bidding as a fiscal instrument. Section 2.6.2 then analyses whether prospecting and mining rights can be auctioned. Section 2.6.3 investigates policy measures to limit the speculation of extractive rights. In the context of enhancing shareholder value, Section 2.6.4 outlines the effect of a jurisdiction's licencing regime on the competitiveness of the extractive sector. Finally, section 2.6.5 reflects on the appropriate method to award extractive rights.

2.6.1. Designing an extractive rights allocation strategy

An extractive licencing or permit regime has two distinct features. The first is the concept of sovereign control over oil, gas and mineral resources for the benefit of the nation, and the second is to encourage investment (Tordo, Johnston & Johnston, 2009). In most natural resource-rich countries, ownership of extractives vests with the state (Daniel *et al.*, 2010). The government in turn grants licences to investors, who bear the risks and rewards related to the exploitation of a resource (Stanley & Mikhaylova, 2011).

Extractive development is undertaken for the economic benefit of the country, and government's role is to collect sufficient revenue from the sector to fund fiscal responsibilities (Daniel *et al.*, 2010). The decision to grant a prospecting (mining) or exploration (petroleum) licence is based on the government's objectives, the rate at which the country's extractive sector is expected to grow and the decision whether to have a state or privately run extractive industry. These issues are important, as the state is required to establish the anticipated rent, infrastructure requirements and the environmental and social costs attributable to extraction (Boadway & Flatters, 1993). The Natural Resources Charter further advocates that a legal and regulatory framework is an imperative to maintaining the efficient exploration and exploitation of extractives (Natural Resource Governance Institute, 2014:13). An efficient licencing regime is therefore a critical function in the overarching EI management framework that governs a jurisdiction's "long-term fiscal, contractual and

regulatory strategy” designed to transfer social and economic benefits to its citizens (Global Witness, 2012:1).

2.6.1.1. Allocation strategies

Two systems exist for the awarding of extractive rights: open access and competitive resource tenders (Stanley & Mikhaylova, 2011). While the application process for the award of licences may differ, the regulatory framework should apply the same eligibility criteria and terms and conditions (EISourcebook, 2010).

- Open access, which is an informal process is also known as "first-in, first-assessed" and "first-come, first served" (FIFA) method. This method of direct negotiations is non-competitive. Extractive rights are allocated to the first applicant that submits a compliant application meeting the mandatory technical and financial requirements, and has duly paid the stipulated fees.
- Competitive resource tenders. This method awards extractive licences by auction and is also referred to as a tender. Bidders are invited subject to meeting the minimum qualifying financial and technical requirements. Bid evaluations are then conducted and categorised by the managing body. Tenders are predominant issued in the hydrocarbons sector where petroleum and gas blocks are auctioned. Mineral rights allocations are subject to auction in Liberia, Kazakhstan and Mongolia (Leon, 2013).
- It should be noted that some mineral jurisdictions may adopt both an open access or competitive resource tender system, awarding licences mutually exclusively. In instances where the geological uncertainty risk is high an open access award is warranted and a competitive tender process is amenable in instances where the risk of geological uncertainty is low (EISourcebook, 2010).

2.6.1.2. The importance of good geoscience data

Global Witness (2012) advocates that an efficient licencing regime is underpinned by a long-term public strategy. An adept knowledge of the geological, geophysical, and petrophysical data potential of the country’s resource base is an essential precursor to inform this strategy (Tordo, Johnston & Johnston, 2009). Thereafter, the state can objectively discern when and at what rate to grant licences and an appropriate licencing regime to implement (Natural Resource Governance Institute, 2016). The Natural Resource Governance Institute (2016) recommends investing in geophysical surveys to mitigate against risks in frontier regions.

Additionally, conducting strategic impact assessments can establish the cost versus benefit of licencing areas.

For minerals and petroleum³⁹, the choice of method is therefore dependant on interest from investors and the accessibility of geoscience data assessments that provide the extent and quality of the reserve (Girones, Pugachevsky & Walser, 2009). Furthermore, the rate at which licences are issued should coincide with government's capacity to administer the award process (Natural Resource Governance Institute, 2016). More specifically, Lahn and Steven (2018) highlight that developing the extractive sector too rapidly can lead to depletion of reserves resulting in missed opportunities for economic diversification. Generally, access to geological information is closely monitored or only available for a high fee (Otto, 1998). The World Bank (2013) cites the examples of "Chile, Western Australia, Ghana and Sweden" for having invested in geological research which is then made available to potential investors.

2.6.1.3. *Investors security of tenure*

For investors, security of tenure is of paramount importance. Clear legislative provisions that distinguish between ownership rights of the state and the investor establish this (Natural Resource Governance Institute, 2016).

Barma *et al.*, (2012:85) stipulate that building a stable policy foundation begins with "an enforceable, transparent, and comprehensive oil, gas, and mining regulatory framework". In administering this framework, the next step for government is to establish ownership of rights. This can be facilitated by a well-managed license register that records licence holders, licence types and expiration dates. Furthermore, good practice warrants transparency, which is achieved by providing such information in the public domain (Natural Resource Governance Institute, 2016).

³⁹ For petroleum, the choice of award strategy is subject to "(i) the characteristics of the area to be licenced (such as geology, exploration risk, location, and distance to market); (ii) the structure of the market (such as level of competition, market segmentation, size and strength of the players, access to information, and domestic market); (iii) issues related to the ownership and access to the resource; and (iv) regulatory and institutional frameworks...[g]as prices, and competition from other petroleum countries also affect a country's allocation strategy" (Tordo, Johnston & Johnston, 2009).

2.6.1.4. Assessing Direct negotiation vs Competitive bidding

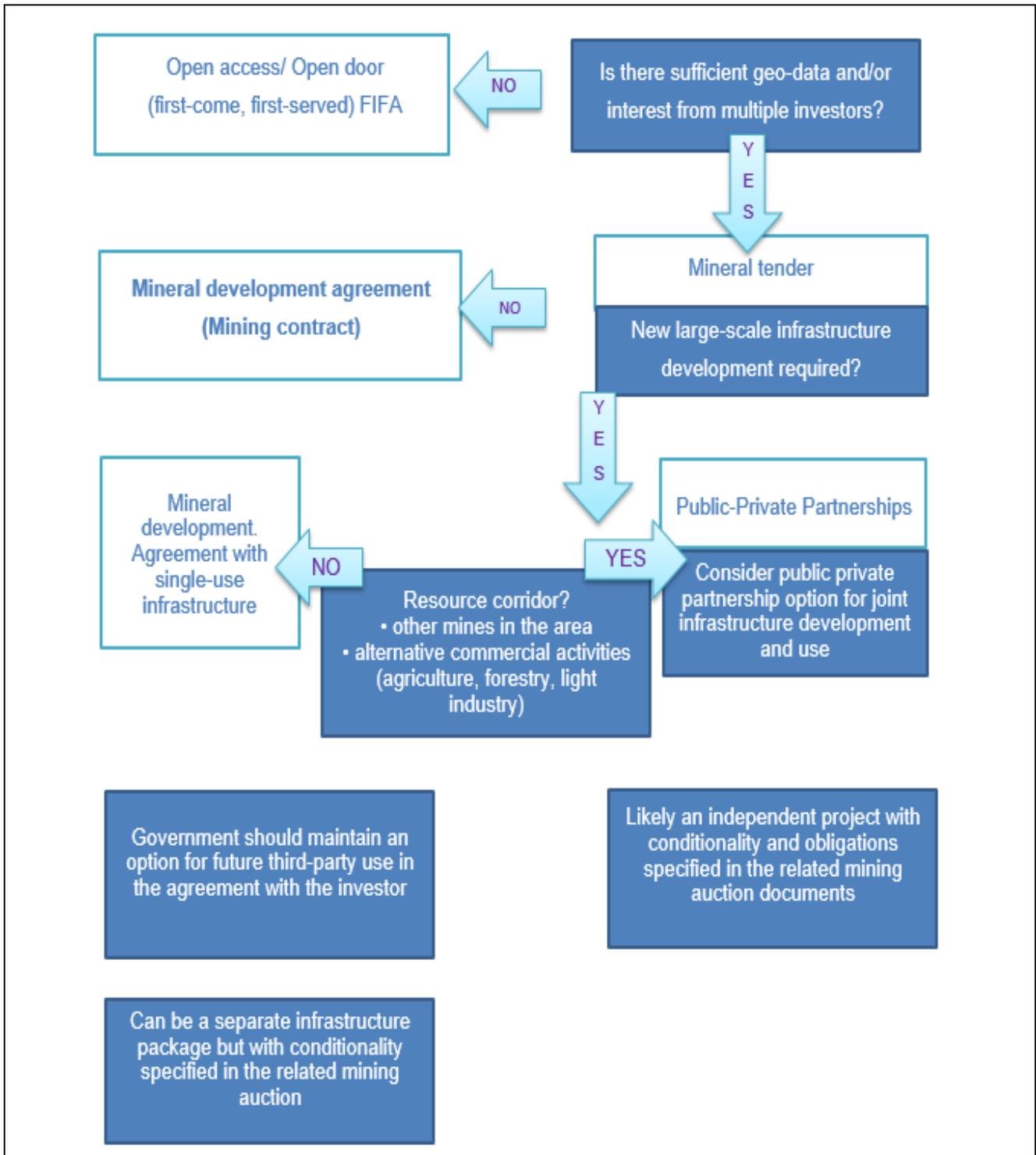
The choice of allocation system is guided by the particular priorities of an individual country in terms of its “economic, social, and political objectives, constraints, and concerns” (Tordo, Johnston & Johnston, 2009: xi). Licencing is only one aspect out of several policies that require coherence and co-ordination in an effort to bring about resource-led development (Tordo, Johnston & Johnston, 2009). At the outset it should be noted that the Natural Resource Governance Institute (2010:7) promotes the adoption of a competitive right allocation systems, and contends that in addition to the creation of transparency, “competition in the award of contracts and development rights can be an effective mechanism to secure value and integrity”. Importantly, the primary determinants of an efficient award policy are dependant on adequate geo-data on a potential resource and investor interest.

Figure 2-1 presents the choices that government makes when assessing a suitable allocation method for mining. As presented in this decision chart, an open access award system is justified where geo-data is unavailable. Conversely, geo-data and interest from investors are a prerequisite for a competitive bidding licencing system. Thereafter, dependant on the locality of the mine to other mines and alternative commercial activities in the area, government needs to determine whether to embark on private partnerships to develop infrastructure requirements.

The mechanics of a competitive bidding system are modelled on privatization of public projects whereby investors are invited to participate by public tender. The value placed on a bid is determined by calculating the present value of all revenue minus all costs including risks and returns on all investments from its extraction (Boadway & Flatters, 1993).

Auctioning resource rights on the basis of cash bonus bidding is often cited as the “perfect resource rent capture system” for securing a share of resource rent and procuring the most efficient private agent to develop its resource (Sunnevåg, 2002:51). During an auction, competition amongst investors submitting bids force an investor to reveal the true value of a resource. In that way, the presence of competition in a tender process can promote transparency (Barma *et al.*, 2012).

Figure 2-1: Decision chart when awarding mining rights



Source: Stanley & Mikhaylova (2011:9).

While, the success of an auctioning round depends on attracting bidders. A high quality extractive reserve will appeal to bidders who anticipate that the participation costs will be recouped against future revenue from resource exploitation. A reverse auction establishes

investors willing to exploit a resource at the least cost where quality of the resource is marginal (Cramton, 2010).

Competitive bidding limits licence applications to investors that are financially and technically qualified, as opposed to an open access system that does not limit the nature of investors (Cramton, 2010). Successful competitive tenders are achieved when a government has good knowledge of their resource base (Cameron & Stanley, 2017). A salient feature that emerges from the literature is the importance of competition in the bidding process. While a competitive advantage is difficult to attain due to differences in the assessment of the extent and quality of a resource, competition is still critical for government to acquire a significant share of resource rents. As the number of competitors increases, the average return to the seller increases (Boadway & Flatters, 1993). In the economic assessment of a resource, investors generally possess an information advantage over government. This advantage is equalised when investors compete for extractive rights (Nakhle, 2015).

Sufficient competition in the bidding process can yield upfront returns to government at the commencement of an extractive venture (Cramton, 2010). The selection process is streamlined by adopting pre-qualification criteria to assess competing companies on the basis of financial and technical capacity. The use of a model contract with a set of defined biddable terms can limit negotiable terms. Alternatively, companies bid for a standard licence with terms defined in legislation and regulation. Post bid negotiations should also be minimised, as this undermines the auction process. A transfer of licence process should be in place, with transfers subject to capital gains tax. Technical competence and co-operation between government departments is required, in order to monitor an investors adherence to regulations and licence terms (Natural Resource Governance Institute, 2016).

Furthermore, a government may choose to maximise their returns by issuing a tender during a commodity boom. During this period, an investor's interest is at its peak and induces sufficient competition in the market to conduct a successful auction. In assessing the viability of an auction, government benefits from a higher discount rate. Alternatively, an upfront payment can be deferred by levying an annual land rent. An annual payment system carries the risk that the investors may default on payment if the value attributable to the resource is

less significant than anticipated. Furthermore, the investor may expedite the extraction process to avoid rental payments and this may result in under exploitation of marginal ore (Cramton, 2010).

The terms of the licence should provide for issues such as termination, settlement of disputes and other factors. Agreement over these terms creates stability for the investor (Stanley & Mikhaylova, 2011). However, a governments reputation and political risk can also weigh significantly on the decision to invest (Nakhle, 2015). Furthermore, a government requires technical, legal and commercial skills and proficiency in order to conduct a tender. Post mining environmental pollution effects surface at the end of a project. Failure to account for site clean-up costs results in the net rent collected being significantly lower than if the investor was responsible for the environmental rehabilitation (Boadway & Flatters, 1993).

The success or failure of an auction is dependent on its design and government's commitment to transparency (Nakhle, 2015). The presence of asymmetric information regarding commercial and technical facets is a general limitation to government who undertakes negotiations with investors possessing an information advantage (Cramton, 2010). While government's shortcoming is offset by competition in the tender process, Competition between potential bidders exposes how valuable the resource is and which bidder values it the most. The winner in an auction is the bidder who possibly overvalues the resource potential, paying more than anticipated and may seek to renegotiate terms later (Nakhle, 2015). It is therefore important to award rights to companies submitting the most appropriate bids, not necessarily the highest bid. The use of pre-qualification criteria and non-refundable bidding fees can eliminate unqualified participants lacking the requisite financial and technological expertise (Tordo, Johnston & Johnston, 2009).

The potential of a competitive bid to raise millions of dollars in upfront revenue, has resulted in the emergence of a trend favouring the award of petroleum rights via tender (Tordo, Johnston & Johnston, 2009). These upfront payments are known as signature bonuses. The signature bonus is determined as a percentage of the investor's potential profitability, which is usually higher for proven reserves. In the early 1980s, out of 103 petroleum licences issued globally, only 22 were awarded on a tender basis. The United States Department of the Interior reported that during the period 2005 to 2010 signature bonus revenue

represented 27 percent of total collections from offshore oil and gas leases. Driven by aggressive competition, an Angolan licencing round during 2005-2006 yielded the highest known bid in the world for an exploration oil block, ranging from between USD 902 million and USD 1.1 billion (Nakhle, 2015).

For petroleum, biddable parameters and the block size are considerations that influence the design of an auction. International good practice recommends setting a few clearly specified criteria. Typical biddable parameters include the work programme, the signature bonus, state participation, local content and production targets (Stanley & Mikhaylova, 2011). Some countries include fiscal instruments, such as the sliding scale royalty and profit sharing as biddable parameters (Cameron & Stanley, 2017). The stability of the fiscal regime, together with the fiscal terms and commodity market prices affect the amount which investors are willing to contribute to signature bonuses. The opportunity cost of collecting signature bonuses is that money spent by the EI on bonuses is money not spent on exploration. In the long term, a country has greater benefits from promoting a resource than from receiving a signature bonus (Nakhle, 2015).

In instances where a competitive bidding round has failed, the FIFA system becomes the default system (Stanley & Mikhaylova, 2011). The literature recommends a dual system, incorporating a competitive bid and an open access system, because a single allocation policy may not be adequate in all instances. Geological uncertainties limit robust competition which in turn, impedes the use of a competitive bid. Given these anomalies, it is important to design and tailor the allocation of resource rights to the circumstances of a country to ensure that rights are allocated in a climate of “transparency, openness, and the highest standard of professionalism and adherence to international practice” (Nakhle, 2015:9). The FIFA system can foster transparency if clear award criteria are defined, negotiated results are published and external oversight bodies are engaged (Tordo, Johnston & Johnston, 2009).

Sunnevåg (2002) acknowledges that the shortcomings of a tender based resource licencing system include the higher risk assumed by an investor, correspondingly requires an increased risk premium, resulting in a lower net present value and consequently a lower bid. Additionally, small scale EI participants are limited entry into extractive the sector due to the

increased upfront cost of a bonus and substantial risk exposure. This in turn can negatively affect competition in the bidding process. Given the objective of revenue maximisation, regardless of the drawbacks identified an auction can limit the negative characteristics of an open access system and for that reason “approximates to an optimal system” (Sunnevig, 2002:51).

Competitive bidding offers three distinct advantages: increased resource revenue, a fair process with increased transparency and a mechanism to identify the investor’s true valuation of the resource (Bello, Benkenstein & Harvey, 2013). While, in certain circumstance an open door licencing regime maybe be the best option. Direct negotiations carry an inherent risk of secrecy and is therefore susceptible to corrupt practices. This is a significant risk because an inefficient licencing regime can ultimately compromise the development of the extractive sector and the value-chain linkages that are required to enhance economic growth (Barma *et al.*, 2012). Therefore, I can conclude that where a commercially viable reserve can be established a competitive bidding system is an optimal mechanism to award licences.

Having established the benefits and conditions under which a competitive bidding system is recommended and the potential for a tender to raise upfront revenue. It should further be acknowledged that subject to the availability of geological information, both an open access system and competitive bidding system are required to award rights. Furthermore, it is common for petroleum exploration and production rights to be awarded by competitive bid (Nakhle, 2015:7). At this point it is important to establish whether prospecting and mining rights can be awarded by tender. A discussion of the salient aspect relating to the award mining rights by competitive bid follows.

2.6.2. Should prospecting and mining rights be awarded by tender?

While the oil, gas and minerals sector similarly, involve finding and exploiting a resource. The approach to licencing these sectors differs (Haddow, 2014). As highlighted in Section 2.6.1 the distinguishing feature reside in the geology (Girones, Pugachevsky & Walser, 2009). While tenders are common in the oil and gas industry as a mechanism to award the

exclusive rights to explore and exploit resources. For mining, the economic and risk profile and technical: nature, risks and duration of finding resources differs (Haddow, 2014:337).

Exploring for oil and gas is more capital and technology intensive than exploring for minerals. Petroleum deposits tend to be clustered relative to mineral deposits (Girones, Pugachevsky & Walser, 2009). While a longer resource recovery timeframe is applicable to mining than for oil and gas. Importantly, Haddow (2014:340) highlights that the probabilities to generate inferences regarding the economic viability are more favourable for oil and gas, whereas for minerals the odds are less favourable, particularly:

- “(1) the odds following positive indication from remote sensing – such as seismic surveying – of finding mineralisation with the potential for economic exploitation; and
- (2) the odds that having found such mineralisation it can be converted to actual economic value”.

Furthermore, the investment recovery duration is quicker for oil and gas than for minerals. From a net-present-value perspective a quicker investment recovery is preferred, firstly to recoup costs, secondly to limit exposure to political and economic change. The pace of mining dictates revenue generated which is subject to a lengthy phase of digging to recover payable mineral. Notably, as the duration to exploit resources reduces the value increases (Haddow, 2014). Consequently, the state is in a weaker position to negotiate and secure an upfront payment where the value of the resource has not been established.

Mining is a risk-intensive business, with a high probability that surveys may not result in establishing the presence of a mineral deposit. Haddow (2014) cites the statistics as only 1 in every 1 000 surveys conducted will ever become a mine. Furthermore, the complexity with gold increases the probability where only 1 in 3 000 discoveries leads to a mine. Prospecting can reduce the 1 000 survey targets generated to 900, out of the remaining 100 only one is a proven reserve. Haddow (2014:341) states that prospecting for minerals can be described as something like a lottery where the process is “long, staged, iterative, costly and, quite clearly, frequently unsuccessful”. Sweden’s sophisticated geological knowledge supports their high strike rate, where one mine is developed for every 200 exploration permits granted (World Bank, 2013).

An effective tender is one where the winning bid for a resource holds value to competitors. According to Haddow (2014), geological surveying can identify unknown mineral reserves.

However, it is difficult to ascertain the value of a reserve which requires capital intensive investment and long lead times to confirm its presence. It is common knowledge that globally, the most accessible reserves have already been found⁴⁰. Therefore, resource tenders are generally viable when a proven mineral reserve has reverted to the government. This is because value takes place later after “prospecting, exploration and evaluation” (Haddow, 2014:4). For mineral exploration, economic success is low during the early stages of a project and consequently, the value of such a right is low. Haddow (2014) proposes that if the state undertakes the prospecting at its cost it can then auction the mining right after discovering a proven reserve. However, he adds that the cost and risk factor is high and are best borne by the investor who “must have secure rights to adequate reward. If not, investment will not come” (Haddow, 2014:338). Alternatively, this can be mitigated by reimbursing the explorers costs if unsuccessful in securing the mining rights during a tender process.

Companies determine where to invest, depending on demand and economic markets for the natural resource, stability of the government regime and factors conducive to the exploration of an extractive reserve (Leon, 2018). Government seeks to maximise exploration by ensuring that exploration is simple, transparent and efficient in order to encourage the discovery of viable deposits (World Bank, 2013).

Petroleum rights are generally granted on a competitive basis and mineral reserves are allocated on a FIFO basis. This is due to the geology of the resource and the methods available to determine its economic potential (Haddow, 2014). The economic potential of petroleum is related to size and has a tendency to decline over time hence petroleum companies choose to maximise early exploration, thus creating competition amongst bidders. Time and size do not apply to mineral deposits where inferences about potential of a mineral reserve are less reliable than for petroleum (Girones, Pugachevsky & Walser, 2009). Furthermore, investors compare the opportunity cost of investing elsewhere where the geology is more attractive (Haddow, 2014).

⁴⁰ According to Haddow (2014: 337), globally any new discoveries will require “advanced and creative geo-scientific ideas and technologies to imagine and detect their possibility, and costly drill programmes to find, test and define them”.

Haddow (2014:337) recommends that for hard-rock mining the highest yield is attained with:

- “(a) a robust, well-administered and competitive fee and performance-based licencing system for prospecting and exploration; and
- (b) a tenure, taxation and royalty system for mining that is an exclusive right for the explorer to obtain, is attractive to investors and is not harmful to the competitiveness of the nation’s minerals in the market.”

I therefore conclude that unlike the petroleum industry where the right to explore and exploit are awarded by tender, in the mining industry value is established much later after extensive prospecting, exploration and evaluation has been performed. A competitive tender can only be considered where a proven mineral reserve has been identified and a tender can then most likely be issued when the reserve has reverted⁴¹ to the state. Thus, while prospecting licences can be issued on a FIFA basis, mining licences can only be issued by tender subject to the confirmation of a proven reserve. The next section focuses on mechanisms to limit speculation in resource rights.

2.6.3. Speculation in oil, gas and mining rights

Global surges in commodity prices have resulted in the saturation of many cadastres in the world resulting in a significant number of speculators who block entry for legitimate investors. During times of low commodity prices, investors prefer to hold licences waiting for prices to increase in the market or improved technology to increase recovery rates of ore (World Bank, 2013).

2.6.3.1. Mining

Speculation in the mining sector occurs when the title holder acquires access to the right, with the intention of selling the right or for development at a later date. This activity impedes mining activity, and to circumvent this, a mining cadastre can help manage conditions related to compliance through valid licencing (Girones, Pugachevsky & Walser, 2009). The following practices are available to decrease passive speculation and encourage the active use of mineral rights.

⁴¹ expired, revoked or relinquished

The first option to limit speculation is to charge an escalating yearly rental fee (prospecting or exploration fees) per square kilometre in order to retain the concession, thereby discouraging the unproductive holding of rights and generating revenue (World Bank, 2013). A fixed fee is not a sufficient deterrent to warrant a relinquishment of unwanted licences. The escalating fee was adopted by countries such as Bolivia, Madagascar, Mauritania and Peru (Girones, Pugachevsky & Walser, 2009).

Escalating rental fees should be higher than those charged for exploration fees, as the surface area of a mining licence is usually smaller than that for an exploration licence, and the fees make up a small portion of the cost compared to the exploitation cost. The advantage of escalating rental fees is that it is easy to implement, transparent in limiting corruption, it guarantees revenue, it is easy to adapt to commodity prices or market and local conditions and it guarantees security of tenure. However, the system can have a negative impact. If not properly managed, it may not be able to stop speculation by investors or possible corruption by government officials and could consequently be perceived as a money-making procedure (Girones, Pugachevsky & Walser, 2009).

The second option, known as mandatory relinquishment criteria effectively reduces the surface area of the exploration licence by up to as much as 50 percent in area, at the point when the licence is up for renewal (EISourcebook, 2010). This method is also both easy to implement and efficient because it guarantees that no single titleholder controls a large surface area. However, this method does not allow flexibility to adapt to commodity prices and risks security of tenure for investors (Girones, Pugachevsky & Walser, 2009).

The third option is a minimum investment requirement and a minimum work obligation in order to reduce dormant licences (Tordo, Johnston & Johnston, 2009). The advantage is that it is easy to adapt to changes in the market. However, from a cost-benefit perspective, there are practical difficulties in implementation as technically qualified staff are needed to assess the value of reports in order to validate work performed (World Bank, 2013).

Other options include limiting the maximum size (surface area) per licence. However, this methodology does not succeed against limiting speculation because it is not accompanied by a renewal fees or a minimum work obligation. Another approach, is to stipulate a

minimum level of economic and financial capacity as a precondition for the award of a licence (Girones, Pugachevsky & Walser, 2009). An escalating rental fee, if properly applied, is a flexible and easily adaptable measure to decrease passive speculation. Other types of measures, although efficient in developed countries, normally have important challenges to implementation in less developed countries (Girones, Pugachevsky & Walser, 2009).

2.6.3.2. *Petroleum*

Relinquishment provisions, known as “use-it-or-lose-it” conditions express and agreed work program commitments, allow government greater control over its assets (World Bank, 2013). Licence holders are required to conduct exploration activities within a set time frame, or the area is released for future licencing. These provisions prevent a company from holding unproductive rights. EI prefer smaller relinquishment percentages whereas governments prefer higher relinquishment rates in unexplored areas to speed up exploration activity (Nakhle, 2015).

Critical decisions surrounding the opportunity, level of competition, licence duration, and the relinquishment provision affect the choice of block size offered. Government offers smaller blocks when there is a high level of competition between investors, proven reserves and or, a lenient relinquishment rule (Nakhle, 2015). However, larger blocks are offered to mitigate business risk, where interest is limited, the geological risk is high and or difficult, relinquishment rules apply. These costs are generally tax deductible and therefore, an accumulation of these sunk costs results in lower government tax revenue (Cramton, 2010). It is recommended that government gradually awards blocks as newly acquired information can influence changes to future awards (Cameron & Stanley, 2017). Furthermore, in order to stimulate competition, licences should be awarded to a large number of companies, rather than limiting the exploration of a large area to a single company.

2.6.4. Effect of the licencing regime on the competitiveness of the extractive sector

Precept 3 of the charter maintains that: “the government should encourage efficient exploration and production operations, and allocate rights transparently” (Natural Resource Governance Institute, 2014:13).

The development of natural resources is a high risk venture involving significant capital and technology and is acknowledged by better incentives in the private sector than in the public sector (Otto, 1998). Sovereign control is established by managing the terms and conditions for private development of resources. These two competing forces of sovereign control and private incentive create tension in the development of resources and ultimately influence the degree of state participation (Williams, 2012). The objective in designing a country's rights allocation strategy is to find the best applicant, and maximise revenues from awarding the right, while minimising any distortions to performance (Nakhle, 2015). Several factors determine whether the open access or competitive resource tender system is a suitable method to grant an exploration/prospecting or development/mining right. Whichever system is implemented, the regulatory regime governing the process should limit administrative discretion. Standard terms and conditions should apply to all applicants. A clearly defined and objective criteria must exist for the evaluation of both open access and competitive bids. Rights granted should provide for exclusivity and security of tenure to the successful applicant. In addition, as in the case of Liberia, the transition of the allocation regime from an open access to a competitive bidding process should provide for a "grandfathering" mechanism in order to protect the existing right holders (Leon, 2013). However, as government asserts control over the conditions for the development of petroleum resources, speculation can flaw auctions as experienced in Afghanistan and Liberia (Nakhle, 2015). International experience suggests that a competitive bidding system is only valuable to the extent that winning bidders comply with the conditions stipulated in their bids (Bello, Benkenstein & Harvey, 2013).

Good practice in the granting of extractive rights is achieved by promoting non-discriminatory practices. A transparent system with clear publicly available criteria and compliance requirements fosters equal application of the law in the award of extractive rights (Cameron & Stanley, 2017). Legal requirements must be applied fairly and consistently while social and environmental protection is accounted for. The benefits from an extractive venture should produce equitable returns to both government and the state (Bello, Benkenstein & Harvey, 2013). In the interests of sustainable development, countries have extended negotiations beyond the fiscal contribution and have entered into comprehensive packages accounting for the greater economic impact beyond project closure (Girones, Pugachevsky & Walser, 2009). Daniel *et al.* (2010) concede that a transparent, well-

designed competitive rights allocation system can generate short term revenue and minimise corruption. The World Bank (2010) concurs and provides guidelines for competitive bidding as a preferable rights allocation strategy.

It can be concluded that attracting investment does not always require a reduction in tax terms. A country can attract investment by offering:

“fiscal conditions comparable to other nations with successful resource sectors, and distinguish themselves by having high quality administration and stable legal and fiscal terms, together with high quality and good availability of geological survey data and past exploration data” (Haddow, 2014:346).

2.6.5. Reflection on appropriate means to allocate oil, gas and mining rights

When a country embarks on developing its natural resources, two critical decisions are required:

- choosing a suitable investor that will develop the resource; and,
- a fiscal regime that will provide sufficient revenue for the right to explore and exploit resources.

Security of tenure to acquire the exclusive right to mine, after having borne the risks and costs to prospect and explore, attracts investment in a country’s extractive sector. The refuge of this right has an intrinsic value to an investor faced with a range of risks. Government, as sovereign custodian of the resources on behalf its citizens (shareholders), can grant these rights on a FIFO basis or auction these rights to the highest bidder. The FIFO basis is appropriate when there is limited knowledge on an extractive reserve. While an auction is an effective mechanism to realises maximum value from a resource, the granting of extractive rights is restricted to the confirmation of a known reserve. In this respect, proactive investment in geomaps is essential to support the auctioning of extractive rights and support the competitiveness of the country’s natural resources. Despite the policy of auctioning extractive rights in numerous mineral-rich countries, the issuance of a tender is mostly effective in the allocation of petroleum rights (Ramfol, 2016a). This difference is due to the inherent geological formation of minerals and petroleum and the extensive exploratory work required to identify proven reserves.

In my view, while a competitive bidding system is an efficient strategy to secure investments, it also offers a mechanism to achieve fair sharing of benefits. The element of competition and transparency in the process can secure an upfront mechanism to capture resource rent from the investor willing to offer the best deal. However, embarking on allocating extractive rights, by way of a competitive bid is limited to establishing a proven commercial resource and the presence of robust competition. This is due to the inherent complexities that lie within the geology of the resource and the individual circumstances within a country that effectively govern the choice of allocation strategy at a given point in time. Experience of countries, in allocating extractive rights dictates that transparent processes and governance are an imperative to maintain integrity and ultimately, securing maximum returns for the right to exploit a natural resource.

2.7. EXTRACTIVE INDUSTRIES FISCAL INSTRUMENTS

In the conversion of rents from the extractive sector into economic and social development, governments are faced with upstream and downstream decisions. Upstream decisions require policies that encourage extraction and provide for the taxation of resources (section 2.7). Downstream decisions involve management of the rent captured into consumption and investment (section 2.8) (Barma *et al.*, 2012).

This section proceeds as follows. Section 2.7.1 commences with a discussion of the unique facets of natural resource development. A brief review of distinguishing characteristics of oil, gas and mining projects follows in Section 2.7.2. Section 2.7.3 discusses the objectives of an extractive fiscal regime. This leads to a discussion on the criteria to assess the suitable fiscal instrument in section 2.7.4. Section 2.7.5 then analyses the fiscal instruments that provide government's fiscal take. Section 2.7.6 is dedicated to design issues when establishing a fair share of resource rent. Section 2.7.7 introduces international tax considerations that impact the selection of fiscal instruments. Section 2.7.8 then covers financial considerations on the closure of an extractive project. Concluding remarks on design a EI fiscal system are then addressed in Section 2.7.9.

2.7.1. The unique facets of natural resource development

The main advantage of natural resource development is to produce government revenue to support development and improve the wellbeing of citizens. Precept 4 of the Natural Resource Charter states that the: “tax regime and contractual terms should enable the government to realise the full value of its resources consistent with attracting necessary investment, and should be robust to changing circumstances” (Natural Resource Governance Institute, 2014:17). This discussion is limited to a mining operation, however it should be noted that the principle issues bear relevance to that of an oil and gas project.

Decisions on exploration, extraction and taxation cumulatively constitute a country’s rent capture regime (Otto, 2018). Consequently, a country’s objective is to balance sufficient resource investment to sustain future tax revenue, while the timing of rent charges can affect investment patterns. Mitchell (2009) adds that government has an interest in securing a fair share of rent and promoting development, whereas EI companies seek a return on investment. Developing countries lack domestic investment capacity and therefore have to attract foreign investment to develop the country’s resources (Shukla, 2007). Where a government relies on the EI for the exploitation of resources, they face two decisions: how to select the companies (known as the allocation strategy, discussed in section 2.6) and which fiscal regime to adopt.

Geological potential underlies the locality of an extractive venture, requiring extensive capital investment over several decades whilst exposing EI to the political risk of unstable fiscal terms (Ballard *et al.*, 2012). The geological potential of a resource deposit, is thus evaluated in conjunction with the social and political factors including the stability of a tax regime (Mitchell, 2009).

The concept of an “obsolescing bargain” underlies the relationship between government and the investor, where an investor has maximum negotiating power prior to an investment (Barma *et al.*, 2012). However, once investment has commenced, the investor incurs sunk costs and thus his bargaining powers diminish in favour of the government. Despite government’s need to induce investment, the state prefers to secure fiscal terms and other objectives once an investor has incurred sunk costs. The investor alternately seeks to

protect the investment by accelerating the pay-back period and maximising profit to compensate for the numerous unsuccessful prospecting and exploration ventures undertaken to secure a single successful investment. Thus, the investor seeks to secure transparent and stable fiscal terms upfront (Land, 2009).

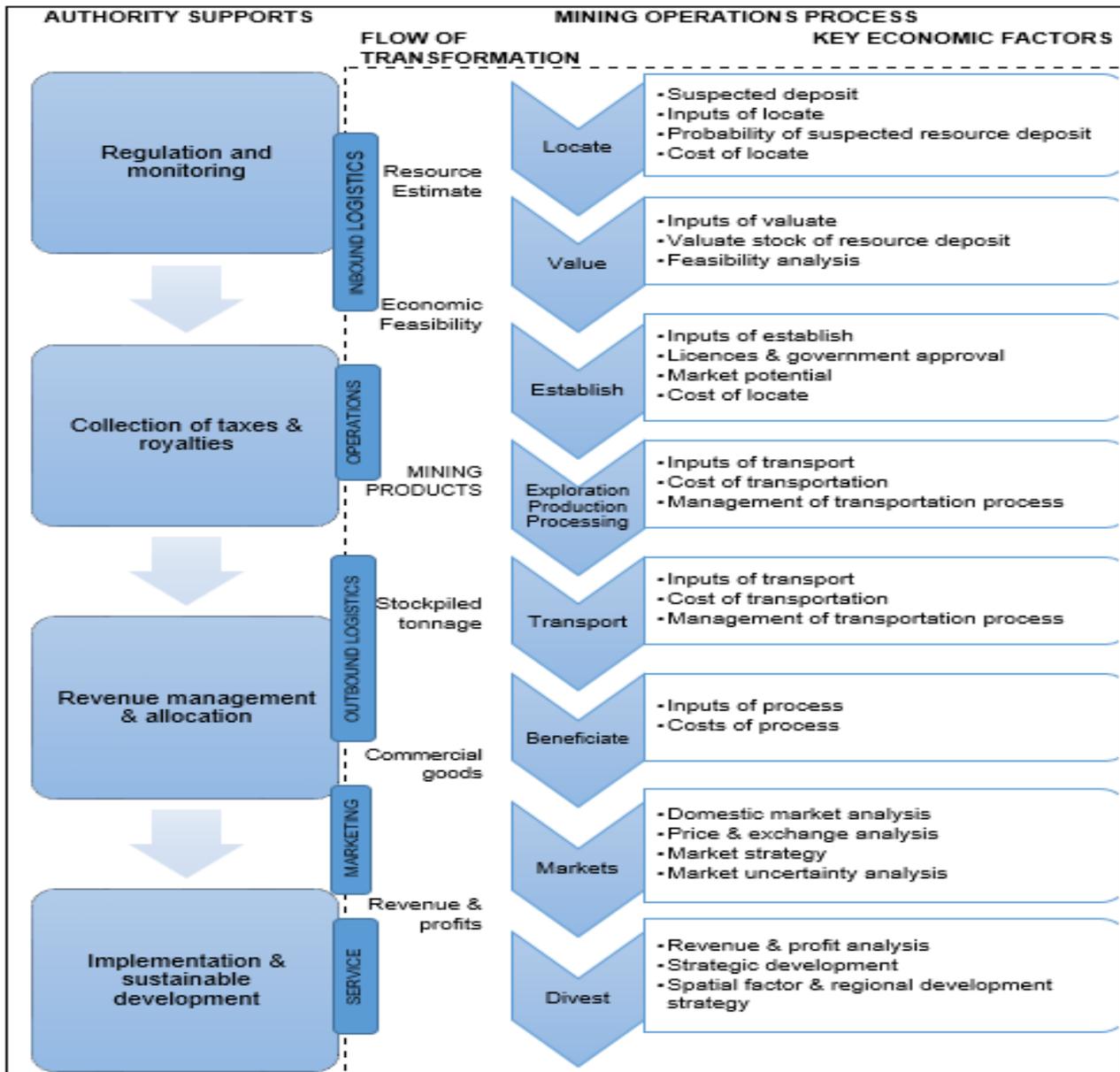
An investor's compensatory minimum required rate of return is dependent on the cost of capital and desired investor margin for the associated business risks assumed. An investor's minimum required rate of return on investment is guided by returns on comparable investments (Cameron & Stanley, 2017). The tax regime is acknowledged as a critical consideration for extractive investment. Determining an optimal tax level is challenging as it is based on the EI's sensitivity to variance in taxes (Otto *et al.*, 2006).

Designing a competitive tax system requires accounting for the distinctive characteristics within the life cycle of an extractive project (Baunsgaard, 2001). Synonymous for high sunk costs, volatile commodity prices and long production periods; minerals, oil and gas are subject to special fiscal regimes (Daniel *et al.*, 2010). Further validation for a separate fiscal regime is the exhaustibility and substantial economic rent associated with resource extraction (Otto *et al.*, 2006).

Investors possess technical expertise and better capabilities to assess commercial viability whereas governments control future fiscal intentions. EI can be located in remote areas, at a distance from markets (United Nations, 2017). The extensive capital outlay in exploring for a natural resource is sunk, leaving the investor little option but to proceed with production if only to compensate for variable costs (Otto *et al.*, 2006). Thus, governments offering incentives prior to an extractive project and reneging on negotiated terms in the production phase may discourage investment. The advent of globalisation with multinational corporations operating in multiple jurisdictions has created complex tax issues. The operational capabilities and allocation of taxing responsibilities can create concerns in state-owned enterprises. Producers can monopolise the market, thereby influencing commodity prices. Considering the exhaustibility of the deposit, the opportunity cost of extracting today has to be assessed against future needs of the state. These defining characteristics distinguish the extractive industry from other industries (Cottarelli, 2012). Furthermore,

resource revenues can be volatile.⁴² Figure 2-2 is a flowchart that illustrates the different activities taking place during a mining operation by both the government and investor. The investor is involved in mining operations: locating, exploring, processing, beneficiating and eventually disinvestment. The government, simultaneously provides a regulatory and monitoring function, collects an equitable share of taxes, manages and allocates resource revenue and implement policies to create sustainable development.

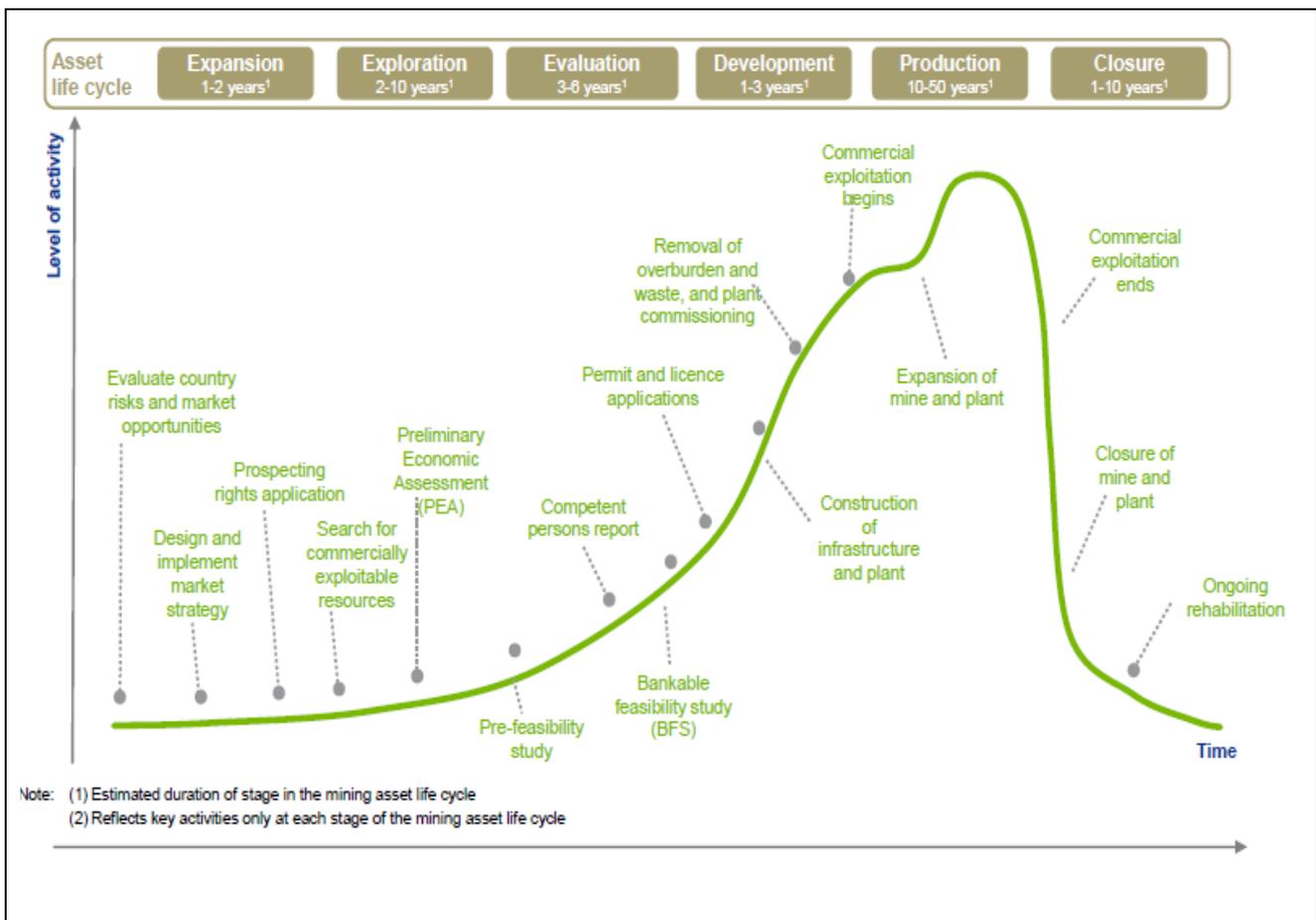
Figure 2-2: The mining operation process



Source: OECD (2015:13).

⁴² Cameron & Stanley (2017:41) explain the volatility of EI revenues: "...the average profit measured in percentage of revenues amongst EI companies was between 25 and 30 percent in 2006. This compares with less than 20 percent for the pharmaceutical industry and with a mere 5 percent for the EI sector in 2002. However, while rents in mining can occasionally be high, this is only at the peak of cycles (as in 2006)".

Figure 2-3: Life cycle of an mining project



Source: KPMG (2014:3).

Figure 2-3 displays the phases of a mining project and illustrates the nature of the activities conducted over the lifespan of a project. The design of the tax regime needs to adjust to costs and revenues over the lifecycle of an extractive project (Cameron & Stanley, 2017):

- The **exploration phase** is cost intensive and exposed to high risks such as the probability of not locating a feasible resource deposit. No revenue is generated thus most regimes allow for the accumulation of losses to be carried forward and set-off against profits when production commences. Employees tax, VAT and general taxes are paid.
- The **mining development phase** is driven by continued operational costs, including the importation of capital inputs. Capital costs incurred are expensed in the production phase as accelerated depreciation charges. Low import duties may be charged to account for capital inputs while employees taxes, VAT and general taxes are borne by the company.
- During the **production phase**, a saleable commodity generates revenue at market prices. The tax regime is now activated with liabilities for employees taxes, VAT, general

taxes, royalties and profit taxes accruing. If assessed losses from the exploration and mining development phase are allowed to be carried forward, there will be no taxable income to charge income tax on. This continues until the assessed losses are fully utilised. Considering the accelerated depreciation granted earlier and the expensing of capital expenditure, it might take a while before the mining entity is in a taxable income situation.

- In the **phase post-mining**, closure of the mine is imminent, as the deposit is now depleted and rehabilitation of the land is required to return it to its original state. No revenue is generated. Employees tax, VAT and general taxes are incurred. Some regimes allow for the deductibility of capital accrued in rehabilitation funds (Ericsson & Farooki, 2012; Mitchell, 2009; Otto *et al.*, 2006).

Government’s fiscal take in the extractives sector is often determined by several instruments and is synchronised with the timing of a projects cashflows and profitability. Figure 2-4 illustrates the different tax instruments that are applied over the lifecycle of a mine.

Figure 2-4: Taxes generated as profitability progresses over the life of a mine



Source: Ericsson & Farooki (2012:7); PriceWaterhouseCoopers (2010:9).

It is common for EI to negotiate specific terms of engagement, with the purpose of stabilising the tax terms. Some countries choose to encourage companies to develop shared use infrastructure, or to procure local supplies or beneficiation of extracted commodities in exchange for reduced taxes (Otto *et al.*, 2006). Evaluating these trade-offs against tax revenues presents a tax design challenge. An opposing argument suggests that economic efficiency is maintained and administrative complexity is minimised with a uniform tax regime for all economic sectors (Mitchell, 2009).

Otto *et al.* (2006) state that most countries account for the specific issues in the extractive sector by offering them special tax treatment. Table 2-1 lists instances of certain issues that are unique to the extractive sector and the tax policy response to mitigate against the risks experienced by the EI.

Table 2-1: Tax policy response to the unique attributes of a mining venture

Reason for special treatment	Tax policy response
A lengthy and costly exploration programme will precede the start-up of a mine. During this period there will be no income against which to offset these costs	Offset pre-production exploration expenses against future income (carry forward losses and amortisation)
Mine development is exceptionally capital intensive and an operation will initially need to import large quantities of equipment and services	Provide various means to accelerate recovery of capital costs once production starts Reduce or exempt from import duties Reduce or exempt from paying value-added tax (VAT) on imported equipment and services
Mined product is destined for export markets	Reduce rates or exempt from export duties Exempt exports from VAT
Mines produce raw materials that are prone to substantial price changes on a periodic basis related to the business cycle	Waive certain types of taxes, usually royalties, for projects experiencing financial duress Allow losses to be carried forward
Many mining projects will have a long life-span and companies fear that once their captive investment is in place, government will change the tax law, negatively affecting the returns	Stabilise all or some of the taxes for at least part of the mine life Stabilise taxes by law or in the form of an agreement
A company may have special tax treatment for one operation but may have ongoing exploration that may lead to other operations	Apply ring-fencing principles, which stipulate that accounts from the mine should not be mixed with accounts for activities outside the mine
Where the level of investment is particularly large, investment may be possible only under a severely modified tax system	Enter into a negotiated agreement with the company and include special tax provisions that supplant the general tax law

Source: Otto *et al.* (2006:17).

Further to the unique characteristics during the lifecycle of an extractive venture and the special tax policy implications, key differences that exist between mining, petroleum and the gas industry need to be accounted for.

2.7.2. Differentiation between mining, petroleum and gas industry

This section provides a brief account of the fundamental differences between mining, petroleum and gas investment, to inform policy making. It focuses on specific issues to guide the development of EI fiscal regime policy. Understanding the challenges that affect EI investment are important to ensure that fiscal provisions account for these issues.

The EI have certain commonalities such as: the extraction of resources, sensitivity to price volatility, exhaustibility and political challenges associated with exorbitant rents. Nonetheless, mining, petroleum and gas industries have salient features that are unique to each sector. The exploration and production stages are similar for petroleum and gas development. However, there is a distinction in the transportation and distribution of natural gas. Cameron & Stanley (2017:39) state that from a “commercial point of view, oil is riskier to find than mineral deposits”. These risks inverse once commercially viable quantities of petroleum are found. Gas development requires expensive infrastructure and a comprehensive contractual regime (Cameron & Stanley, 2017). There are similarities in mining and petroleum companies’ upfront costs, as mining for minerals in remote areas requires the development of supporting infrastructure in the establishment of ports, power stations and railway lines (Cameron & Stanley, 2017). Similarly, the convergence in technology advancements in petroleum and gas resembles mining in the way in which they operate (shale bringing oil and gas on-land). Added to this, the recovery process from shale and tar sands corresponds to mining in: economics, technologies and profit margins. Thus, policy design needs to account for both the common and the unique features of EI (Cameron & Stanley, 2017).

The differentiation among oil, gas and mining lies in the risks borne in exploration and extraction. With a 1 in 20 or less chance of discovery, exploration for petroleum is mainly offshore and can cost over USD 100 million (Cottarelli, 2012). However, petroleum has a greater success rate for securing a resource discovery, than minerals. Given its land-based nature, mineral extraction bears political risk associated with disruptions to communities as well as environmental risks (Cameron & Stanley, 2017). Recent technological advancements in hydraulic fracturing has enabled exploitation of onshore unconventional oil and gas (Daniel *et al.*, 2010). With regards to taxation and financing structures, there are significant differences between petroleum and mining. Unincorporated joint ventures are typical financing structures in petroleum projects where partners separately provide for capital and production is shared. While with mining, mineral projects are owned by locally incorporated vehicles (Cameron & Stanley, 2017). Table 2-2 illustrates the key difference between mining and petroleum, and the exclusive features of mining and specific features relating to petroleum and gas.

Table 2-2: Features of the mining, petroleum and gas industries

Features Specific to the Mining Sector	Features Specific to the Oil and Gas Sectors	Key Differences between Mining and Petroleum Sectors
<ol style="list-style-type: none"> 1. Access to land to conduct mineral exploration and processing. 2. Ownership of subsoil resources needs to be legislated. 3. The state issues exploration or mining licences, in exchange for licence holders undertaking exploration or development work. 4. Most exploration licences for minerals provide that on finding mineral deposits the company will have the right of first refusal on its development. 5. Due to a lack of both geological information and investor interest, exploration licences are awarded on a FIFA basis. 6. However, with the availability of data now, there is greater interest to obtain exploration licences. 7. FIFA is appropriate for areas that are largely unexplored, good practice exists to offer licences on a competitive bidding basis where geological data is available, and where there are strong indications of multiple and competing interest. 8. Mining agreements should not: <ul style="list-style-type: none"> - Include fiscal terms preferential to particular investors, - Provide licence holders with long-term exploration rights (lasting longer than a decade), - Allow investor “land-banking”—there should be an obligation to conduct substantive work, - Tie up land far larger than the area to be mined during the expected life of the mine. 9. Avoidance of the “use it or lose it” provisions, since investments need are timed with commodity market price cycle, not just the government’s fiscal needs. 10. Good practice lies in formalization and legalization of artisanal and small-scale mining. 	<ol style="list-style-type: none"> 1. National resource companies are popular. 2. Distinct differences in laws for petroleum and gas activities. 3. A framework approach to legislation is often preferred, with a higher degree of reliance on a related model or standard contract for exploration and exploitation. 4. Three types of agreement govern the relationship between a government and investors in upstream activities: the concession or licence, the production-sharing agreement, and the risk service agreement. 5. Most contracts make provision for the contractor to purchase a proportion of its goods and services from local suppliers to promote linkages to the local economy. Similarly, they require employment of local personnel and the use of training programmes to transfer skills. 6. Stabilization clauses are commonly used. 7. Natural gas discovery and development is commonly treated differently from petroleum in the basic agreement, with a longer period being given to the appraisal of a gas discovery and fiscal provisions being designed to reflect its different profitability. 8. Contract provisions may require priority allocation of gas to the domestic market and/or set conditions for the authorization of export sales. 9. Gas contracts contain detailed valuation clauses setting out how prices are to be determined. 10. Prequalification of applicants is required as an award procedure. 11. Competitive bidding is used to award contracts where geological data is available and investor interest is high. 12. In the award of petroleum and gas rights, the work programme and financial structuring of bonus, royalty, or profit/production share that influences the decision making, usually combined with a financial variable, such as a bonus, royalty, or profit/ production share. 	<ol style="list-style-type: none"> 1. The exploration for petroleum requires searching in large sedimentary basins deep underground, whereas mining requires systematic drilling, following a slower, deductive process of surveying and surface sampling over a smaller area. 2. Rents are often higher in petroleum than in mining, inherent with the risk and reward structure. 3. Procedures for contract award and security of tenure differ. 4. Detailed legal frameworks exist for mining, while comprehensive model contracts are used in the petroleum and gas sectors. 5. State-owned companies are more common in the hydrocarbons sector. 6. The petroleum sector often uses a production-sharing contract, which is non-existent in the mining sector. 7. Artisanal miners in mining present policy issues. 8. Taxation of mining favours royalty and profits taxes, whereas production-sharing agreements, with a wider range of taxation rates are prevalent in the petroleum sector. 9. Upfront costs in the petroleum sector establish production facilities and pipelines, contrary to mining cost structure, which relates more to personnel during production, and continuous equipment investment and management of local environmental impacts. 10. Mining operations are more fragmented due to geographical dispersion than petroleum, and they have several products in different forms instead of a few relatively homogeneous products.

Source: Cameron & Stanley (2017:42-46).

2.7.3. Objectives of the extractive fiscal regime

Oil, gas and mining may have certain discerning features but the broad economic principles for taxing EI are the same. For this reason, this discussion does not distinguish between oil, gas and mining as their commensurate fiscal regime objectives are the same. Cottarelli (2012) identified the following objectives for the extractive industry fiscal regime, noting that they are influenced by factors such as the country's risk appetite and dependence on resource revenue:

1. maximisation of the present value of net government revenues through the levying of rent taxes. Other priorities include employment, community and environmental issues;
2. adequate capture of rent over the stages of an extractive project through resource taxes, while taking into cognisance that the competitiveness of the tax system has a direct influence on the decision to invest.
3. favouring revenue generation early in the life of a project. Risk to investors is minimised when revenue is deferred through lower royalty rates and accelerated depreciation.
4. flexibility in the capture of windfall rent as the price of the commodity rises or production costs decrease and sharing of risks borne by the party capable of absorbing them.
5. a simple system to administer and which the EI should be able to comply with. Asymmetry of information can present an obstacle to tax compliance and may result in lost revenue due to the inability to counter tax avoidance schemes.

Table 2-3 demonstrates the fiscal instruments that can be applied to achieve the desired government objectives. For instances, for the following objectives (Cameron & Stanley, 2017) the fiscal instruments that can be applied are:

- **A progressive system of rent capture** allows the state an increasing share of rent as profitability increases, thereby responding to changes in project profitability. Although rent generation is a primary concern, other important considerations can include employment creation. The fiscal instruments available include: resource rent tax (RRT), corporate equity, corporate income tax (CIT) and variable income tax on rent (VITR).
- **Broad-based sector development** beyond EI increases economic activity, in turn maximising the tax base. A neutral tax regime is required, encouraging investment where

a pre-tax project is not less attractive than an after-tax project. The fiscal instruments available include: RRT, corporate equity, CIT and VITR.

- On discovery of a natural deposit, **early and dependable income** is a government priority. The significance of early revenue diminishes once a steady revenue stream has been established. The fiscal instruments available include: Signature bonus and a flat royalty.
- Limited exposure to **adverse risk from volatility** of fiscal flows requires prudent management of public funds. Here, fiscal limits to spending can be set and a NRF can be adopted.

Table 2-3: Fiscal objectives and instruments

Fiscal Objective	Instrument					
	Signature Bonus	Flat Royalty	Sliding-scale Royalty	RRT and Corporate Equity	CIT and VITR	State Participation
Maximise government share during project life				x	x	
Secure early revenue	x	x				
Ensure adequate incentives for exploration				x	x	
Visible share of commodity price increases			x			
Establish strategic ownership interest						X
Maximise resource use				x	x	
Minimise administrative burden and risks	x	x				

Source: Lundgren, Thomas & York (2013:53).

Table 2-4 is an extension of Table 2-3, providing detail on the fiscal instruments' effectiveness in achieving government objectives. Table 2-5 below shows the risk spread between investor and the country's propensity for early payments, depending on the type of resource, stage of resource development, access to credit markets and administrative and institutional capacity. I therefore conclude that governments objectives can be achieved by selecting the most appropriate fiscal instrument.

Table 2-4: Fiscal mechanisms in the EI: evaluation against key objectives

	Bonus	Royalty	Sliding-scale Royalty	RRT	CIT and VITR	State Participation
Maximise government NPV:	All risk onto investor, hence lowest expected government revenue. But early revenue. Useful bidding mechanism to mop up expected rent.	Deters some projects and fails to capture upside from projects that go ahead.	Different effect on different projects; likely deterrent to low grade/high cost projects.	Captures higher expected NPV for the government in return for government taking on more risk.	Relatively neutral and progressive. Vulnerability to thin capitalization.	If fully non-concessional (Brown Tax) would maximise government expected revenue in return for taking on equal share of risk. However, usually some concessional element, hence distortions.
Progressivity when higher returns result from price.	No response: regressive (bonus reflects expected, not actual prices).	Regressive: government share of profit falls as commodity prices rise.	Different effect (share of profit) on different projects.	Effectively captures upside; but higher share may be deferred. Reduces burden for low prices.	Instant VITR response to profitability changes.	Free equity is regressive (as is dividend withholding tax (DWT)); carried equity progressive.
Neutrality—avoid distorting investment and operating decisions (and thereby dissipate revenue potential).	Impact on exploration decisions; no impact on development or operating decisions.	Risks deterring marginal projects and shortening life/ reducing production of viable projects.	Different effect on different projects, hence distortions. High risk that parameters mis - specified.	Neutral: share is only paid by projects that actually exceed minimum return.	Depends on parameter design. Potential distortion in VITR from depreciation (step-change in rate).	Free/carried equity has negative impact on exploration decisions.
Ensure adequate incentives for investment.	Increases exploration risk, but relatively neutral if part of competitive bid.	Deterrent if too high; increased risk of unviable projects.	Depends on parameters. Reduces investor upside: likely deterrent.	Modest deterrent as long as sufficient upside left with investor.	Effective as long as maximum rate is not set too high.	Perceived negatively by investors unless fully non- concessional; but some risk mitigation benefits.
Risk to government.	Minimizes government risk.	Risk onto investor.	Risk onto investor.	Risk (of no revenue, or only late in life) onto government.	Government taking on risk if minimum VITR rate is below CIT rate.	Depends on terms: free equity acts like a DWT— low risk; carried equity like a RRT—higher risk.
Minimize administrative burden and risks.	Simple to administer.	Relatively simple calculations, but measurement and valuation risks.	Complex: requires multiple parameters for each mineral. Net margin royalty requires definition of margin.	Relatively simple. Same data as required for income tax. Simple additional calculation (for cash flow RRT).	Same data for VITR as required for CIT. Simple additional calculation of rate.	Complex. Leads to pressure for negotiation at expense of other fiscal elements.

Source: Cottarelli (2012:16).

Table 2-5: Propensity for risk-sharing or early and stable revenue streams

	Type of resources	Stage of resource development	Relative ability of a government to bear risk	Credit market access	Administrative and institutional capacity	The country's income level; its economic structure and the skills of its labour force
Propensity for risk-sharing and incentivising investment	Commodities generating high and volatile rents. Governments find it politically challenging to let investors go untaxed when the price of a major export commodity rises very fast. Conversely, royalties can discourage investment in projects with unpredictable and differed profitability.	Experimental projects require the government to be sensitive to costs incurred by investors at the early stages of a project, in order to have exploration and development carried out.	The more effective its instruments to manage its revenues (e.g. via an effective stabilisation fund) and the larger its portfolio of projects to diversify fiscal risks, the more the government can share risks and upside potential with investors.	Countries with relatively cheap and easy access to credit markets can afford to share more risks with investors. They can borrow on "rainy days" and can pay down their debts in "good times".	Rent taxation, commonly regarded as the best fit to share risk and encourage investment is often seen by governments as complex to implement. Therefore, it is often countries with the strongest administrative capacity that are able to share both risks and rewards with investors.	The more diversified the economy, and therefore the sources of revenues of the government, the more it can afford to take risks alongside investors.
Propensity for early payment by each project in isolation	Commodities with modest and predictable rents. The more predictable and stable a commodity price and extraction costs are, the more a simple royalty can be used by the government to generate immediate tax revenues. Such projects resemble more those of non-resource sectors, and therefore can alternatively be handled by the general CIT system.	Mature projects can generate incentives to tax beyond what would have encouraged investment ('obsolescing bargain' or 'hold-up problem'). Conversely, excessive deduction allowances for investment costs can incentivise over-exploitation.	A government in need of immediate and predictable tax revenues cannot afford to share risk with investors and has an incentive to opt for royalties that generate early and stable revenues.	Countries that do not have access to international financing have an incentive to generate immediate liquidity by collecting royalties from the onset of projects. Such countries can also be challenged to make good use of high tax revenues when projects turn out to be highly profitable.	Royalties are often seen by governments as easy to implement because their implementation does not necessitate assessing the revenue and cost structure of producers. They therefore tend to be used more heavily by countries with low administrative capacity. Royalties are actually not as easy to manage as is sometimes believed.	Countries that rely heavily on a few large extractive projects to sustain their budgets will have incentives to avoid risk and to turn these projects into predictable streams of stable revenues by relying more systematically on royalties.

Source: OECD (2013:11-12).

2.7.4. Criteria for evaluating extractive tax regimes

The pursuit of an efficient tax regime incorporates the principles of neutrality, equality, simplicity and certainty. Daniel *et al.* (2010) state that an efficient tax regime is characterised by neutrality and progressivity, and the imposition of a tax should not create distortionary effects to the profitability of an extractive project. In addition, the tax regime should capture rent early during the high cost phase and increase progressively as profits surge. The regime should be simple and easy to administer. The International Monetary Fund (2010) recommends that a good EI fiscal regime must reserve a major portion of potential resource rents for government and assign risk to government and investors depending on their abilities to bear risk. The incorporation of these principles can involve difficult trade-offs, and can pose a design challenge.

Extractive taxation regimes can be evaluated against a framework of basic attributes of a tax. The criteria of neutrality, revenue-raising potential, risk to government, investor's perceptions of risk, and adaptability and progressivity within the context of an extractive venture is presented in the following subsections.

2.7.4.1. *Neutrality*

The property of neutrality is achieved when decisions on consumption, investment or production remain unchanged by a tax instrument (Nakhle, 2008). While reducing disposable income, a neutral tax will not distort decisions and only generate revenue when a company is profitable. A distortionary tax results in the inefficient allocation of resources where inferior choices are made in the absence of the tax. Tax policy is thus used to enhance economic efficiency by correcting externalities. An example, is the levy of environmental taxes to minimise ecological damage (Daniel, Goldsworthy, Maliszewski, Puyo, & Watson, 2006). In essence, neutrality in the EI tax regime implies that investment attractiveness rankings before tax remains so after tax. A neutral tax does not alter production decisions on exploration, rate of extraction, reinvestment, or abandonment and closure of a project. Conversely, a non-neutral tax can adversely affect decisions relating to the development of marginal natural resources (Daniel *et al.*, 2010).

2.7.4.2. Revenue-raising potential

Rent from natural resources present an opportunity to maximise government revenues. A contribution to general taxation and additional fiscal arrangements are sought to secure a reward for state's ownership of the resource. In this way, resource rent is maximised with the desired rate of investment in mineral, petroleum and gas. The additional payment should be neutral and not affect investment behaviour (Daniel *et al.*, 2010). Maximising efficient allocation of extractive investments will increase resource rent. Mitigating investor's perception of risk, by providing fiscal terms that promote fiscal stability can increase the size of taxable rent and thus, revenue-raising capacity. Revenue-raising capacity is subject to the levy of the maximum marginal rate of tax while maintaining the incentive for productive efficiency. Progressivity in a tax system's ability to adapt to profitability in an extractive venture determines the capacity to raise revenue (Nakhle, 2008).

2.7.4.3. Risk to government

In principle, it should be possible to apportion expected risks and returns in an efficient manner for an individual resource project between government and an investor. Government's preferences are subject to its underlying fiscal position, access to capital markets, the extent of its portfolio of current and future projects and the magnitude of a project compared to the overall economy (Nakhle, 2008). On the evaluation criteria when designing a tax system, featured highly is the exposure to volatile resource rents, the timing and stability of revenue. Governments with a diverse portfolio of extractive assets have a greater propensity to withstand market conditions of fluctuating volume and price. A natural resource savings fund can stabilize a sub-optimal tax system and the macro-economic conditions brought about by currency fluctuations. Governments' with a preference for stability will support royalties as they are related to total volume or value of extractives produced and less towards profits or cash flow taxes. The general assumption is that companies are risk averse, while governments are risk neutral (Daniel, *et al.*, 2010;).

2.7.4.4. Stability

Stability is a critical criterion for a tax regime (Daniel *et al.*, 2010). Stability of a tax regime is important to investors, while a government is interested in stable revenue streams. Frequent and unpredictable changes to a tax regime increase political risk, impair investor confidence

and future value of income streams and ultimately the prospect of future projects⁴³. Stable government revenue assists with reliable expenditure forecasting and budgeting. Thus, a government should be able to forecast the amount of revenue and when it can be collected; Nakhle, 2008).

Fiscal stability clauses provide assurance by limiting changes to the fiscal terms for the duration of a project. Due to the substantial upfront capital commitment required and the long-term nature of an extractive venture, EI seek to limit their political and legislative exposure to changes in policy. For these reasons a stability clause offers a mechanism to mitigate the risks of policy changes from changes to the governance of a jurisdiction (United Nations, 2017). It should be noted that while stabilization clauses are not available in all mining jurisdictions (Otto, 1998) they are prevalent in petroleum and gas agreements (Cameron & Stanley, 2017).

For investors fiscal stability is an important consideration because of uncertainties in the EI operating environment and the fact that stability clauses facilitate funding opportunities. For a state on the other hand, as seen in African mining jurisdictions, these clauses often result in the inability to secure additional rents during commodity super cycles (United Nations Economic Commission for Africa, 2011). According to Calder (2014), until certainty and a fair share of resource rent can be established, investors will always require fiscal stability.

It is good practice to legislate tax provisions than to be bound to terms negotiated in agreements (Otto, 2018). Changing conditions in resource cycles or the political environment could result in pressure to renegotiate and modify the original terms of agreement. Failure for the parties to reach consensus can result in international arbitration or litigation (Mandelbaum, Swartz & Hauert, 2014).

In this way, legislating tax provisions creates fiscal stability. Therefore, renegotiation of terms can be limited by designing a fiscal regime that is progressive and adjusts government's take in accordance with a projects profitability.

⁴³ In a study conducted by Otto (1998) where 39 mining companies ranked 60 investment criteria, fiscal stability ranked 10th.

2.7.4.5. *Investor's perceptions of risk*

Risks faced by EI include: a significant initial capital investment before revenues are generated; long payback periods; uncertain commodity prices and political risk of unilateral alteration of fiscal terms or expropriation of extractive rights (Daniel *et al.*, 2010). A variance to the expected return is a risk to an investor. When assessing a project, an investor's required rate of return includes both a risk free rate and a risk premium. EI face a host of risks including geological and exploration risks of finding economic deposits and volatility of commodity prices. An investor's propensity for risks is dependent on the level of tax and the extent to which the government shares in the project's risks (Daniel *et al.*, 2006). Companies with diverse international portfolios can mitigate these risks but will not favour situations where the potential risks outweigh the potential income. Reducing an investor's perceived risk may reduce the required rate of return and increase the amount of rent available for collection. Government can therefore reduce an investor's perceived risk by adopting measures to increase the security of investment and accelerating the recovery of investment payback. These measures increase a government's revenue raising potential; Nakhle, 2008).

2.7.4.6. *Adaptability and progressivity*

When taxes are flexible to adapt to changes in profitability, the investor perceives a regime to be stable thereby reducing investor risk perception. Indicators of progressivity measure adaptability of a regime (Nakhle, 2008). Progressivity means that a government's share increases as profitability increases. Conversely, with a regressive regime, government's share will decrease as profitability increases (Daniel *et al.*, 2010).

2.7.4.7. *Interaction among criteria*

Designing policy for an optimal tax regime is difficult to achieve as there are administrative concerns and unavoidable trade-offs between the criteria of neutrality, revenue-raising capacity, risk assessment of both government and investors and adaptability or progressivity of a regime. An increase in the tax rate may raise revenue potential, but it will deter future investment. A tax regime that is more dependent on royalties than income tax generates a more stable and timely revenue stream. However, royalties may increase the marginal cost of extraction, discouraging development, at the margin of other economic projects or resources. Similarly, the imposition of import duties yields a revenue stream during the

investment phase, but will increase the cost of investment. On an administrative note, a royalty based on a transparent price formula may be easier to administer and monitor than a RRT (Daniel *et al.*, 2010).

2.7.4.7.1. Neutrality and simplicity

A neutral tax can be complex and unpractical to administer, thus impairing simplicity. In the case of petroleum, maintaining neutrality would “require the government to calculate different levels of rent and expected yields in order to value each individual field properly” (Nakhle, 2008:14).

2.7.4.7.2. Neutrality versus revenue generation

A neutral tax regime providing incentives to exploit marginal fields can result in a company paying no tax. Since no resource rent is generated, this conflicts with the principle of revenue generation (Nakhle, 2008).

2.7.4.7.3. Equity versus simplicity and efficiency

The concept of fairness or equity is subjective. In the interest of equity, governments provide tax allowances on marginal fields. This can in turn increase administrative costs, thereby increasing complexity to the tax system and reducing simplicity. These allowances can further reduce efficiency from the misallocation of resources (Nakhle, 2008).

2.7.4.7.4. Stability versus fiscal risk

Due to a constantly changing external environment, it is difficult to achieve stability of the tax regime. Government seek stable revenue flows. Flexibility to respond to external changes will require changes to the tax system. These changes inevitably decrease an investor’s profitability and increases uncertainty and risk perception of the investment. The unanticipated changes in tax regime, which to the government may look entirely reasonable, could be justified as unreasonable to an investor (Nakhle, 2008).

2.7.4.7.5. Risk-sharing

Compromise is unavoidable in the pursuit of an optimal tax regime. Finding the middle ground between the competing interests of government and investors is a difficult task to

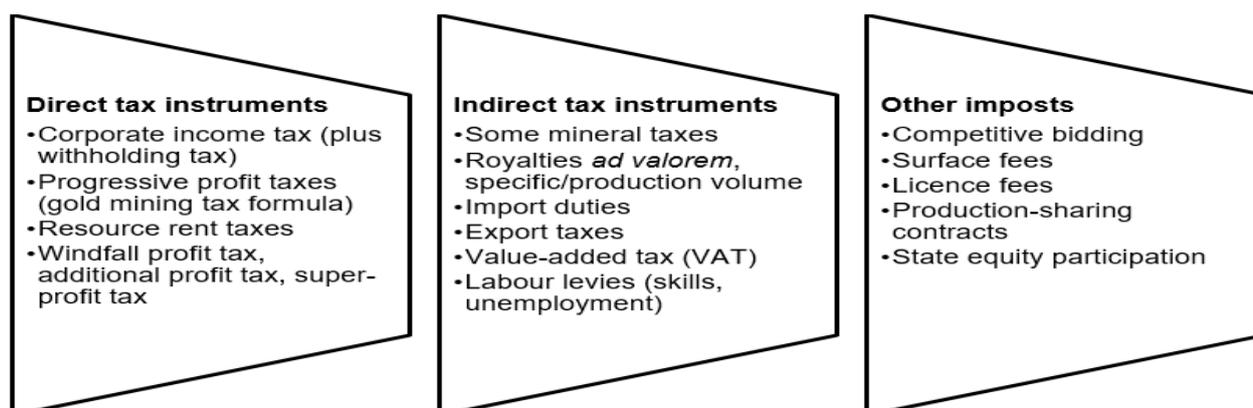
achieve. Invariably, the trade-offs between objectives, result in failure of tax instruments to satisfy all the main criteria of an optimal taxation regime (Nakhle, 2008).

2.7.5. Fiscal instruments

The simplest manner for a government to share in EI revenue is via taxation. Other avenues available to government include state participation⁴⁴ and joint-venture agreements in terms of which government is entitled to a share of profits and dividends. Mining jurisdictions predominantly favour taxation as a mechanism to capture returns (Otto, 2018). EI are subject to special taxes and provisions that affect the after tax return on an investment. Government’s fiscal take comprises taxes, fees and obligations on the investor including but not confined to: infrastructure, employment, local content and decommissioning requirements (United Nations, 2017). This section provides an account of the types and design options available when selecting fiscal instruments.

Countries adopt a “fiscal package”, comprising a mix of fiscal and non-fiscal instruments. These instruments are selected based on government’s objectives. Fiscal instruments for minerals normally include taxes based on profits and royalties based on output. Non-fiscal instruments, common with petroleum and gas sector, include competitive bidding, production sharing and equity participation (Barma *et al.*, 2012). Figure 2-5 illustrates the fiscal and non-fiscal instruments common among EI tax regimes.

Figure 2-5: Fiscal instruments



Source: United Nations Economic Commission for Africa (2011:93).

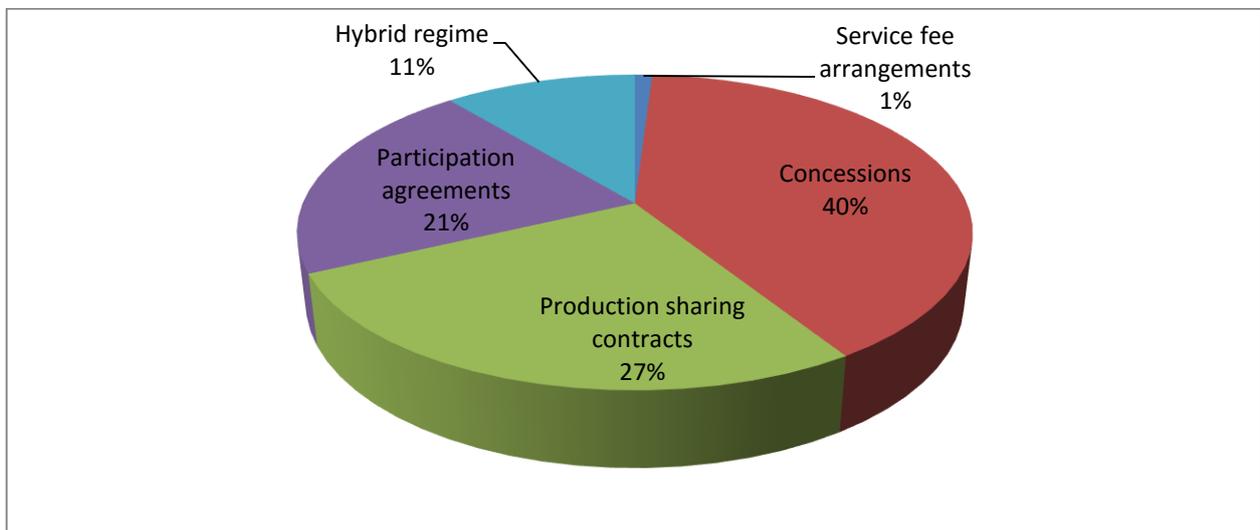
⁴⁴ According to Otto (2018:), globally state equity positions in mining have been reduced favouring privatization as in the case of countries such as “Zambia, Malaysia, Peru, Poland, and Russia”.

Three design scenarios are available:

1. contractual schemes, including production sharing or service contracts;
2. state ownership or participation; and,
3. tax and royalties with licencing of areas (Cottarelli, 2012).

Figure 2-6 shows the distribution of global fiscal regimes for the petroleum sector. Fiscal instruments of production sharing and concessions and non-fiscal options of state participation dominate worldwide regimes.

Figure 2-6: Worldwide petroleum fiscal schemes



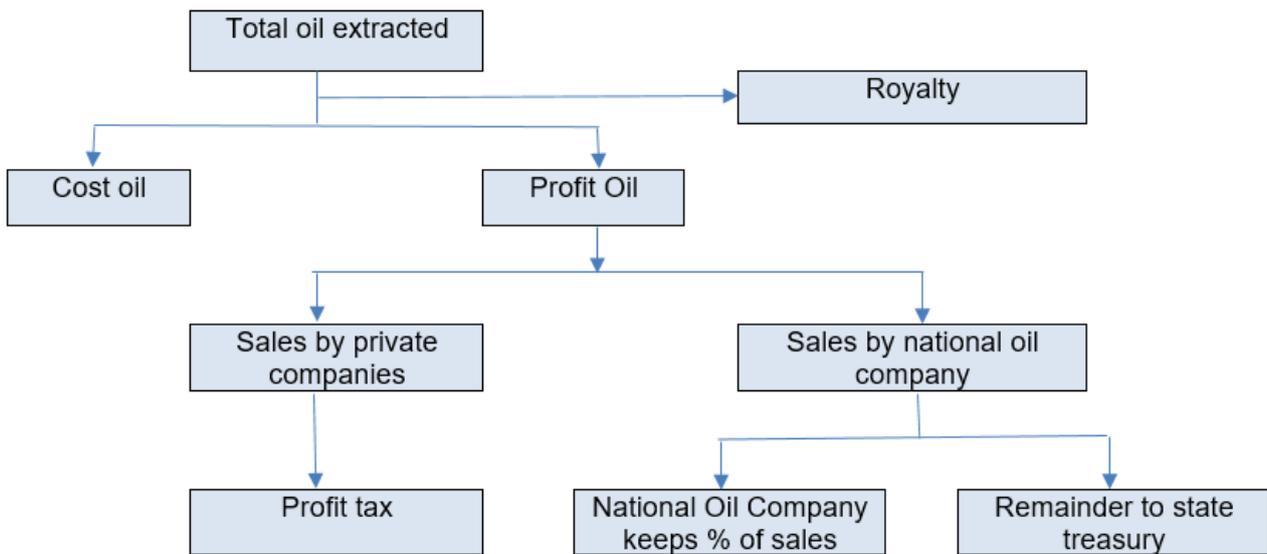
Source: Barma *et al.* (2012:123).

2.7.5.1. Production Sharing

In the oil and gas sector, investors recoup “cost oil” and share the residual production surplus “profit oil” with government. The apportionment between the investor and the government is determined according to an agreed formula, which may be a flat rate or a sliding scale split.

An assessment of the production sharing instrument reveals similarities to the cost versus benefit analysis of a profit tax, the sliding scales functions as a progressive tax, linking the division of the “profit oil” to the expected profitability of the project, and the cost oil limitation feature is similar to a royalty (World Bank, 2016b). Figure 2-7 illustrates the revenue flows in a production sharing agreement.

Figure 2-7: Typical revenue flows in a production sharing contract



Source: Natural Resource Governance Institute (2015b:5).

A sliding scale based on production volumes increases government profit oil as oil field production increases. When costs are fixed, this method bears close correlation to profitability, but as variable components of costs increase as a function of production volumes, then the correlation is unlikely to be exact. Other variations with a lesser degree of correlation with profitability include an oil price element or a cost indicator (for example, the depth of water in which a project is located). Alternatively, the sliding scale can be established on a direct measure of profitability based on a revenue-to-cost ratio (“R factor”). A sliding scale based on the project rate of return is the best measure of correlation between the apportionment of profit oil between the state and the investor (Land, 2009).

2.7.5.2. State Participation

As a platform to attain wider industrial development in the production and processing of its resources, a government may choose to assume the role as a commercial participant in the EI (Calder, 2014). Further to state ownership of the country’s resources, state participation in the EI is achieved by establishing a national resource company (also referred to as national oil company and national mine company) (McPherson, 2010). In this context the natural resource company, then holds both the role of regulator and commercial operator in the sector (Heller, 2018). A notable difference between mining and petroleum investment features in the prominence of national oil companies in the global oil industry. While, on the

mining front the international landscape reflects a smaller number of state-owned mining companies (Ericsson, Löf & Petrilli Massey, 2011).

For mining, the trend of increasing state control via direct participation through ownership has shifted in favour of returns generated from taxes and royalties (Otto, 2018). Ericsson, Löf and Petrilli Massey (2011:33) identify that “governance framework/structure, assets, and capital base” are key determinants of success for a national mine company.

For petroleum, the strategic imperative of a national oil company extends beyond the mandate of generating pure fiscal returns to include the development of a country’s oil and gas sector (Tordo, 2011). In this respect, Heller (2018) cites the examples of the national oil companies in Norway, Saudi Arabia and Malaysia that maintain active exploration programmes, while delivering returns, and simultaneously decreasing dependence on costly private partnerships.

The objective of state participation focuses on revenue maximization, where additional revenues are anticipated in the form of commercial profits by way of dividends and taxes. Furthermore, government can appropriate a higher share of revenue by participating in the commercial pricing of its resources on the world markets (McPherson, 2010).

Other non-economic objectives of state participation include: “job creation, the promotion of local content in petroleum operations, provision of social and physical infrastructure, regional development, and, not least, and especially in the case of petroleum, income transfers through supply of products at subsidized prices” (McPherson, 2010:268). The International Council on Mining and Metals (2009) emphasizes that an appraisal of the fiscal options requires an evaluation of the extent of the associated risks to government and the trade-off involved. Calder (2014) points out that equity participation often makes a marginal contribution to fiscal returns when assessed against the significant risks.

Natural resource commercial participation takes different forms. The most common practices can be categorised as follows:

- For full equity participation, two options are available:

- a. The state acquires an equity stake of 100 percent and no private interests are held (McPherson, 2010). Here, the natural resource company's risks and rewards are exactly the same as that of a private investor (Calder, 2014).
 - b. At project commencement, the state acquires either a majority or minority interest in an incorporated joint enterprise (predominant in mining), or a participation share in an unincorporated joint venture (predominant in petroleum) (Cameron & Stanley, 2017).
- Carried interest participation allows the state to fund its share of the costs from net project earnings, without accruing a liability for any deficits in net earnings (Ott0, 2018). Effectively the investor provides an interest-bearing loan, secured against project profits to the state, bearing minimal risk to the state, but encumbering investor capital in carrying the state (McPherson, 2010). This type of state participation functions like an additional profits tax, "in which the equity interest is equivalent to the rate at which additional tax is levied and the rate of interest which the loan bears is equivalent to the rate of return threshold at which the additional tax is triggered" (Land, 2009:165).
 - a. "Full carry" arises when the investor pays all costs and compensation is paid out of the state's share.
 - b. A "partial carry" participation is where the investor assumes liability for all costs on behalf the state and itself, until the development phase, after which the investor and the state are jointly liable for any shortfalls. The state may compensate the investor for the costs borne, with or without interest or a risk premium, financed from the state's interest in the project (Cameron & Stanley, 2017).
- Free equity participation occurs where the state is granted an equity interest without financial commitments or compensation to the investor. Commonly, applied in mining jurisdictions "as a payment for the right to exploit the mineral resource" (McPherson, 2010:267). The state is entitled to a share of profits by way of dividends received. Government's justification for the large share of profits is based on the rationale that the state provides the mineral endowment. Free state equity participation is noted as a deterrent to potential investment (Otto, 2018).
- With production sharing, even though the state does not take an equity share, the sharing of "profit oil" without incurring financial commitments is similar to free equity participation (Calder, 2014).

Where the state acquires an interest in a privately owned company, dividend distributions are subject to approval by the company's board. In this instance, it is advisable for government to hold preference shares requiring a fixed payment at defined dates. Alternatively, the shareholders' agreement can make provision for payment dates and the share of net profit in relation to its shareholding (Calder, 2014).

Otto (2018) highlights that the requirement on an investor to provide free or carried equity interest to the state, equates to an indirect tax obligation. Calder (2014) concedes that the economic effects are fiscally equivalent to taxation even though there are no administrative frameworks for their collection as a tax. Cameron and Stanley (2017) recommend that the separation of roles and greater accountability is required when mitigating the risks involved in a natural resource company's participation in the EI.

2.7.5.3. Tax Instruments

Within the extractive sector, taxes are raised on profits and production. Profits-based taxes are levied on profit, income or cash flows, while production-based taxes are imposed on inputs and outputs (International Council of Mining and Metals, 2014). Table 2-6 below shows the categories of taxes available and their commensurate policy objectives.

Table 2-6: Category of tax and policy objectives

Tax Type	Objective
Unit-based royalty	An ownership transfer payment, to provide stable and certain revenues
Ad-valorem based royalty	An ownership transfer payment, to provide at least some revenue
Property tax	To provide stable revenue based on the value of the physical plant, often to local government
Withholding on remitted loan interest	To provide revenue, to encourage greater equity, to encourage local financing
Withholding on imported services	To provide revenue, to encourage the use of local services
Registration fees	To provide operating revenues to administrative offices
Rent or usage fees	To provide stable revenue, often to local government, for land use
Income tax	To provide revenue based on ability to pay
Capital gains tax	To capture profits on disposal of capital assets
Additional profits tax or windfalls tax	To capture a part of exceptionally high profits
Withholding on remitted profits	To provide revenue based on ability to pay; to encourage or dividends retention of capital within the country

Source: Otto *et al.* (2006:34).

2.7.5.4. Direct Tax Instruments

Baunsgaard (2001) state that the design of an optimal fiscal regime is unique to a country. It is dependent on factors such as quality of the natural resource deposit, associated costs of extraction and production of the resource, as well as perceived investor risk. Due to the uncertainties inherent in the extraction of resources, the critical challenge is to design a responsive fiscal system that can adjust to unanticipated deviations. This requires establishing the most efficient combination of fiscal instruments that are flexible to adjust to the phases of an extractive venture, while satisfying the objectives of both the investor and the state (Cottarelli, 2012).

Direct taxation refers to the process of administering a tax, whereby a taxpayer is directly assessed for tax (Evans *et al.*, 2017). The direct tax instruments applicable to EI: corporate income tax, capital gains tax, progressive profit tax and resource rent tax are introduced below. This discussion is limited to decisions required when designing particular tax instruments and present possible design options. The best-fit design options should be selected in accordance with a jurisdiction's development plan and objectives (refer to section 2.7.3, section 2.7.4 and section 2.7.5.3).

2.7.5.4.1. Corporate Income Taxation

A key instrument in the design of an EI fiscal regime is corporate income tax (CIT). This section specifically deals with design aspects relating to how a CIT could be implemented. Due to the unique attribute of the extractives sector (refer to section 2.7.1) it is common practice for special income tax rules to apply to EI. Three design options exist to address this: tax provisions applicable to all taxpayers are available in tax law, in other instance it may be appropriate to have special tax legislation applicable to EI (referred to as sector legislation), a third option is to tax EI according to CIT legislation, but with additional provisions applicable to EI (United Nations, 2017). This section commences with a generally discussion on specific CIT design issues relating to EI. Thereafter a more focused discussion follows on decommissioning expenditure, exploration and development expenditure, voluntary social infrastructure expenditure and taxation of non-resident sub-contractors.

The revenue collected from the extractive sector is dependent on the price of commodities, therefore a tax system requires flexibility to adjust to cyclical volatility of commodity prices (Daniel *et al*, 2010). The advantage in the use of a CIT is that taxpayers are accustomed to the legal and administrative framework, providing ease of compliance (Burns, 2014). Room for manipulation of corporate taxation is present in EI understating revenue or overstating deductions. Furthermore, limitation of project specific losses via ring fencing is required, in order to prevent erosion of the tax base, where companies could manipulate their tax liability by reducing their company taxable income to zero (Cameron & Stanley, 2017). Legislative measures are required to counter tax avoidance, as are arm's length transactions to regulate transfer pricing and international tax issues (Baunsgaard, 2001).

The EI generates economic rent which is the excess of revenue over cost, uplifted by a normal rate of return. The ambit of a CIT taxes both normal and economic rent. Setting a higher or variable corporate tax rate for the extractive industry focuses on taxing economic rent (Calder, 2014). An example of this is the maximum variable formular tax rate of 55 percent in Botswana, subject to a minimum floor rate equivalent to the corporate rate of tax of 25 percent (Daniel *et al.*, 2010). To compensate for high tax rates, jurisdictions can offer exemptions for dividends distributed to shareholders (Burns, 2014).

Burns (2014) states that income tax and resource rent provisions are mostly located within the country's income tax legislation, while royalties and other charges are located in specific EI sector legislation.. Ring fencing applies on a project by project basis to minimise the setting off of losses from one business activity against income from another business activity. To account for long lead times in extractive projects, limitation on loss carry forward under normal CIT rules is not applicable. In the year when mining operations cease the final loss can be carried to prior year's assessment (potentially resulting in a tax refund if not fully utilised), or the loss can be transferred to another licence area of the same resource (Burns, 2014).

2.7.5.4.1.1. Exploration and development expenditure

The exploration expenditure definition is located in income tax or sector legislation. Exploration expenditure is intangible and includes costs relating to: geological mapping; feasibility studies; exploration and appraisal drilling and geophysical and geochemical

surveys (Cameron & Stanley, 2017). Due to its tax sensitivity in carrying a sunk cost from the risk of failure to make a commercial discovery, an incentive to pursue exploration is provided by way of an accelerated deduction of exploration expenditure. Standard income tax expenditure provisions do not apply, therefore exploration expenditure is generally written off in full or over a shorter period (Calder, 2014). The time lag to the holder of an exploration loss accessing the benefit of the expenditure incurred, which is only recouped against income in the production phase many years later, is faced with difficulty in financing decisions due to the uncertainty of operations (Burns, 2014).

Development expenditure is identified in income tax and sector legislation. Development expenditure is less risky than exploration expenditure as it is incurred after the affirmation of a commercially viable discovery and is therefore, less tax sensitive (Burns, 2014). The expenditure is deducted over the life of a project. In the event of the lack of availability of the life expectancy of the project, the write-off period may be stipulated or the investor can make an estimate of the expected life expectancy. Normal wear and tear allowances should be available for tangible assets and should not qualify as development expenditure (Burns, 2014).

2.7.5.4.1.2. Decommissioning expenditure

At the end of an extractive venture, EI have a responsibility to rehabilitate a site (Andrews-Speed & Rogers, 1999). These costs to restore the landscape are referred to as decommissioning expenses. On the closure of an extractive venture, there is no income available to off-set expenses. This results in an accumulated loss and consequently results in a tax refund due by the taxing authority (Daniel *et al.*, 2010). For a developing country, funding these tax refunds may be a costly exercise. This is mitigated by creating a provision for a decommissioning fund and providing a deduction for contributions to the said fund (Cameron & Stanley, 2017). This is a departure from normal income tax rules, as amounts carried to a provision do not meet the criteria for deductibility⁴⁵ (Burns, 2014).

⁴⁵ Decommissioning expenses do not relate to trade and represents capital expenditure.

2.7.5.4.1.3. Voluntary social infrastructure expenditure

In the absence of specific provisions, voluntary social infrastructure expenditure is treated according to normal tax rules, and the deduction is dependent on how closely connected the expenses are to income earning operations (United Nations, 2017). The same taxing rules that apply to the deductibility of exploration and development expenditure will apply to compulsory social infrastructure expenditure incurred during the exploration and development phase (Burns, 2014).

2.7.5.4.1.4. Taxation of non-resident sub-contractors

The taxation of non-resident sub-contractors is subject to tax on the basis of working for permanent establishments in the host countries which give rise to the creation of a physical presence (with reference to being physical present in South Africa for more than 183 days). Non-resident sub-contractors not having a physical presence can be charged a final withholding tax. Furthermore, withholding tax on dividends paid to non-residents will be withheld by the resident company. Alternatively, non-resident sub-contractors may be taxed indirectly, in the host country, through limiting a tax deduction to the payer of the fee (Burns, 2014). Tax treaties may change the application of domestic tax laws with reference to service fees paid to sub-contractors

2.7.5.4.2. Capital Gains Tax

This section explores design considerations when taxing gains on transfers of extractive assets. Transfers may be either direct or indirect. The owner holding the asset may choose to transfer the asset directly, or indirectly transfer the underlying assets as an interest in the entity (Burns, 2014). When a direct transfer of an extractive right takes place, the source jurisdiction can levy CGT on the transaction. For indirect transfers, a tax could be levied on such transfers. The treatment is subject to the interrelationship between the taxation of gains on business assets, tax recoupment and capital gains tax provisions and applicability of tax treaties. One of the design considerations relates to how CGT should be implemented. Three options are available here: capital gains could be taxed as general ordinary income, or as capital gains taxable under the CIT rules, or under a separate CGT law (United Nations, 2017). The expenditure incurred on acquisition of the right is either depreciated or expensed in full. The gain is computed as the consideration received for the right less the acquisition cost reduced by the depreciation charge. Tax symmetry problems can arise if

the gain above cost is taxed under capital gains tax (CGT) rules and the CGT rate differs from the CIT rate. This arises when the tax deduction for the right is given at the CIT rate and the resultant gain is taxed at the lower CGT rate. On the disposal of a mining or petroleum right, tax treaties may change the effective tax treatment of capital gains (Burns, 2014).

2.7.5.4.3. Progressive Profit Tax

A progressive tax accounts for the interests of government and the investor by adjusting to changes in economic circumstances, and assuring government share of fiscal benefits in tandem with profitability of an extractive venture (Daniel *et al*, 2010). The advantage in the flexibility of this instrument to adjust to the nature of inherent uncertainties in the extractive industry precludes renegotiating of existing fiscal terms, providing certainty and reducing risk on both parties. The reduced risk premium would encourage marginal profit potential projects, which would have otherwise not been considered (Cameron & Stanley, 2017). A progressive tax could have a negative effect on taxpayer behaviour by increasing the incentive to under report income. This instrument is not preferred, as it increases administrative cost and does not account for the rate of return of a project (Baunsgaard, 2001). Land (2009) identifies the difficulty in determining a range of progressive tax rates that do not discriminate between small and large scale miners. This anomaly is overcome by activating escalating tax rates on profit ratios, rather than actual profit.

2.7.5.4.4. Resource Rent Tax

A resource rent tax (RRT) is a cash flow tax linked to the real rate of return of a project (Daniel *et al.*, 2010). The calculation involves carrying forward the losses until the real rate of return turns positive. The resource rent then applies at this point, because the target rate of return, which equals the supply price of the capital, has been realised. The problem associated with this tax is that projects that never reach the target rate of return will not pay any rent. To counter this problem, a possible solution would be to combine a resource tax with a royalty (Baunsgaard, 2001).

RRT rates range from 10 to 70 percent (Cameron & Stanley, 2017). When designing the tax, the threshold rate of return at which the tax should be imposed, the rate of tax, ring fencing provisions identified on a project or taxpayer basis and allowable income tax

deductions need to be clarified. A mechanism to determine the threshold rate of return is to link it to the country long-term yield on bonds. The rationale is to match the country interest rate payable on commercial long-term debt, plus a margin for mining risks (Calder, 2014). Unlike other taxes, a RRT is neutral to investment as compared to high royalties, as it does not sterilize resources, because a high RRT would never breach the threshold rate for marginal deposits. The administration of the tax is complex, however for audit purposes the same information is used as with income tax royalty (Baunsgaard, 2001).

2.7.5.5. Indirect Tax Instruments

In addition to imposing direct taxes, a government can impose indirect tax instruments on EI transactions (Otto, 2018). Indirect tax is the taxation of certain transactions (United Nations, 2017). These indirect taxes: royalties, import duties and value-added tax are presented below.

2.7.5.5.1.1. Royalties

Royalties are payments to the owner of the resource for the right to explore and develop the resource (Otto *et al.*, 2006). The owner of the resource can either be the state or a private party (Otto, 2018). The OECD (1996:5) states that royalty payments are generally regarded as “non-tax revenues since they are property income from government-owned land or resources”. A jurisdiction can regard a royalty as a tax levied on the transfer of ownership from the owner to a miner or as a user charge or fee levied for the right to mine (Otto, 2018). A royalty has the characteristics of an excise tax on production, but is typically regarded as a user charge for the payment of the right to use a resource for a limited duration (Daniel *et al.*, 2010). In most countries, royalty rates vary by type of mineral commodity, whereas for petroleum royalty rates are often significantly higher than metals or minerals (Cameron & Stanley, 2017).

From an investor’s perspective, royalties are not favoured as they are payable irrespective of profitability and can thus affect the taxpayer’s ability to pay. For minerals, this imposes distortions on resource production, resulting in an inefficient rate of extraction and discourages exploration. For petroleum these inefficiencies do not exist, as the rate of extraction is contingent on the pressure of the well. Conversely, a royalty on petroleum can affect the incentive to invest in exploration and development and the decision to cease

operations (Daniel *et al.*, 2010). From an economic perspective, they can be inefficient as the same royalty payments are levied on high cost and low cost projects (Otto, 2018). In contrast, from the states perspective royalties are a preferred tax instrument as they generate revenue for the state as soon as production starts. Additionally, royalty income is a predictable (subject to price and production uncertainties) source of income providing revenue even when commodity prices are low (Cameron & Stanley, 2017). Imposed at a high rate, royalties can increase the marginal cost and the consequent viability of a project. This could in turn affect investor decisions to mine and lead to sterilisation of deposits from underdevelopment of mining of minerals with economic value (Baunsgaard, 2001).

Royalties apply on production volume, value of production, gross or net cost basis, or progressive based on the price of the mineral (Cameron & Stanley, 2017). Most countries are increasing royalty rates and generally allow royalty payments as a deduction against corporate tax (Baunsgaard, 2001). Royalties are calculated on the value of minerals at the point the minerals leave the mine site (this is referred to as at “mine-gate”). Thus, a further advantage is the administrative ease of computation, and collection is less burdensome on tax authorities (United Nations Economic Commission for Africa, 2011). According to Otto *et al.* (2006), there are four types of royalties, namely: unit based, *ad valorem*, profit based and hybrid royalties.

2.7.5.5.1.2. Unit Based Royalties

Unit based royalty is levied as a fixed charge per physical unit of production on the measurement of weight or volume at the mine mouth prior to processing (Otto *et al.*, 2010). Royalties levied on mineral production volumes can lead to inefficiencies by encouraging the preferential extraction of higher grade ore (Daniel *et al.*, 2010). Furthermore, while these royalties are easier to administer they are costly to monitor (Baunsgaard, 2001).

2.7.5.5.1.3. Ad Valorem Royalties

Ad valorem royalty is levied as a percentage of the value of production. Subject to commodity price volatility, calculations are complex and dependent on the definition of value. Invoice value may differ from market value, raising transfer pricing concerns. To counter this, some countries use reference prices, such as the prices determined by the London Metals Exchange (Otto *et al.*, 2006).

2.7.5.5.1.4. Profit Based Royalties

Profit based royalty is levied on a measure of profitability. The royalty rates levied are generally higher for profit based than for unit-based or *ad valorem* royalties. A pure profit-based system recognises single mine operations accounting for sales revenues net-off commensurate costs, whereas an income-based system aggregates cumulative revenues from mining operations (Otto *et al.*, 2006).

2.7.5.5.1.5. Hybrid Royalties

A hybrid system enables a revenue stream of royalties from all mines, regardless of profitability by combining the concept of profitability, value and unit-based royalties. Alternatively, liability accrues on the higher of the *ad valorem* and profit-based royalty. In this instance, the *ad valorem* royalty is treated as a minimum tax (Otto *et al.*, 2006).

2.7.5.5.2. Import Duties

The development and commencement of a project can require significant imports. Import duties are a substantial source of revenue. Some jurisdictions incentivise import intensive EI operations through duty exemption during the exploration or development phases. This practice can be damaging to growth of local supply systems and restrict the benefits of improved local linkages to the country (United Nations Economic Commission for Africa, 2011).

2.7.5.5.3. Value-Added Tax

By definition value-added tax (VAT) is an indirect tax on final consumption. VAT taxes the “economic contribution—or added value—made by any economic operator in connection with any activity of a business or commercial nature” (Thuronyi, 1996:6). Goods consumed can either be taxed in the state of origin or state of destination. Under the destination principle, domestic goods and services consumed are taxed, whereas under the origin principle domestic goods and services produced are taxed (Thuronyi, 1996). A destination-based VAT tax system zero rates exports. This creates a challenge, since EI will obtain a refund, as inputs are claimable due to the fact that they are in relation to the making of taxable supplies (zero rated exports). A developing country lacking beneficiation exports most of its mined outputs. VAT refunds can be soothed by requiring an initial investment injection from the investor for the project (Baunsgaard, 2001).

The different tax instruments and possible design options were presented. The next decision requires determining the optimal combination of tax instruments that comprise government's fiscal take, which is considered in the next section.

2.7.6. Resource tax design

The design of the regime should remain attractive to investors while maximising revenue generated. Moreover, the timing of these receipts should correspond with the financial requirements of the country and should be in accordance with government's projected rate of mineral, petroleum and gas (Baunsgaard, 2001). Achieving these outcomes for both parties requires selecting the optimal mix of fiscal instruments that can deliver on the intended objectives. This section now consolidates all the design principles discussed in section 2.7.1 to 2.7.5 in order to establish a "fair share" for government.

Obtaining a fair share of resource rent for the extraction of natural resources is contingent on securing a fiscal regime that is flexible to account for the changing conditions susceptible to extractive ventures. The Natural Resource Governance Institute (2016) stipulates that to achieve these aims:

- fiscal terms should be set to account for the risk and return of extractive investments;
- a legal framework should be established to provide for changes in the economic environment;
- revenue authorities are required to collect the total tax revenue due in terms of the fiscal provisions; and,
- accountability vests with government officials to manage and enforce these terms.

Each country is presented with its own challenges and unique circumstances, which influence the choice of fiscal regime (Cottarelli, 2012). A common tax design for all resource-rich countries does not exist. Apart from the differences in tax treatment of oil, gas and mining operations, each country faces its own set of constraints due to:

- the level of reliance on extractive sector revenues;
- limitations set by prior stability agreements;
- depletion of known deposits;

- support for or constitutionally bound state participation;
- fluctuating administrative capacity and governance standards; and
- having a large numbers of illegal artisanal miners (Cottarelli, 2012).

According to Daniel *et al.* (2010), the fiscal instruments in a tax regime include:

1. a tax on gross sales, guaranteeing some revenue despite changes to profitability;
2. a variable tax on rent or excess profits;
3. a corporate tax on profits, avoiding undue investment incentives;
4. state equity participation only when fiscal and non-fiscal benefits exceed acquisition cost; and,
5. stability clauses should be replaced with fiscal mechanisms that have built-in flexibility.

Comparing geological potential against exploration investment is a guideline to evaluate the effectiveness of an EI fiscal regime⁴⁶. Baunsgaard (2001) states that the design of an optimal fiscal regime is unique to a country and dependant on factors such as quality of the deposit, associated costs of extraction and production of the resource, as well as perceived investor risk. Due to the uncertainties inherent in the extraction, the critical challenge is to design a responsive fiscal system which can adjust to unanticipated deviations. A hybrid system combining tax instruments creates flexibility for a fiscal regime to adjust through the phases of a mining operation.

Designing a standard fiscal system for all extractive projects presents a challenge due to high sunk mining costs and the exhaustibility and volatility of natural resource revenue. Additional to these phenomena is the design of fiscal policy to preserve revenue collected for future generations. The contentious question is: what is an equitable share of rent? If taxes are too high then investors will seek alternate jurisdictions, alternatively, if taxes are too low government will forgo the economic value contained in the minerals. The primary concern of the investor is stability (including the fiscal system), payback period for the

⁴⁶ "...All things being equal (including tax), a country should attract exploration investment proportional to its international geological attractiveness rating. If investment is less, it implies other faults in the investment climate, such as excessive tax. However, if investment is greater than geological potential, investment conditions may be overly generous" (Mitchell, 2009:29).

invested amount and repatriation of profits. A multitude of fiscal instruments exists to tax revenue from the extractive industry. Extractive tax systems vary worldwide, where governments mix instruments to balance trade-offs between efficiency and effectiveness, revenue, risks and timing of receipts. The primary consideration is to design an optimal and intergenerational equitable extraction policy.

The principle of progressive taxation features in several fiscal instruments. However, recently numerous governments have unilaterally reconsidered fiscal terms in their own favour, suggesting that progressive taxation is either not commonly practiced or is ineffective in meeting its objectives where it is utilised (Cottarelli, 2012).

Analysis reveals that the cumulative effect of all fiscal instruments may impact on the progressivity of a regime. "Royalties are an imposition on production, not profits, and constitute a regressive form of taxation" (Land, 2009:168). Dependence on royalties may result in a distortion of incentives and production decisions and thereby create inefficiencies (Conrad, Hool & Nekipelovc, 2015). Governments prefer royalties, as revenue is generated regardless of profitability and they are easy to administer. Other taxes which affect the progressivity of a regime are export taxes, production bonuses (featured in the petroleum industry) and state participation, where this is structured as a free allocation of equity. Thus, the overall design of the fiscal regime requires consideration to maintain the objective of progressive taxation (Land, 2008).

Competition amongst resource-rich countries to secure extractive investments, have led to countries reducing their fiscal take from EI. In the 1990s, countries facing high oil imports offered special investment incentives termed "frontier" fiscal packages, in order to attract companies to explore their unproven petroleum reserves. Fiscal modelling and negotiating skills are required by government to secure sound fiscal terms.

Gisler, Ustvedt & Briseid (2012) recommend a tax package of approximately 30 percent CIT, 3 to 5 percent royalty rate and a resource tax is recommended. A resource rent uses the same information required for a corporate tax and is thus simple to administer. The report further advocates the use of the final sales price less transportation costs as a basis for royalty calculation. The imposition of a royalty accounts for revenue in the early stages of

production, however it does not account for profitability. RRT accounts for profit variability, and is progressive and efficient, leaving less pressure to renegotiate when prices fluctuate. Aarsnes and Lundstol (2013) state that if investors pursue their own interests, a tax system should incentivise cost saving instead of tax saving. Furthermore, the suitability of the tax regime proposed by the IMF, in terms of the flexibility and consideration of government's ability to assess and collect taxes sufficiently, should be taken into account (Gisler, Ustvedt & Briseid, 2012).

Designing a tax system that provides an attractive investment destination will simultaneously require sound policy preventing profit shifting. The problem stems from the fact that the foundation of 80-year-old tax treaties forms the framework for international tax considerations facilitating tax regulation and derivative abuse, transfer mispricing and corrupt and criminal practices (Aarsnes & Lundstøl, 2013). Strategies to inflate deductions include related party debt finance and lease of capital goods at above market related interest and excessive management fees, headquarter costs or consultancy fees to related parties (Baunsgaard, 2001).

Global extractive companies' decisions to invest in a jurisdiction are based on comparing fiscal terms offered by a country. When evaluating an investment proposal an investor compares countries possessing similar geology, operating environment, institutional capacity and political risk. Moreover, creating administrative simplicity by minimising tax types and exemptions is critical in the absence of a strong tax administration. In this event, the corporate tax regime should replicate the local accounting framework with a competitive tax rate, and tax return disclosure should provide for detailed information on related party transactions, including the transfer pricing method used. A self-assessment system using withholding taxes levied at source provides an efficient method to collect taxes (World Bank, 2016c). Furthermore, unanticipated implications of technological innovation in mining can induce resource substitution. For example, large-scale discoveries of petroleum and gas in the United States have implications for coal use in Asia (Cameron & Stanley, 2017).

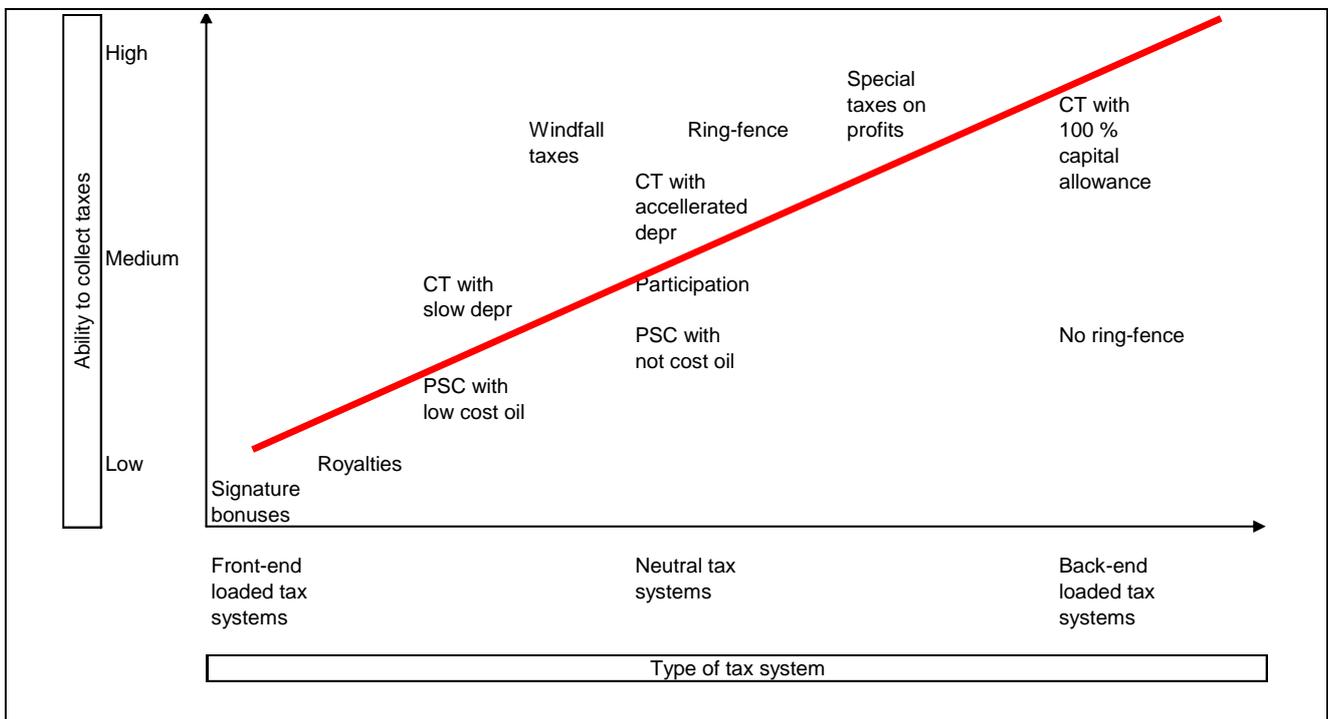
The World Bank (2016c) asserts that the design of an extractive fiscal regime should be formulated based on government strategic industry objectives. Thereafter, fiscal instruments can be assessed against these fiscal objectives. Sound administration of the EI tax regime

is an imperative as tax revenue potential may be lost if fiscal administrators are incapable of executing the regime.

The principal benefit derived by government over the lifespan of an extractive project is revenue generation, calculated as the present value of receipts. The timeframe of these receipts is an important consideration, as a government exposed to revenue constraints may prefer income earlier. The inherent business risks of the extractive sector regarding costs, saleable price and geology create uncertainties. A government that is better able to absorb these risks can design a tax regime with higher tax rates in lieu of the risks borne (Cottarelli, 2012).

Optimum resource development is a once-off opportunity. Poor tax design and management of extractive sector issues have dire implications for the anticipated economic growth that resource endowment is expected to bestow. Figure 2-8 shows that poor revenue generation in the EI is a consequence of poor tax design.

Figure 2-8: Correlation between ability to collect tax and type of tax systems



Source: Gisler, Ustvedt & Briseid (2012:13).

The more back-ended⁴⁷ a tax system's design, the higher the required capacity and ability to collect taxes. A back-end loaded system with high depreciation rates and no ring fencing will result in less revenue generated in the early stages. Primary concerns of EI over the terms of the fiscal system include minimum uncertainty in the regime, thereby providing maximum assurance in the stability of factors influencing the investment, the shortest possible payback-time for the invested amount including profits, and the least costly way of repatriating investment and profits (Gisler, Ustvedt & Briseid, 2012).

Table 2-7 presents a comparative appraisal of the performance of one tax instrument against another in the evaluation of a criterion. The methodology applied assesses fiscal instruments in the extractive sector based on seven criteria: neutrality, stability, project risk, flexibility, fiscal loss, revenue delay and administration. A tax package comprises several instruments and therefore this rating system provides a useful measure to assess the tax system (Daniel *et al.*, 2010).

Table 2-7: Fiscal instruments

	Neu- trality	Investor Risk		Rent collection and government risk			Admin- istration and Com- pliance
		Stability	Project Risk	Flexi- bility	Fiscal loss	Revenue delay	
Rent-based taxes							
Resource rent tax	+2	+3	+2	+3	-2	-3	-3
Excess profits tax	+1	+3	+2	+2	-1	-1	-2
Profit-based taxes							
Corporate income tax	-1	+1	0	+1	0	0	-1
Profit-based royalty	-1	+1	0	+1	0	+1	-1
Output-based royalties							
Ad valorem royalty	-2	0	-1	-1	+1	+2	+1
Graduated windfall tax price	-2	+2	+1	0	0	0	+1
Specific royalty	-3	-1	-2	-2	+2	+2	+2
State equity							
Paid equity	+3	+1	+3	+3	-3	-1	+3
Carried interest	+2	+3	0	+3	-2	-3	+1

Source: Daniel *et al.* (2010:130).

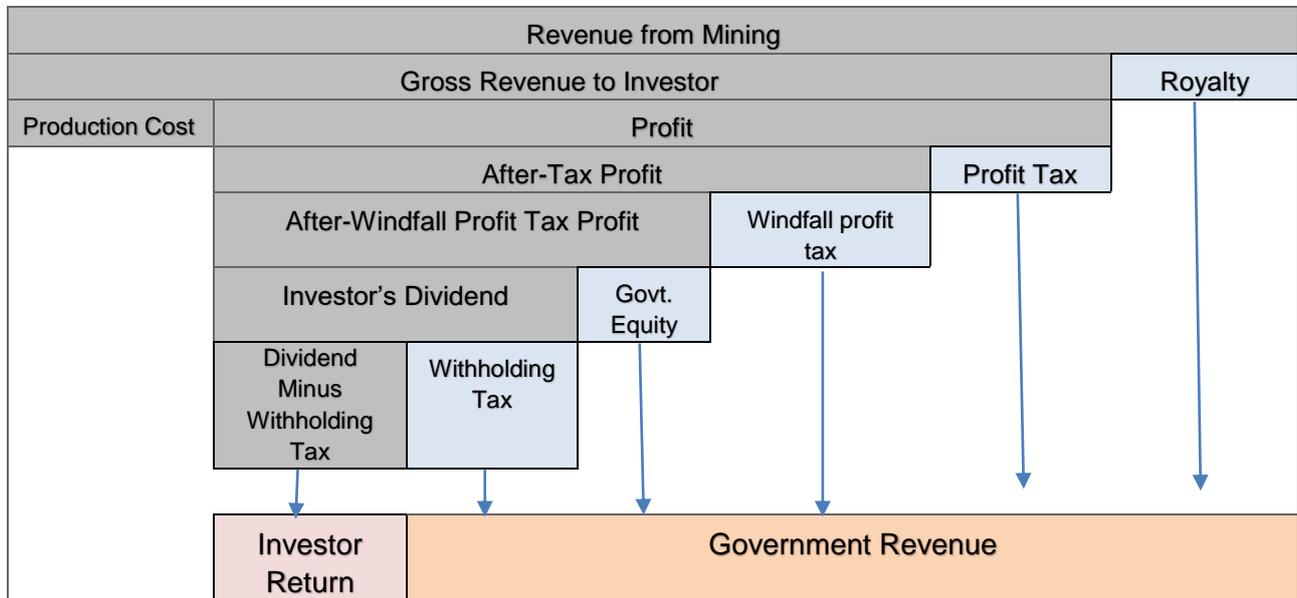
Note: 7 point scale -3 to +3, where:

+3 means that the instrument performs extremely well on the criterion, and
-3 signifies the opposite.

⁴⁷ A front-end loaded tax system is where the state shares in early revenues, while a back-end loaded tax system is where an investor can first recoup the investment before sharing revenue with the state.

Figure 2-9 shows the division of revenue from an extractive project and how the choices of instrument available affect the sharing of revenue. The total government revenue is determined by adding the revenue from each fiscal instrument.

Figure 2-9: Revenue flows in a tax and royalty system



Source: Natural Resource Governance Institute (2015a:5).

2.7.7. International tax considerations

This study is limited to an assessment of the EI fiscal instruments. An analysis of the tax regime excludes the complex nature and effects of international tax considerations. For contextual purposes, this section merely highlights the scheme adopted by EI to shift profits, effectively reducing their tax liabilities in the host country. Central to these issues are the concepts of fiscal competition, profit repatriation and transfer pricing.

The extractive industry generates considerable profits and is vulnerable to profit shifting and base erosion via sophisticated transfer pricing abuse and tax treaty shopping, enabling the reduction of withholding taxes and gains on the sale of exploration projects. Country tax competition has equipped companies with the opportunity to employ tax avoidance mechanisms posing a significant risk to government revenue collection from the extractive industry (Daniel, Keen, Świstak & Thuronyi, 2017). Pak (2012:6) reports that ten global extractive companies operate 6 038 subsidiaries, of which 2 038 are domiciled in tax havens

jurisdictions. Tax authorities lack the information to test the reporting of the arm's length principle in outside jurisdictions.

Revenue authorities face challenges with transfer pricing of inputs, production and equipment, due to the use of non-arm's length suppliers in tax havens. Trade mispricing is a systemic enabler to capital flight, money laundering and tax, import duty and VAT avoidance. Undervalued imports aid capital relocation from the exporting country to the importing country, thus reducing taxable income in the exporting country. An overvalued import aids capital relocation and income shifting to the exporting country by over compensating through deductions against taxable income on the value of merchandise imported (United Nations Economic Commission for Africa, 2011).

Trade mispricing in merchandise is subject to transfer pricing abuse by re-invoicing, falsified customs declaration and fake double invoicing (Pak, 2012). Sharife and Bracking (2016) report that transfer pricing of South African diamond producing companies by inflating import prices and undervaluing export prices estimated lost revenue at ZAR 1 billion per year. In addition, Global Financial Integrity reports that illicit financial flows from South Africa, between 2004 and 2013, approximated about USD 20.922 billion per annum (Kar & Spanjers, 2015). The use of thin capitalization by the EI to inflate debt and deductible interest, thereby reducing taxable income, is a further problem. Government can curb this issue by limiting interest deductions and implementing RRTs, which do not allow any interest deduction in their calculation (Natural Resource Governance Institute, 2015b).

The concept of a fair share of rent is compromised by tax evasion and avoidance of investors who are unwilling to pay their share by removing untaxed profits and shifting these funds to tax havens (Aarsnes & Lundstøl, 2013). Siu, Picciotto, Mintz & Sawyerr (2015) explored the evolution of a unitary taxation that would simplify problem areas such as transfer pricing, source and corporate residence rules and controlled foreign corporation.

Devlin (2015) highlighted the following EI international tax issues:

- Failure of revenue authorities to raise capital gains tax (CGT) on the indirect selling of EI assets due to their inability to detect transactions occurring offshore or the EI company structuring gain outside the EI country's tax base.

- Encouraging domestic policy goals, such as increasing employment economic diversification, promoting industrialisation and investment as a trade-off for offering tax incentives such as reduced tax rates for beneficiation, accelerated depreciation deductions on plant and equipment, reduced withholding tax rates, accelerated deductions encouraging exploration, direct subsidies or refunds and/or tax holidays. Countries offering tax incentives favour sacrificing tax revenue for greater participation in the value-add, as resources are transformed from resources to saleable commodities. These incentives encourage the expansion of the EI sector, but have distortionary effects in transferring greater gains to the producer. These tax incentives may be subjected to transfer pricing or costs, and may be restructured to higher-taxed parts of the production chain to increase deductions.
- Profit shifting through ‘thin capitalisation’ allowing profits to be transferred between countries using debt financing transactions. An international approach to counter this is to ensure that net interest deductions are directly connected to the taxable income generated.
- Stability clauses prohibiting potential corrective action to rectify defective or erroneously drafted law.
- Ring fencing creates incentives for domestic cost shifting.
- Tax authorities experience problems in applying transfer pricing criteria, in order to establish whether intra-group transactions are in accordance with the arm’s length practices. This has resulted because the information may not exist, countries may be unable to find comparable transactions, or do not have the expertise to apply the arm’s length principle effectively, or information may be difficult to obtain.
- In circumstances where VAT refunds to EI exporters are refused or delayed, VAT becomes a burden on companies, potentially deterring investment.
- Streaming agreements, commonly used where loans are not available from traditional funding such as banks. These financing arrangements permit mining companies to access funding for partial or complete mine development and construction. These agreements can be used as vehicles to facilitate the transfer of profits to alternate jurisdictions.

2.7.8. Rehabilitation costs

Extracting resources is an economic driver and stimulates investment and development. A barter transaction exists, whereby an increase in monetary benefits to the country is traded for the destruction of the environment. Mining not only destabilises the ecosystem, but it is also responsible for a high output of waste material (Andrews-Speed & Rogers, 1999). Mining companies have an obligation to rehabilitate a mine after production and to conduct its operations in an environmentally friendly manner. Effective tax policy design is required to provide tax incentives in order to reduce environmental damage, to ensure that funds are available for rehabilitation and that costs incurred receive fair tax treatment (Cameron & Stanley, 2017).

2.7.9. Remarks on designing a fiscal regime

Cameron and Stanley (2017:26) state: “How is a government to ensure that a fair share of economic rent goes to the resource owner without undermining the investor’s confidence in undertaking the risk?” In the absence of a model to conclude what a fair share represents, the only available guidance is to adhere to good practice design principles in the pursuit of a fiscal regime that is considered fair to investor and state alike. The shareholder value principle should be adopted as a precursor to establishing the principles of a tax regime. In this way the decision making process in determining an optimum tax regime will be guided by the principle of creating shareholder value. This approach can ensure that government assumes accountability to actively contribute to value maximization strategies for the EI.

A tax regime is required to account for these distinctive characteristics adjusting to the cost and revenue generated during the lifespan of an extractive venture. To this end, various fiscal instruments in tandem comprise the fiscal package. Resource licences subject to competitive bidding should carry a fee, resource extraction is then taxed through a combination of CIT, royalties and production-sharing agreements. An optimal tax system applicable to all EI jurisdictions does not exist. However, I contend that universal good policy measures can inform the development and design of an effective EI fiscal regime.

During periods of high commodity prices, the fairness of an extractive fiscal regime is compromised if a government unilaterally reconfigures fiscal terms. Extractive companies with sunk costs are held captive by their capital investments. An efficiently designed fiscal regime can accommodate changes in economic conditions and obviate remediation of fiscal terms. Thus, an ideal fiscal regime for EI is neutral and progressive, maximises tax revenue over the duration of an extractive venture, while maintaining investment and has the flexibility to adjust to changes in economic circumstances.

Natural resource led development is contingent on securing a fair share of returns from EI and is intrinsically linked to the decision on how this revenue is managed, which is explained in the next section.

2.8. NATURAL RESOURCE FUNDS

The adage that resource-rich countries suffer a resource curse has dissipated in recent years with countries such as Norway and Chile harnessing the economic advantage from their commodities to fund NRFs (Havro & Santiso, 2008). The management of resource revenues can lead to economic growth resulting in an improvement of living standards of citizens, with the contrary result when revenues are mismanaged (Daniel *et al.*, 2010). Thus, fiscal spending policy should address the nature of resource revenue; being finite, volatile and predisposed to deindustrialise the economy arising from inflation, exchange rate appreciation, and the movement of labour and capital into the resource sector (Balin, 2008).

The accelerated returns from NRFs has resulted in these government-owned investment funds being significant players in the global financial market (Santiso, 2014). The NRF's acclaim as a natural resource management mechanism can be evidenced from the successful transformation and diversification of several resource dependent economies. These funds are set up for a range of macroeconomic reasons but most commonly instituted to hold long-term investment portfolios of foreign exchange reserves in global assets. The exhaustibility of natural resources and incumbent revenue provides impetus for the generation of sustainable revenue for future generations. This is achieved by ring fencing natural resource rents and saving them in a fund to smooth investment spending on the depletion of resource revenue (Bauer & Rietveld, 2014).

In this section, I analyse the case for a NRF in a resource-intensive economy. This discussion complements the NRF as one of the remedies to address the resource curse (section 2.3.2.3). Long-term planning and fiscal discipline in the management of revenue is discussed first and then followed by an exploration of the benefits and drawbacks in employing a NRF as a tool to manage resource revenue volatility, balance short-term expenditure with long-term savings and the creation of intergenerational equity.

2.8.1. Defining a natural resource fund

NRFs, common amongst resource-rich countries, are national savings funds that use income from a resource boom, or in some cases from surpluses, to save for future resource depletion by holding offshore investments in income generating assets (Balin, 2008). NRFs are utilised to restrain the appreciation in value of domestic currency assisting local industries to maintain competitiveness in the global market. Globally NRFs, which adopt clear investment strategies and a prudent approach to fiscal policy, have experienced steady growth (Bauer, 2014b). NRFs are often referred to as stabilisation funds or funds for future generations. SWFs are state-owned investment vehicles that are used to invest national savings (Truman, 2010). NRFs, pre-dominant in resource-intensive economies are a subgroup of SWFs (Bauer, 2014b)⁴⁸.

Allen and Caruana (2008) state that, depending on their primary objective, five types of NRFs can be developed:

- Stabilization funds are created by natural resource-rich states to protect against volatility in commodity prices. Chile's Economic and Social Stabilization Fund, and Timor-Leste, Iran and Russia's Oil Stabilization Funds invest in highly liquid assets allocating approximately 80 percent of their Assets Under Management (AUM) to fixed income

⁴⁸ The International Forum of SWFs formulated the definition and developed 24 generally accepted principles and practices for SWFs, referred to as the "Santiago Principles". The accepted definition of a SWF reads: "SWFs are special purpose investment funds or arrangements, owned by the general government. Created by the general government for macroeconomic purposes, SWFs hold, manage or administer assets to achieve financial objectives, and employ a set of investment strategies which include investing in foreign assets. The SWFs are commonly established out of a balance of payment surpluses, official currency operations, the proceeds of privatizations, fiscal surpluses, and/or receipts from commodity exports. These exclude inter alia foreign currency reserve assets held by monetary authorities for the traditional balance of payments or monetary policy purposes, state-owned enterprises in the traditional sense, government-employee pension funds, or assets managed for the benefits of individuals."

securities. Their strategic asset allocation objectives parallel that of central banks reserve managers.

- Saving funds are established to create an enduring benefit for future generations. These funds engage in high risk-return projects as demonstrated by the Abu Dhabi Investment Authority, the Libyan Investment Authority and Russia's National Wealth Fund.
- Reserve investment corporations are created to pursue higher return investments, negating the opportunity cost of holding reserves. This is achieved by assigning high allocations in equities and alternative investments. These funds include the China Investment Corporation, the Korea Investment Corporation, and the Government Investment Corporation of Singapore.
- Development funds are created to fund socioeconomic and infrastructure development projects. Examples of these funds are the United Arab Emirates (hereafter "UAE") Mubadala Fund and the Iran National Development Fund.
- Pension reserve funds are contingency reserves to fund potential pension liabilities in the future. Examples include Australia's Future Fund, Chile's Pension Reserve Fund, Ireland's National Pensions Reserve Fund, New Zealand's Superannuation Fund and the Russian Federation's National Wealth Fund.

A fund can have multiple objectives which are not mutually inclusive that inform the strategic asset allocation choices with regard to liquidity, investment horizon, risk and returns of investment. A fund's performance is underpinned by factors such as "investment strategy and beliefs, investment constraints, country-specific circumstances, sources of funding, legal structures, and maturity" (PricewaterhouseCoopers, 2015:4). Thus, funds with comparable objectives may have dissimilar asset allocations and investment strategies (Al-Hassan, Papaioannou, Skancke, & Chih Sung, 2013).

The State Oil Fund of Azerbaijan, the Kuwait Investment Authority, and Norway's Government Pension Fund-Global all have multiple objectives (Kunzel, Lu, Petrova & Pi, 2011). While countries like Chile, the Russian Federation and Singapore have multiple NRFs for diverse purposes, Azerbaijan, Botswana, Trinidad and Tobago and Norway's NRFs have both the objectives of a stabilization and a savings fund. Australia's fund acts as a savings and pension reserve and Kazakhstan's NRF's purpose is that of stabilization, saving and development (Al-Hassan *et al.*, 2013).

NRFs should be funded out of fiscal surplus and not borrowings. They should complement fiscal policy and should be integrated into the spending and resource allocation strategies (Daniel *et al.*, 2013). Three approaches exist to fund a NRF. The first approach, used by natural resource exporting countries, is sourced from owned commodity or tax revenue, and examples include Norway's Government Pension Fund and the UAE's Abu Dhabi Investment Authority (Kunzel, Lu, Petrova & Pi, 2011). The second approach, used by non-natural resource exporting countries, is to transfer assets from foreign exchange reserves such as China, Singapore and South Korea. The third approach, providing part finance, is sourced from sovereign debt from unutilised capital and is raised from international sources (Balin, 2008).

For a NRF financed from natural resource wealth, policies on resource taxation, foreign investment and development policy inform the distribution criteria of the fund. A NRF's role determines its commensurate liabilities, and its successful operation is contingent on its ability to generate adequate returns to fund these expenses. Similarly, the asset allocation selection should be relevant to the purpose of the NRF (Ang, 2010). Norway's NRF distributes money to government's operating budget, whereas the New Zealand Superannuation Fund and the Australian Future Fund allocate revenue to meet pension fund obligations. The Alaskan Permanent Fund dispenses money directly to each citizen (Smith, 1991).

Table 2.8 below, summarises the different macroeconomic goals and the corresponding objectives, that determine the role of the fund in the context of the broader economic policy framework and informs the relevant investment strategy.

2.8.2. Fiscal rules

A fiscal rule is defined as a multiyear, numerical, target restriction on overall government finances. Fiscal rules impose a "commitment mechanism, binding successive governments to a long-term budgetary target and therefore a long-term vision of public financial management" (Bauer, 2014a:2). Due to the finite and volatile nature of natural resource revenues; fiscal rules are indispensable; discouraging wasteful government expenditure and thereby improving a government's credibility while stimulating investment (Bauer, 2014a).

Table 2-8: Framework of macroeconomic objectives of SWFs

Goal	Objective	Description
Capital maximisation Building a capital base for the growth and preservation of national wealth	Intergenerational wealth	Transforming non-renewable assets into diversified financial assets for future generations
	Funding future liabilities	Growing and reserving the real value of capital to meet future liabilities, such as contingent liabilities like pensions.
	Investing reserves	Investing excess reserves into potentially higher-yielding assets via financial strategies aiming at higher long-run returns, and reducing the negative carry costs of holding reserves.
Stabilisation Macroeconomic management and economic smoothing	Facilitating fiscal stability	Using counter-cyclical fiscal tools to insulate the economy from internal and/or external shocks, e.g. changes in commodity prices, to smooth consumption.
	Stabilising the exchange rate	Using the fund's resources to balance large capital inflows and outflows in the short-run (which may be caused by commodity price volatility) to prevent asset price bubbles and reduce price volatility.
		Using the fund to manage amount of capital entering the domestic economy over the long run, to ensure the exchange rate is maintained at a level to allow for other export activities, e.g. to prevent Dutch Disease.
Economic development Investment to boost a country's long-run productivity	Investing in hard infrastructure	Domestic development in capital assets, including but not limited to transport, energy, water management and communications.
	Investing in social infrastructure	Domestic development in soft infrastructure: human capital and the institutions that cultivate it. This includes socio-economic projects such as education and health.
	Pursuing industrial Policy	Creating a diversified economy in order to reduce dependency on one resource or source of funding. Official, strategic efforts by governments to boost productivity in specific sectors.

Source: PricewaterhouseCoopers (2015:3).

According to Wilde (2016), there are four fiscal rules that promote the accumulation of savings while effectively managing resource revenues.

- A benchmark fiscal pricing rule is adopted by setting a benchmark price for natural resources in the national budget. The government spending forecast is then planned in correlation with the projected natural resource revenue. Savings accrue when actual prices exceed benchmark prices and conversely, savings are used to maintain the shortfall in government spending when actual prices plummet below benchmark prices. Thus macro-economic stability is achieved by de-linking spending from short term volatility. The implementation of this rule is flawed by the difficulty in predicting long-term commodity prices. Moreover, the savings accrued are as a result of the price deviation from the benchmark. Consequently the implementation of this rule cannot achieve long-term transfer of wealth, neither can it finance unsustainable increases in consumption.

- By contrast, the “bird in the hand” rule promotes the transfer of intergenerational wealth, as all revenue is saved and consumption is based on yields from investments. Government spending is based on past savings and thus de-links spending from short term volatility, allowing continuity of spending past resource depletion. This results in inequity as consumption is higher for future generations than the current generation.
- The Permanent Income Hypothesis Approach provides an equal increase in consumption for all generations, where government only consumes the long-term real rate of return on natural resources. This rule is too complex to administer because it is based on uncertain forecasts of projected resource revenues and spending may need to be financed from borrowing if actual resource revenue is less than the long-term real rate of return.
- A non-resource fiscal deficit targeting rule protects against loss of economic competition from spending. Non-resource fiscal deficit = non-resource revenue - government spending/non-resource GDP.

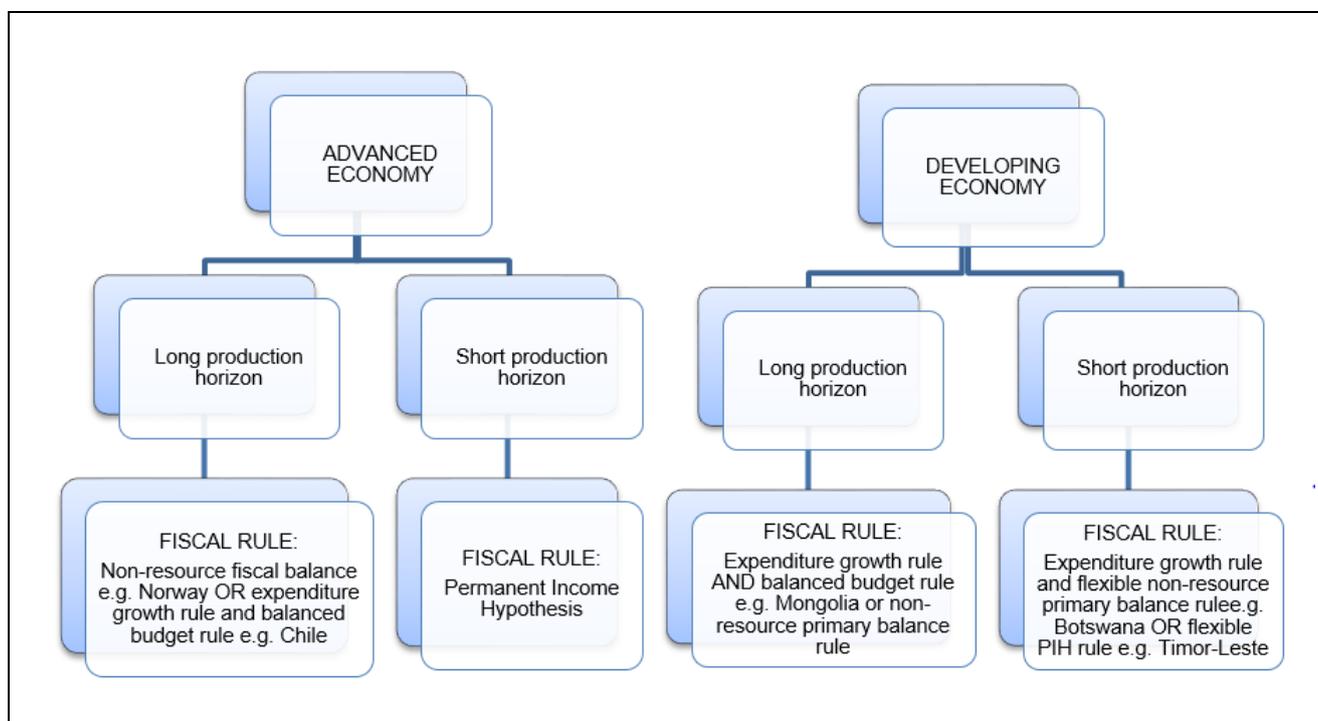
There is no one size fits all rule for all developing resource-intensive economies. The best outcome is assessed subject to the economic structure and government public policy imperatives. Benchmark pricing and non-fiscal deficit targeting rules are used when a country has significant reserves of extractives, thus their objective is to delink revenue from short-term volatility while maintaining economic competitiveness. However, the bird in the hand fiscal rule suits a country with limited extractive reserves and is willing to increase consumption over time (Bauer, 2014a).

Under the same circumstance, if there is a dependence on natural resource revenues, it is appropriate to adopt the non-resource fiscal deficit targeting rule (Das, Lu, Mulder & Sy, 2009). On the other hand, a country with limited extractive reserves wanting to immediately increase consumption, should rather implement the Permanent Income Hypothesis Approach (Bauer, 2014a).

Furthermore, a non-resource fiscal deficit targeting rule would be suitable when the country has limited extractive reserves, wants to see an immediate increase in consumption and resource revenue is considerably larger than the size of the domestic economy (Wilde,

2016). These fiscal policy rule choices for resource-rich countries are illustrated by way of a decision tree in Figure 2-10.

Figure 2-10: Decision tree on fiscal rules for resource-rich countries



Source: Bauer (2014a:6).

2.8.3. Significance of natural resource funds in the world markets

The Kuwait Investment Board, established in 1953, was the first NRF created to manage surplus oil revenue. In the 1970s, the oil boom added the UAE, Saudi Arabia and Alberta, Canada to the list of NRFs (Balin, 2008). Rising commodity prices facilitated the rapid emergence and growth of NRFs, creating a shift in the role of governments in financial markets. In 2003, global AUM of NRFs were USD 0,5 trillion, increasing six fold to USD 3 trillion by 2007. NRFs are recognised players in global financial markets, with their investment acquisitions varying from local to international markets and across a myriad of financial instruments from currencies, equities, property and bonds. NRFs are a means for governments to manage their own wealth. NRFs have re-distributed wealth and economic power away from mature industrial economies such as the United States and Europe (Truman, 2010). Sceptics' view NRFs as instruments of corporate espionage which conflict with proponent's views that NRFs "saved the day" by injecting substantial capital to resurrect financial markets from the aftermath of the financial crisis (Triki & Faye, 2011).

Norway's NRF was set up in 1990 and only became operational with the first injection of funds in 1996. Legal provisions prevented the government from growing the NRF without an increase in government's net financial assets. During the period 1980 until the banking crisis in 1992, Norway generated fiscal surpluses that provided for the repayment of debts. The debts related to the initial set-up cost of the petroleum sector in the 1970s. The successful growth of Norway's NRF is attributable to prudent investment of tax revenue generated from the post 2000 surge in oil prices. In 2001, a fiscal guideline was introduced adopting an annuity approach. In terms of this rule, all resource revenue is saved and only 4 percent of saved oil revenues is allocated to the budget at the beginning of a year (Steigum, 2013). This fiscal rule was revised in 2017 to 3 percent (Norway, 2019).

An alternate approach is to invest resource revenue in human capital development, improving social services including education and healthcare. A developing country's rate of return on human capital investment is considerably higher than financial investments (Venables & Wills, 2016). Investment in public infrastructure generates economic growth and produces non-resource revenues. The converse applies when spending is poorly orchestrated, leaving future generations impoverished (Daniel *et al.*, 2013).

The UAE's successful transformation from dependence on oil revenues was achieved by diversification into tourism, aerospace and finance. The fund was used as a conduit to set up key global investments in these sectors (Reisen, 2008). Khazanah (the Malaysian fund) and Temasek (the Singaporean fund) act as venture capital funds transferring knowledge and skill to local industries (Santiso & Capape, 2011).

African NRFs have not been as successful. Key design drawbacks and their lack of transparency contribute to their poor performance. The establishment of African NRFs have been voluntary, with the exception of Chad, which was a pre-condition to World Bank funding of the Doba oil field and the Chad-Cameroon pipeline. Regular drawings required to balance the state budget and repayment of debt resulted in poor growth of the Chad NRF. However, NRFs could be beneficial to African countries. If structured appropriately they could create economic growth by financing infrastructure and creating financial stabilisation (Triki & Faye, 2011).

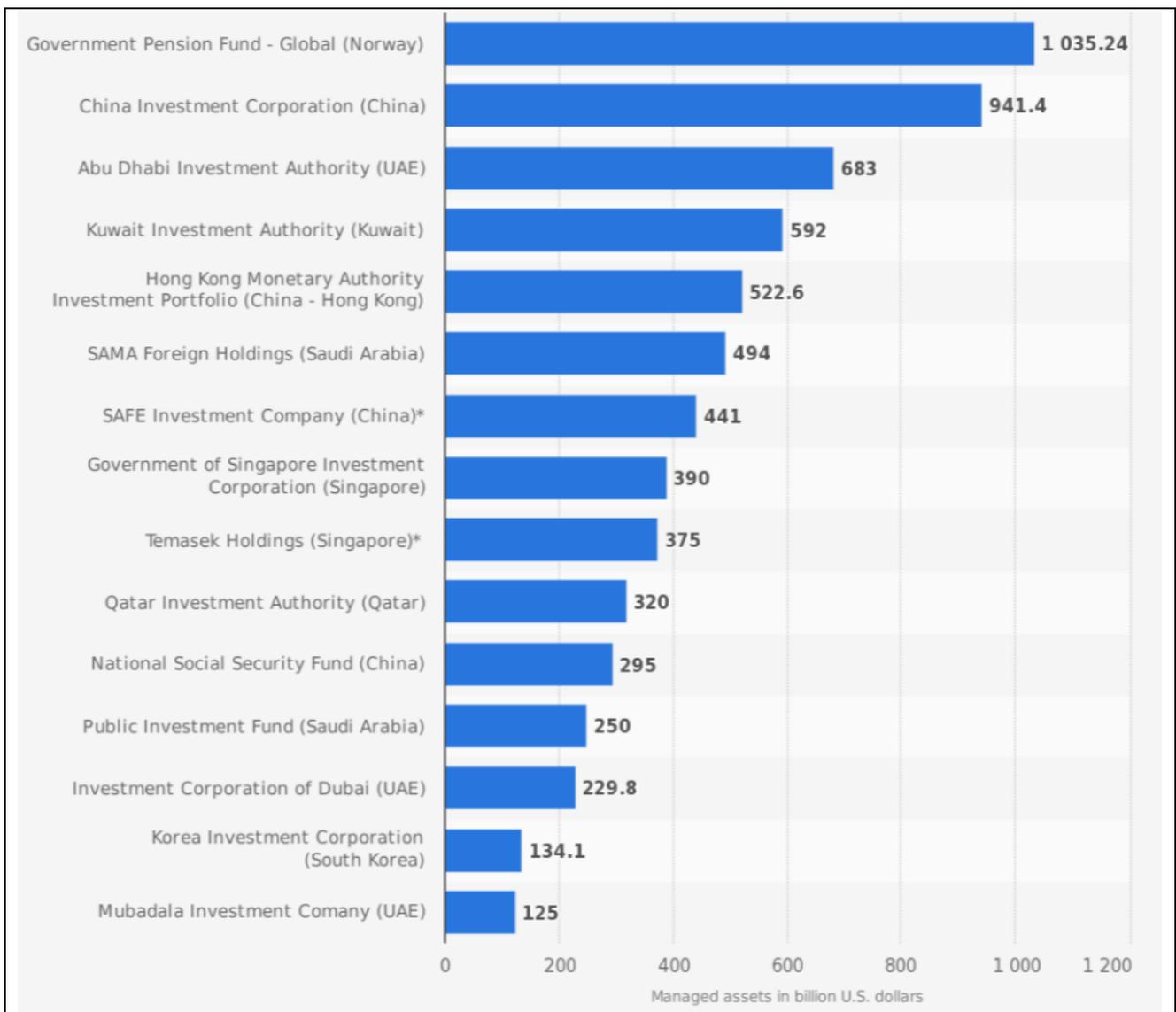
Volatility of future commodity prices and rates of return on exploration, produce uncertain information, which affect the choice to consume, invest or save resource revenue (Reisen, 2008). Rather than being consumed, a NRF is promoted as a tool to help transform natural resource rents into other forms of wealth. Theoretical evidence suggests that the initial investment of windfall revenue should be made abroad as the return on investment would drop lower than world interest rates if these rents were invested locally (Addison & Roe, 2018). However, exercising the balance between domestic and foreign assets is administratively difficult to sustain, as there will always be contentious demands for present-day consumption at home (Wills, 2015).

Reisen (2008) states that the motivation to establish a NRF is driven by the ability of the fund to limit the accumulation of large foreign exchange reserves leading to currency appreciation and consequently impeding competitiveness of other industries. Reducing resource dependence through diversification and increasing the production efficiency of the economy by investing in technology transfer and networks adds to the motives behind the creation of a fund (Cameron & Stanley, 2017). In addition, the opportunity costs of holding reserves is extinguished (Allen & Caruana, 2008). Figure 2-11 illustrates the largest SWFs by assets under management.

2.8.4. Investment strategies

The strategic asset allocation of the NRF should be aligned with the government's broad macro fiscal policy objectives. The risk diversified asset portfolio held by NRFs are differentiated in terms of instrument class and market. Investments are mostly long-term in nature without repatriation requirements. The nature of these investments afford the fund the ability to withstand short-term volatility and illiquidity risk (Balin, 2008). The Government of Singapore Investment Corporation investment model portfolio comprises of a 50 percent investment in equities, 30 percent in bonds and 20 percent held in private equity, real estate and commodities. In contrast, Norway and Saudi Arabia steer away from natural resource

Figure 2-11: Largest SWFs worldwide as of August 2018 (billion USD)



Source: Statista (2018).

investments, predominantly investing in banking, technology and industrial companies. Norway’s NRF aims to hold 40 percent of its AUM in equities and 60 percent in fixed income. Contrary to transparent and independent governance principles, the Abu Dhabi Investment Authority manages all assets in-house, whereas 75 percent of South Korea’s NRF investment assets are managed by independent investment managers (Allen & Caruana, 2008). Political interference can drive investments at home, whereas external fund managers prefer investment in industries with low price to earnings levels. The OECD position on the disclosure of a NRF’s investment strategy is that they should be treated as any other institutional investor, in that exposing their portfolio allocation would disadvantage them with regard to other investors (Avendano & Santiso, 2009).

2.8.5. The case for a natural resource fund

The Natural Resource Charter emphasises that the decision to distribute resource revenues should account for the objectives of promoting equity between generations and the efficient use of revenue to maximise welfare. Precept 7 of the charter states that “the government should invest revenues to achieve optimal and equitable outcomes, for current and future generations” (Natural Resource Governance Institute, 2014:25).

Barma *et al.* (2012) contend that resource-dependant developing countries are tasked with converting the taxes received from a depleting resource into a productive asset, and simultaneously curbing the effects of currency appreciation from resource revenue on other sectors of the economy.

The exhaustibility of natural resources means that government revenue from extraction cannot go on indefinitely, implying that consumption and government spending financed from natural resources are temporary, and, if poorly managed, can lead to volatile and inefficient public spending, an unsustainable increase in consumption and Dutch disease (Cameron & Stanley, 2017). Sound policies in taxation and revenue management are crucial to safeguard that natural resource wealth is transformed into economic development. Fiscal policy should ensure that the state receives a fair share of revenue and revenue management policies are necessary to ensure that revenue is prudently applied to finance sustainable economic development. Fiscal rules thus require an accumulation of savings. A NRF which has clearly defined objectives, an investment mandate consistent with government fiscal policy and investment decisions that are insulated from political interference, presents itself as an optimal saving mechanism (Wilde, 2016).

The Natural Resource Governance Institute (2015c) states that there are three reasons to employ a NRF to invest in foreign assets. In the case of a developed economy, only a social return exists in investing locally, whereas the financial returns from investing offshore may be substantial. Secondly, a lack of government skills and resources to deliver on projects may be reason to invest abroad. The third possibility serves to utilise a NRF as an intergenerational transfer mechanism for future generations while current domestic expenditure is funded from the interest generated from the investment. Balin (2008) adds

that NRFs are created to diversify a country's income, using funds to invest in new sectors and revive or maintain a country's competitive advantage. In addition, NRFs may invest in companies to stimulate technological transfer to local industries. The NRF would use board voting powers to influence investment and research development facilities in their country. The NRF would then hold intellectual property rights from technology development and through patent protection, in favour of local industries as evidenced in South Korea and Singapore.

Although most NRFs have been established to invest savings from natural resources, other reasons include investing current account surpluses or to finance future liabilities (Balin, 2008). In the short term, a NRF can be utilised to smooth expenditure when commodity prices are volatile. In the long term, the fund represents a storehouse for future generations providing an alternate stream of revenue on the depletion of natural resource revenue. The investment returns generated can diversify the country's income from resource dependency or to drive competition by investing in new sectors (Wilde, 2016;). The desired size of a NRF is based on the expected life of the resource deposit. A NRF is an instrument designed to accumulate financial assets that will generate sufficient financial returns to replace resource revenues as they decline. Therefore, the shorter the life of the deposit, the higher the saving that is required in the NRF (Cameron & Stanley, 2017).

2.8.6. The contrarian perspective

NRF's are recommended as a policy tool to mitigate the resource curse, yet they do not provide assurance of sound macroeconomic management and may complicate budget processes and reduce public spending accountability (Bauer, 2014a).

Contrary to the exceptional success of the Norwegian and Singaporean NRFs, several other NRFs have come under the spotlight for maladministration and corrupt practices. The IMF criticises the absence of evidence to support the premise of income smoothing during high and low commodity prices and the inability to manage fiscal operational objectives with investments intent on developing high-tech industries (Alhashel, 2015). Furthermore, an inverse relationship exists where countries with a greater dependency on one commodity are found to be less effective in realising the aims of their NRF. In addition, the rationale of

creating a “rainy day fund” to help re-build an economy is misguided, when a prudent approach would be to invest now in order to diversify. The lack of transparency in the administration of certain NRFs predisposes these funds to clandestine self-enrichment policies and the threat of corporate espionage. They have also been rumoured to drive political motives, threaten investor countries’ national security and tactically acquire intellectual property via investment in strategic industries (Balin, 2008). Humphreys and Sandbu (2007) emphasise the vulnerability of NRFs to government manipulation. The fund restrictions imposed by the Norwegian Government are relatively lax, in contrast with the Chad NRF. However, despite the effort involved to create the Chad NRF, the government changed the fund rules to allow removal of oil revenues from the fund (Wills, Senbet, & Simbanegavi, 2016).

Opponents of a NRF, warn that the incentive for policy makers to spend now, impedes their ability to save (Tsani, 2013). Countries with weaker governing systems have poor institutional environments, and consequently, are more likely to be prone to political interference. Fiscal policy discipline identifies the need to separate the pattern of spending from that of income. Failure of NRFs in African countries is attributed to the fact that the design of the fund frequently disregard the challenges associated with political leaders controlling these funds (Wills, Senbet, & Simbanegavi, 2016).

Truman (2010) raised the following risks and geopolitical threats relating to uncertainty of investment objectives with NRFs:

- mismanagement of investments by NRFs to the economic and financial detriment of the country;
- pursuit of political or economic power objectives via NRFs;
- financial protectionism by actual or imagined threats from NRFs;
- potential for financial market turmoil and uncertainty associated with NRF activities; and
- conflict between countries with NRFs and countries in which they invest.

Al-Hassan *et al.* (2013) state that effective management of NRFs are promoted through a sound legal framework, institutional and governance arrangements. The distrust in NRFs has been diffused by the Santiago principles of Generally Accepted Principles and Practice formulated by the International Working Group on NRFs in 2008. Norway, Canada, Australia

and the United States are open, transparent and accountable in the manner their NRFs are operated, while the UAE, Saudi Arabia and Qatar are opaque in their reporting requirements (Balin, 2008). Table 2-9 states the benefits and drawback of implementing a NRF by identifying different country's experience in applying a NRF to combat the 'resource curse'. The general argument made by proponents for a NRF, is that it provides a useful resource wealth management tool to insulate against the resource curse'. More specifically, opponents argue that a NRF is not an appropriate economic tool to insulate against volatile commodity prices and can defeat the objective of creating a fund if subject to political pressure and corrupt practice.

In my view, sufficient evidence exists to support that an NRF, can mitigate against Dutch disease effects and currency appreciation; provided fiscal rules, sound governance and accountable institutions are in place. Therefore, I conclude that a NRF can be employed as a tool to manage resource revenue volatility, to balance short-term expenditure with long-term savings and to create intergenerational equity.

Table 2-9: Summary of arguments for and against a NRF

Proponents: Arguments in support of NRF's	Jurisdiction examples
NRF's support macroeconomic stability by addressing challenges of price volatility and exchange rate pressures.	Norway, Alberta, Kuwait
NRF's can improve fiscal discipline as tools of self-constraint upon fiscal actors.	Chile, Azerbaijan, Kazakhstan, Botswana
NRF's can serve revenue saving and intergenerational fairness goals	Norway, Kuwait
NRF's can insulate natural resource revenues against rent-seeking, politicized use and corruption, enforcing the conditions of proper management of resource endowments	Norway, Alaska, Botswana
In the presence of limited access to international markets, NRF's can serve as alternative tools of self-insurance.	Chile
Opponents: Arguments against NRF's	Jurisdiction examples
The experience with NRF's does not confirm that resource funds may contribute towards macroeconomic stability.	Venezuela, Nigeria, Papua New Guinea
Poor coordination with the budget and duplication of expenditures nullifies the role of the funds towards fiscal discipline and stability.	Venezuela, Nigeria
NRFs' assets fungibility may off set the role of resource funds towards intergenerational fairness.	Alberta, Ecuador, Nigeria
NRFs can be subject to political pressures. This nullifies the corruption-free and transparent management of resource endowments	Venezuela, Ecuador, Kazakhstan
NRFs can be poor tools of self-insurance.	Venezuela, Papua New Guinea

Source: Tsani (2013:184).

2.8.7. Good governance measures

NRFs should have clearly stated objectives. The broad investment mandate of the NRF should be consistent with its objectives and the government's fiscal policy. A well designed structure with a clear division of responsibility between different institutions and appropriate checks and balances can limit risk and help ensure that the NRF is effectively managed (Das *et al.*, 2009).

Clear division of responsibilities should be established between (Al-Hassan *et al.*, 2013):

- the setting of the objectives of the fund;
- the decision of which investments to make; and,
- fund managers should be insulated from political pressure.

The competition for power provides the political incentive to deviate from the best economic policy for the country. Humphreys and Sandbu (2007) suggest that the political interference can be minimised by:

- limiting discretionary decisions through setting rules which govern the amount and composition of NRF spending;
- segregating authority to decide on how much to spend from the authority in charge thereof; and,
- ensuring that transparency allows the public to hold the government accountable for spending.

Bauer and Rietveld (2014) state that good fund governance can prevent corruption and have an impact on the fund meeting its stated objectives. A well-developed management structure is underpinned by strong internal controls, supervision, accountability and transparency (Das *et al.*, 2009). As illustrated in Figure 2-12, this is achieved by a clear segregation of duties between the different levels of institutional hierarchy. The macro management structure should segregate responsibilities between legislation, the president, the fund manager, as well as operational and external managers (Al-Hassan *et al.*, 2013).

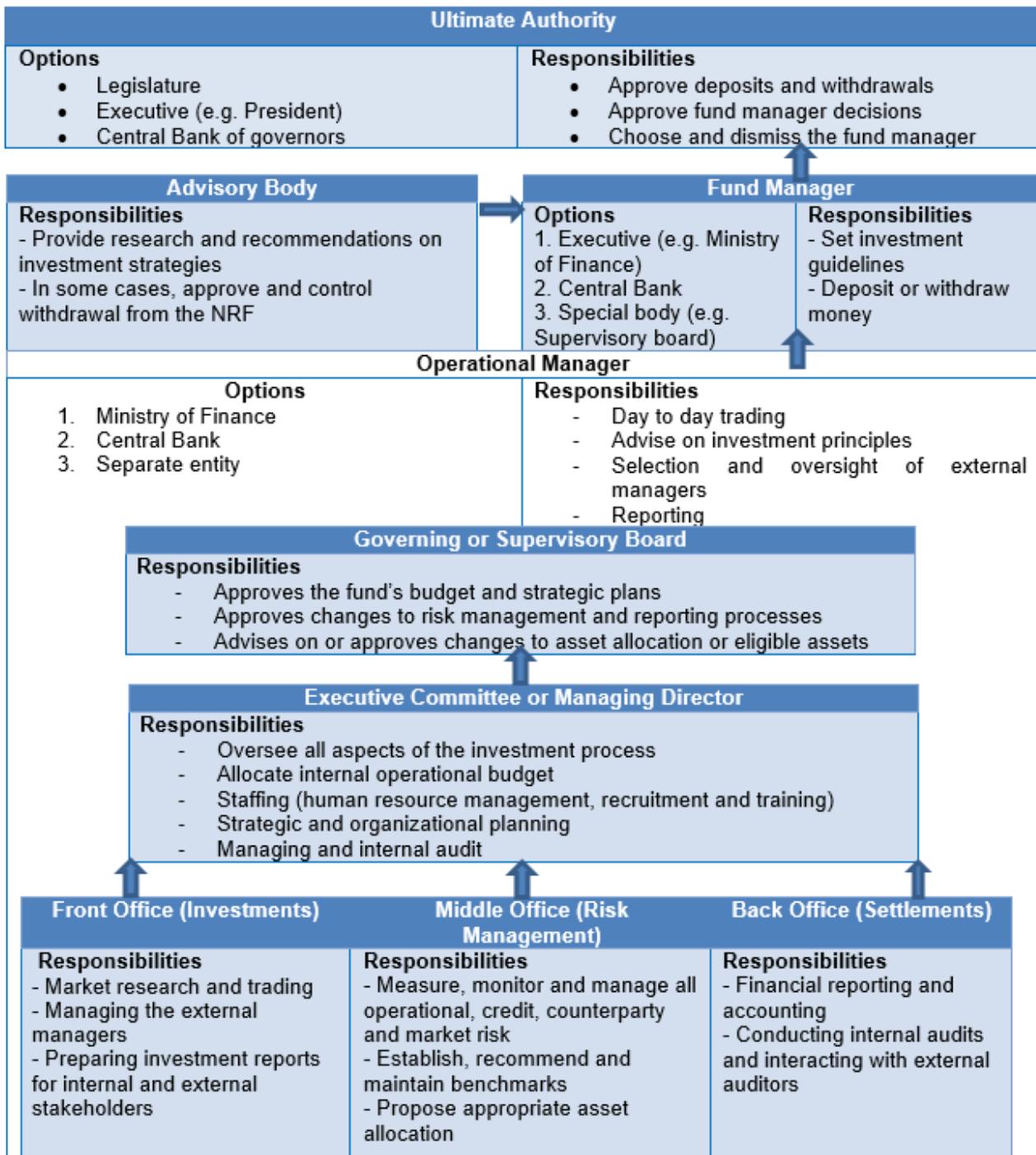
Typically, NRFs can be established by the constitution, legislation, regulation or executive decree. Botswana, Canada, Chile, Ghana, Norway, Russia, Timor-Leste, Trinidad, Tobago

and the UAE have established their funds through legislation, whereas Azerbaijan and Kuwait have established their funds through executive decree. The day-to-day management can reside within a division in the central bank or the ministry of finance (Das *et al.*, 2009). Alternatively, this can be operated as a separate entity. The deciding factor on the locality of the fund resides in minimising mismanagement of independent public institutions (Wilde, 2016). Botswana, Ghana, Norway, Russia, Trinidad and Tobago have opted to locate the operational management within the central bank. The USA has located day-to-day management at a sub national level with the Department of Revenue. Azerbaijan, Canada, Kuwait and the UAE have established a separate entity for this function. A separate entity is designed to assist in the creation of specialist expertise in the operations and management of the NRF and also be insulated from political interference and. However, this could also be a tactic to avoid the stringent reporting requirements within a central bank or ministry of finance (Bauer & Rietveld, 2014).

The recommended NRF organisational structure in Figure 2-12 illustrates that the fund manager, located within the executive branch of the Office of the President or Ministry of Finance, is responsible for setting up the investment guidelines and the withdrawal criteria consistent with government's macro-economic framework. This organisational structure can subject investment decisions to political interference. Ghana, the United States, Timor-Leste and Trinidad and Tobago circumvent this by adopting statutory laws that govern deposits and withdrawals, thus limiting the discretionary powers of the fund manager. In Norway, parliament controls deposits and withdrawals. The presence of a formal advisory board staffed with members from academia and policymakers can limit the degree of discretion of the fund manager and government (Bauer & Rietveld, 2014).

Alternatively, an advisory board can merely offer recommendations to the fund, as in Ghana and the United States (Das *et al.*, 2009). In the case of Chile, there are specialised advisory committees providing binding recommendations to the Ministry of Finance on trend GDP and output gap, and another committee advises on the reference price of copper (Havro & Santiso, 2008). The contributions of these two committees inform decisions on how much revenue to save and spend, in accordance with the fiscal rule (Bauer & Rietveld, 2014).

Figure 2-12: Model NRF organisational structure



Source: Bauer & Rietveld (2014:3).

In addition, the Chilean Advisory Committee for Fiscal Responsibility Fund is tasked with providing non-binding recommendations on the evaluation of the fund management of the central bank, and fund investment management to the Ministry of Finance. The committee's recommendations and the annual reports on the fund's performance are publicised, creating

pressure for government to adhere to recommendations (Havro & Santiso, 2008). Enforcing a code of conduct establishes a clear guideline for detecting and dealing with misconduct, and can be limited by appointing a compliance officer to monitor adherence to legislation and ethics. External investment managers may be required to manage specialized asset classes; however, this can create an agent principal problem as external fund managers may be motivated to engage in complex investments because they are associated with higher fees or performance bonuses. Moreover, they are not held accountable for any of the NRFs losses (Bauer and Rietveld, 2014).

2.8.8. Policy for developing countries

Most resource-intensive economies are developing with limited access to capital. Developing capital-scarce countries face two critical decisions: to spend or save and or the choice to consume or invest. The most prudent decision under these circumstances is to make domestic investments than to save (Venables & Wills, 2016). The rationale is that there is a higher yield on public investment required for economic development than saving (Wills, 2016). Furthermore, regardless of the decision to spend, maintaining savings are necessary to counter volatility and pro-cyclical spending. When considering the decision to consume or invest, investment spending is considered more productive than consumption spending. The third decision: is the choice of “where” to locate the savings. One option is to save the foreign currency receipts from extractive resources as reserves at the central bank, alternatively these receipts can be saved in a NRF (Addison & Roe, 2018). While there are several distinctions between NRF’s and central banks there bear many similarities. NRFs are vulnerable to government manipulation who are motivated by the incentive to spend now over investing in infrastructure or embarking on diversification activities.

Wills *et al.* (2016) advocate that an intergenerational NRF is better suited to a developed country while a developing country should prioritise investment in domestic infrastructure and associated maintenance. They further advised that a developing country’s NRF with funds invested offshore would benefit from a temporary fund until the economy can absorb domestic investment. Furthermore, development banks are most appropriate to achieve domestic investment.

Wills (2015) recommends that capital scarce developing-countries should save less in an NRF. The nexus for this suggestion is based on the fact that capital invested in domestic investments would reduce the cost of borrowing required to finance accelerated economic development. Moreover, developing countries face higher finance cost than developed countries. At this increased finance cost, domestic investments would provide a higher rate of return than offshore savings (Ramfol, 2018). While, in capital abundant countries there is a rationale to stabilise the real exchange rate via investment in a fund. The converse, holds true when capital is scarce. In this scenario, the real exchange rate slowly appreciates as capital is accumulated (Venables & Wills, 2016). Thus, the first objective of capital scarce developing countries is to invest domestically. The domestic returns on investments are higher and the fund is an alternative source of income to increase and support private capital investment. Resource discoveries increase investment “because capital is needed to produce capital” (Wills, 2015:6). In this circumstance there is merit for a temporary NRF to accumulate offshore savings for future domestic investment, referred to as a “Parking Fund” (Venables & Wills, 2016).

Bauer (2015) contends that capital-scarce developing countries need domestic investment in order to overcome poverty and achieve middle or high-income status. However, a NRF with multiple objectives can destabilize public financial management systems and are prone to poor investment choices and corruption. Enacting fiscal rules is a more effective measure to achieve savings and spending and can be facilitated through a development bank. Domestic investment through a NRF can undermine the macroeconomic objective of sterilizing capital inflows.

2.8.9. Conclusion on NRF

Non-renewable resource revenue can be invested in a stabilisation fund to sustain and protect the economy for future generations from the exhaustion of a country’s resource base. Further motivation for a NRF is to avoid excessive and non-sustainable government spending of natural resource tax revenue, which will extinguish global competitiveness and create macro-economic instability. Given that resources are non-renewable, resource revenues should be invested in long-term capital (comprising human, physical and institutional) accumulation as opposed to financing current consumption. Investing in

education and social welfare issues are important but should accompany spending on the tradable sector. Thus, fiscal limits and rules to control spending are important as well as creating fiscal reserves for future generations.

The protagonist influence of government over financial markets and commercial industries afforded by NRF investment has raised questions regarding their stature, transparency and political motives. However, speculation over the benefits and drawbacks of a NRF as a measure to create intergenerational equity is supported by exemplary evidence submitted by the Gulf States' and Norway's successful transformation of their economies away from dependence on natural resource rents. A NRF can be a beneficial fiscal policy mechanism, provided that disciplined fiscal management can be exercised and it is free of unnecessary political interference.

Critiques maintain that driven by political motives, there is an incentive for government to engage in corrupt practices, by treating these revenues as extra cash and misappropriating the revenue. To address these issues, numerical fiscal rules and permanent limitations on public finances can be adopted. Other mechanisms to manage natural resource revenues include state-owned companies, development banks, NRFs and other types of extra-budgetary funds. Due to these mechanisms being subject to corruption, NRFs are not beneficial to resource-rich countries with poor governance controls.

Two broad models exist to achieve these goals. Under the management model, the government sets up a company with its own legal personality which manages the assets of the fund, for example that of Timor-Leste. Under the investment company model, adopted by Nigeria, the NRF is established as a corporate body by law. The law also establishes the overall objectives, a governing council and a board of directors. The board establishes an investment policy statement, overall target rate of return and the distribution of investments by asset class. Both arrangements insulate investment decisions from political interference, by employing external fund managers. Reports should be audited and should indicate all disbursements and withdrawals, including investment performance.

A NRF is a policy tool to ameliorate against the effects of Dutch disease and the resource curse in a developed country. However, on examination of the circumstance of a capital

scarce developing economy, the revenue management prescription differs. Developing countries require significant capital and infrastructure investment in order to accelerate economic growth and development. For this reason, resource revenues invested in domestic assets provide higher returns than offshore investments. Effective domestic investments can be instituted through a national development bank or enacting fiscal rules, rather than a NRF which could be susceptible to political interference and corrupt activities. I conclude that a NRF is an important policy instrument to mitigate against the resource curse.

2.9. CONCLUSION

This chapter reviewed the literature as it relates to non-renewable resource-dependant countries. The objectives and criteria to establish a tax regime were considered and principal taxes were introduced. An account of strategies to mitigate against the resource curse was then provided. A review of pertinent EI policy issues culminated in a discussion on the allocation of extractive rights, revenue generation and revenue management. It can be concluded that in order for a country to maintain a fair share of resource rents, there are various tax instruments that are available in designing an EI fiscal regime. However, the choice of which instruments would maximise shareholder value in the design of the EI fiscal regime needs to take a value based approach to policy design. Thereby aligning the instruments for securing a fair share of resource rents and their subsequent management to the country's developmental objectives. The next chapter provides a review of South Africa's EI fiscal regime.

CHAPTER 3

SOUTH AFRICA'S EXTRACTIVE INDUSTRY FISCAL REGIME

3.1. INTRODUCTION

South Africa has a mining heritage spanning in excess of 150 years (Davenport, 2013). Over this period, the industry has gone through many changes, from new discoveries of petroleum and probable gas potential, to depletion of known reserves and increasing economic importance of certain commodities (Statistics South Africa, 2017b; Department of Energy, n.d). Of significance is the role that the tax reforms have made in the design of the fiscal regime. In the early 1900's, the adoption of the international gold standard created an unlimited market for gold (Stott, 2008). Accordingly, South Africa's significant economic contribution to the global gold supply formed the premise of several technical committee investigations into gold mining taxation⁴⁹ (Corbett, 1936; Holloway, 1946; Marais, 1988). The lessons learnt through the various tax reforms offer valuable insight into both the design of the mining tax regime and industry's response to tax reform. In this chapter, a contextual overview of the development of mining rights and the tax regime of South Africa is presented.

The remaining sections of this chapter are organised as follows: Section 3.2 provides a historical overview of the development of mining rights and the tax regime in South Africa. Section 3.3 analyses if South Africa shows characteristics of a resource cursed state. Section 3.4 to 3.6 accounts for South Africa's mineral, petroleum and gas resource potential and then focuses on identifying the objectives and current challenges affecting the successful management of the extractives sector. Section 3.7 describes the current policy environment with regard to the award of extractive rights, generation of fiscal returns and revenue management strategies in South Africa.

⁴⁹ "It was essential in order to restore financial equilibrium that a substantial portion of these fortuitous profits should be taken by way of taxation, but the government was determined that the method of taxation should be such as to give full inducement to that lowering of the grade which meant the prolongation of the life of the industry...the double purpose to be achieved did not present an easy problem and the original scheme of taxation was frankly experimental. The situation was without precedent and in such cases one must be prepared to learn from experience" (Havenga in Whittaker, 1938:696).

3.2. A BRIEF HISTORY OF THE SOUTH AFRICAN EXTRACTIVE INDUSTRY

Even though gold was discovered as early as 1836, the discovery was followed by a general ban on prospecting. Gold mining commenced after the discovery and proclamation of the Witwatersrand goldfields in 1886 which transformed the Transvaal into one of the richest gold mining areas in the world and attracted speculation by joint venture stock companies (Stott, 2008). The first commercial mining company operation in South Africa commenced in 1852, with the exploitation of copper deposits on the Springbokfontein Farm located in the Namaqualand area in the Northern Cape (University of the Witwatersrand, 2016). In 1867, 15-year old Erasmus Jacobs accidentally discovered the first authenticated diamond found on the bank of the Orange River near Hopetown (Mostert, 2014; Cape Town Diamond Museum, n.d). The discovery of the 21.25ct Eureka Diamond attracted fortune seekers, commencing the feud for ownership of the diamond fields between the Afrikaner and the British statesmen (Davenport, 2013). In early decades, wealthy entrepreneurs such as Cecil John Rhodes owned diamond and gold mines and were termed "Randlords" (Curtis, 2009; Callinicos, 1980).

The discovery of diamonds in Kimberley in the 1860s and a gold rush from the discovery of gold on the Witwatersrand in the 1880s, were catalysts for the transformation of the wider South African economy. Since the discovery of gold, six major Witwatersrand gold fields and several smaller areas have supported 150 mines (Vermaak, 1997). It was later discovered that further gold was embedded in rocks and recessed deep underground. During this period, the Rand mines were the largest store of gold in the world (Callinicos, 1980). However, the extraction of a small amount of ore required extensive labour and capital. Control over the gold was a priority and overseas investors were co-opted to invest as major shareholders.

The expansion of the mining industry required power to supply railways and electric power stations. These requirements facilitated the growth of the coal mining industry. The transformation of the wider economy ensued in the mining of copper, chrome and manganese for the export market. In contrast to the rest of the world, the 1930s was a progressive and prosperous period for South African mining companies, generating high profitability to pay taxes and sufficient residual income to continue with expansion

programmes. South Africa's industrialisation and road and rail networks arose primarily as a result of the expansion of the mining industry. The increased demand for gold bolstered foreign exchange reserves and provided a source of funds to accelerate the process of industrialisation (Stott, 2008).

Settled communities emerged as the expansion of mining operations required infrastructure development. Black labour from within South Africa was scarce. In 1946, recruitment in the neighbouring countries commenced to compensate for the local labour shortage. During the same year, South Africa's gold and foreign exchange reserves accumulated to £233,2m, accruing from the lack of imports during the World War II period which stimulated growth of local industries. In 1948, the National Party⁵⁰ began implementing its policy of apartheid and entrenched the migratory labour system for blacks (Bell, 2001).

The period between 1950 and 1971 was prosperous, with South Africa having the lowest inflation rate in the world in 1950 (Bell, 2001). Issues of ownership of mineral rights, however, date back to 1955, when sentiments of nationalisation were presented in the African National Congress's (ANC's) Freedom Charter, stating that the ownership of mineral rights should be returned to the state. The ANC's struggle for freedom from apartheid called for a non-racial society and as part of its liberation movement, documented basic demands for the protection of human and amongst others, property rights in the Freedom Charter⁵¹ (Davenport, 2013).

In 1957, South Africa was responsible for 58 percent of world gold production and 22 of 53 operating gold mines were combined gold and uranium producers. Uranium was a by-product of re-working the gold tailings. Operating mining results disclosed a 50-50 working profit from gold and uranium (Altman, 1958). While gold mining was the foundation of the mining economy, manufacturing and electricity production sectors were emerging, providing the mines with inputs and producing a balanced economy (Moncur & Jones, 2010). By the end of the 1960s, South Africa's global importance as a commodity supplier grew by adding

⁵⁰ Under the leadership of Dr D.F. Malan

⁵¹ The Freedom Charter stipulates that: "*The national wealth of our country, the heritage of South Africans, shall be restored to the people. The mineral wealth beneath the soil ... shall be transferred to the ownership of the people as a whole*" (African National Congress, 1955).

uranium, iron ore, copper and platinum to its mining portfolio. South Africa dominated the world market supply of antimony, asbestos, chrome and manganese. At this stage approximately 50 metals and minerals were part of its export basket (Moncur & Jones, 2010).

In 1965, Soekor (Pty) Limited made the first discovery of petroleum in South Africa. However, the reserves were not commercially viable. The drilling of the first offshore well in 1969 by Superior Group, and the discovery of natural gas off the Southern Cape coast followed this. In 1970, a joint venture between Rand Mines, US Natural Resources and Soekor resulted in further offshore drilling (Department of Energy, n.d).

In 1973, despite South Africa's dependence on oil imports, it was able to meet the global increase in the oil price by the concurrent increase in the price of gold. A drastic decline in commodity prices and increased oil prices plunged South Africa into a recession in 1975 and 1976. Recessionary conditions provoked tensions in the black education system, triggering violent unrest and the cessation of foreign capital into the country. Although gold was freely traded subsequent to 1971, the demise of the gold industry can be partly attributable to the failure of the South African government to market gold in order to stimulate demand for the commodity. Furthermore, the lack of an income smoothing management policy of the volatile highs and lows of mining earnings predisposed the economy to recessionary economic conditions (Bell, 2001).

The surge in the gold price in the early 1980s was mismanaged by the government and the South African Reserve Bank which resulted in little benefit to the country (Bell, 2001). Recession and the consequent rising inflation in the United States in 1981 was controlled by attracting investors to switch to dollar investments by offering high interest rates, and, as the value of the dollar rose, the gold price started to decline (Bell, 2001). In addition, economic deterioration arose out of foreign disinvestment due to the application of stringent financial and trade sanctions against South Africa against its policy of apartheid (Bell, 2001). The United Nations declared apartheid "a crime against humanity". The coal mining industry was severely affected by the boycott, requiring new markets to compensate for export tonnage lost in the European markets. Additional challenges were experienced from the

rising labour costs, devaluation of the Rand currency and increasing inflation (Chamber of Mines of South Africa, 1994).

On the oil front, by 1980, the exploration of 48 boreholes yielded the discovery of the presence of natural gas in 25 of the boreholes and petroleum reserves in 7 of the boreholes. In 1980, the discovery of conventional gas at the F-A field and the later discovery of the E-M field led to the commencement of the Mossel Bay GTL Refinery Project in 1987. In 1988, the first producing oil field, Oryx, was discovered, which is solely owned by PetroSA⁵². The Sable oil field was discovered in 1989 with a 60 percent working interest being held by PetroSA, 35 percent held by Pioneer Natural Resources holds and Petroleum Limited holding the remaining 5 percent share (Department of Energy, n.d).

By 1985, the spike in the gold price had dissipated, leaving negative *per capita* growth for the balance of the 1980s and early 1990s (Bell, 2001). By 1993, an estimated 68 percent of total gold reserves had been extracted from the Witwatersrand basin (Vermaak, 1997). The premise that the rest of the world was dependent on South Africa for its mineral resources and could thus hold the First World to ransom by withholding vital minerals was proved erroneous when the United States enacted sanctions against South Africa in 1986 and sought substitute minerals and suppliers in alternate markets (Bell, 2001). The toll of sanctions ultimately coerced the South African government to unban various political entities and to commence with negotiations with the ANC and other political groupings. These negotiations resulted in the Constitution of the Republic of South Africa Act (2000 of 1993) that became the supreme law when the first democratic elections were held on 27 April 1994 (Bell, 2001).

The Oribi oil field⁵³ was discovered in 1990, 80 percent ownership vests with PetroSA and 20 percent is held by Energy Africa Limited. In 1992 the Mossel Bay gas-to-liquid refinery started production. By 2000, oil production from the Oryx⁵⁴ field began. In 2003, the Sable

⁵² In 2002, Mossgas (Pty) Limited, Soekor (Pty) Limited, and parts of the Strategic Fuel Fund Association, merged to form the state-owned entity, Petroleum Oil and Gas Corporation of the Republic of South Africa, PetroSA (Department of Energy, n.d).

⁵³ The Oribi oil field is located 140 km South-West of Mossel Bay (Department of Energy, n.d).

⁵⁴ The Oryx field (100% owned by PetroSA) discovered in 1988 is the first of South Africa's current oil-producing fields (Department of Energy, n.d).

oil field⁵⁵ started production and a 40 percent holding in OML114 secured the Abana oil field in Nigeria through the acquisition of Brass Exploration. In 2008, oil production commenced on the Sable oil field, halting gas production from the same field. In 2010, the F-O Gas Project commenced, supplementing the gas feedstock supply to the gas to liquid refinery (Department of Energy, n.d).

In 2015, South Africa's energy consumption comprised: 71 percent coal, 23 percent oil, 3 percent natural gas, 3 percent nuclear and less than 1 percent of renewables, which were primarily from hydropower (BP, 2015). PetroSA, supplies 7 percent of South Africa's liquid fuel and "owns, operates and manages the South African Government's commercial assets in the petroleum industry" (Petroleum Agency SA, n.d). PetroSA is a pioneer in gas to liquids technology and has the world's largest commercial gas to liquids plant (Department of Energy, n.d). The African Exploration Mining and Finance Corporation (SOC) Ltd is the state-owned mining company, primarily involved in the mining of coal for the generation of electricity. The company also intends to secure rights for other key minerals (Central Energy Fund Group of Companies (SOC) Ltd, n.d). Alexko (SOC) Limited is the state owned diamond producer (Ericsson, Löf & Petrilli Massey, 2011). Over the years, the answers to the questions of who owns the right to mine and how mining operations have been subject to tax have evolved. These changes will be presented in the subsequent sections.

3.2.1. Ownership of minerals and mining rights

The Roman-Dutch legal system, was introduced in South Africa in 1652 when the Dutch colonised the Cape of Good Hope (Cawood & Minnitt, 1998). Roman-Dutch law introduced private property rights to the South African mineral law dispensation whereby landowners were the owners of the minerals embedded in and under the soil of their land as well as the air above the land for an indefinite period (Van der Schyff, 2012). In 1806, Britain annexed the Cape of Good Hope colony while retaining Roman-Dutch law as the common law system. The Cradock Proclamation of 1813 reserved the rights to gold, silver and precious stones by the state. Thus, a mixed system of private and state-owned mineral rights emerged (Cawood & Minnitt, 1998). This dual system remained in place until 2002, when

⁵⁵ The Sable oil field is located 95 km offshore and 17 km west of Oribi (which is located South-West of Mossel Bay) (Department of Energy, n.d).

ownership of mineral and petroleum rights ultimately reverted solely to the state under the Mineral and Petroleum Resources Development Act (28 of 2002) (hereafter “MPRDA”) and the Mining Titles Registration Amendment Act (24 of 2003) (International Monetary Fund, 2015b).

The Precious and Base Metals Act (35 of 1908) introduced the concept of a mining lease and defined the holder of the mineral right. This effectively distinguished the mineral right holder from the landowner. Prospecting was only allowed with the private owner’s consent.

Prior to the establishment of the Union of South Africa in 1910 (established in terms of the Union of South Africa Act of 1909), each colony adopted its own mineral laws. These laws remained in force even after the Union was established until they were either repealed or amended. Similarly, the Union’s legislation remained in force after the Union became the Republic of South Africa in 1961. The Precious and Base Metals Act (35 of 1908), known as the Gold Law and the Mineral Law Amendment Act (36 of 1934) were adopted by the Transvaal. The Orange Free State was regulated by the Orange Free State Metals Mining Act (13 of 1936). The Cape of Good Hope Colony adopted the Precious Minerals Act (31 of 1898) and the Mineral Law Amendment Act (16 of 1907). Natal was governed by the Mines and Collieries Act (43 of 1899). Union legislation governed precious stones, base minerals and natural oil. Thus, state regulation over extractive rights was subject to the nature of the resource and the location of where mining operations were conducted (Van den Berg, 2009).

The Land Settlement Act (12 of 1912) extended state ownership of prescribed rights to gold, silver and precious minerals to all mineral rights. This was returned to the landowner by the Land Settlement Amendment Act’s (23 of 1917) stipulation that mineral rights were irrevocably linked to the alienation of the land. The Transvaal Mining Leases and Mineral Law Amendment Act (30 of 1918) awarded mining leases by tender, with the landowner receiving rent, and a royalty being payable to the state. The Reserved Minerals Development Act (55 of 1926) stated that the land owners of alienated state land, whereby the land surface was privately owned and the state held the mineral rights, would have exclusive right of prospecting (subject to nomination), provided a prospecting licence had been obtained. A “use-it-or-lose-it” approach was adopted by the Base Minerals Development Act (39 of 1942) where the holder of a mineral right could lose the right for failure to exercise the exclusive

right to prospect and mine. The state could authorise the transfer of the exclusive right to a third party to prospect on behalf of the state. State control was extended by the Natural Oil Act (46 of 1942), reserving the right to prospect and mine for oil, and the Atomic Energy Act (35 of 1948), which assigned the right to prospect and mine for prescribed minerals to the state (Cawood & Minnitt, 1998).

Vermaak (1997) states that 70 percent of mineral rights were held by the state and the balance was treated as private property rights held in perpetuity, subject to estate succession, which led to sterilisation of the ground from a lack of disclosure to the state on prospecting and mining results. With regard to private property rights, the state was only entitled to profit taxes. A mining company's acquisition of privately held mining rights was registered as immovable property at the Deeds Office, thereby allowing them to avoid payment of royalties to the state. In the event that the mineral right owner did not want to relinquish title to the right, the mining company then negotiated a royalty package payable to the owner (Cawood & Macfarlane, 2003). Liability for lease payments accrued to the state on the basis of the loss of strategic minerals regardless of ownership of the mineral rights. These were essentially different from royalties which were payable to the state for the minerals it owns. The National Party, the government's ruling party at the time, supported privatisation of the mining sector and sought to restore common law rights of the mineral right holder and forgo the right to reserve rights for the state. These changes were introduced by the Mineral Act (50 of 1991), and lease payments over privately held mineral rights were abandoned in 1992, as the right to mine principle expired. The act further required the consent of mineral rights holders to the issuance of a prospecting or mining permit (Mcfarlane, 2002; Van den Berg, 2009; Van der Schyff, 2012).

The assumption of power by the ANC in 1994 initiated democratisation, with the politically driven imperative of transforming the mining industry. The Freedom Charter statements were reaffirmed in the ANC's Reconstruction and Development Programme in 1994, seeking alignment with the rest of the world by calling for the return of private mineral rights (Van den Berg, 2009). South Africa's transition from apartheid rule to the first democratic elections on the 27th of April 1994 was confirmed by the drafting of the Constitution, the supreme law of the land, the provisions of which supersede any other law or government

action. Section 25(1) of the 1996 Constitution stipulates that no expropriation of property rights would be allowed without compensation⁵⁶.

The Mineral Policy Process Steering Committee was appointed in 1995. This committee was mandated to deliver a new policy for the mining sector, and after an extensive consultative process, produced the first Mineral Development Draft Bill in 2000. Comments were raised regarding the unconstitutional provisions of the bill relating to the failure to account for compensation where existing rights were infringed. After some revisions were effected, the MPRDA, was eventually promulgated in 2004. With the enactment of the MPRDA, ownership of mineral rights and security of tenure vested with the state (Badenhorst, 2014). The MRPDA effectively repealed private rights by granting state custodianship to grant and regulate the right to exploit the country's mineral and petroleum resources. The MPRDA replaced the term mineral right with mining right and prospecting right (Mostert, 2014). The MPRDA provides for a royalty to be charged on the transfer of mineral resources (Van den Berg, 2009). In 2008, South Africa instituted a profit-based royalty. Implementation only commenced in 2010 as mining firms were grappling with the recovery from the effects of the global financial crisis. The implementation of a royalty afforded state revenue sharing when commodity prices increase (Van Der Zwan, 2010).

3.2.2. Evolution of South Africa's mining tax regime

In the budget speech of 1936, the then Minister of Finance for the Union, Mr. N.C. Havenga, commented that the evolution of the gold mining tax regime was experimental and improved with experience (Whittaker, 1938). This section provides an account of the advancement of the South Africa mining tax regime. In particular, the gold mining tax regime was without precedence and for that reason the previous committees on gold mining tax were critical authorities in the development of the gold mining formular. This section is structured in terms of the tax reforms that have investigated mining tax in South Africa, including the Davis Tax

⁵⁶ "No one may be deprived of property, except in terms of law of general application, and no law may permit arbitrary deprivation of property. Property may be expropriated only in terms of law of general application—

- a. for a public purpose or in the public interest; and
- b. subject to compensation, the amount of which and the time and manner of payment of which have either been agreed to by those affected, or decided on or approved by a court".

Committee. Section 3.2.3 then follows with lessons learnt from the gold mining tax committees. The Davis Tax Committee recommendations are analysed in Chapter 5.

The first mining tax was levied in 1875, at a rate of 3 shillings per ounce of gold (subject to certain concessions) of which 1 shilling of the tax paid being paid over to the owner of the land. The Gold Law entitled rental to be paid to the state for the right to mine. However, due to a low rental rate, it produced little revenue. Rent for the lease of mining rights was payable to the state from 1885 through to 1 January 1994, when the right to mine principle was abolished by the Minerals Act No. 50 of 1991 (Van Blerck, 1992). The second Anglo Boer War limited the implementation of the first direct tax on mining profits charged in 1898 at a rate of 5 percent of net profits, increasing to 30 percent in the subsequent year. Under the British administration, in 1902, amendments to the taxation of mining operations were made as follows: the tax rate was reduced to 10 percent, the tax base was defined and capital allowances, which included a 3 percent depletion allowance, were introduced (Van Blerck, 1992; Shilling, 1950).

With the establishment of the Union of South Africa in 1910, the Mining Tax Act (6 of 1910) was introduced and imposed a tax on profits on all types of mining, repealing all previous mining tax legislation (Van Blerck, 1992). During this year, minerals represented 80 percent of the exports of the country (United Nations Economic Commission for Africa, 2011). The Minister of Finance, General Jan Smuts, introduced the first income tax in South Africa in terms of the Income Tax Act (28 of 1914). According to this Act, gold and diamond mining company profits were taxed at 10 percent, and all other mining graduated on a profit to revenue scale of 2.5 percent to 9 percent (Van Blerck, 1992; Kernot, 1999).

During 1917, some mines were under state control or partially owned by the state (for example the Premier Diamond Mine). The Frames Commission, tasked to investigate the expansion of state mining activities in the eastern Witwatersrand gold fields, conducted the first review of the mining industry. The findings revealed that state participation was too risky and costly and thus, the Frames Commission supported revenue collection from the sector by charging a royalty on output, irrespective of profits, and suggested that the royalty should

be based on a sliding scale⁵⁷ on the yield per ton. The income tax rate on all mining and non-mining companies was reduced to 5 percent (Cawood, 2000; Shilling, 1950).

In 1918, a sliding scale lease and tax formula for gold mining was introduced under the advisement of the Mining Leases Board (Van Blerk, 1992). The general lease formula for gold mining was:

$$y = a - (ab/x),$$

where:

y is the percentage of tax;

a is the marginal lease rate;

b is the portion of lease free revenue; and

x is the ratio of mine profit to revenue (P/R ratio).

The formula was designed to encourage the mining of low-grade ore as tax at rate a percent was payable only to the extent that profit exceeded b percent of revenue. The grade at which ore became unprofitable would therefore be reduced by the factor:

$$Z = (ab/100) / (1-(a/100)),$$

The reduction factor could only be utilised on condition that a mine was in profit, and the “mine could extract ore yielding £100 up to the cost of £100 + z and still break even” after the lease payment (Kernot, 1999; Van Blerk, 1992).

In 1921, the consequential decline in profitability from low commodity prices resulted in labour unrest from pay disputes at the mines. These issues prompted a review by the Mining Industry Board. The review found that the profitability of the sector weakened due to a high tax burden, high customs duties on imported goods and increased rail tariffs. The findings of the review were rejected by the Mining Industry Board on the basis that these recommendations fell out of the ambit of the board’s authority (Cawood, 2000).

⁵⁷ The sliding scale calculation was based on a ratio of profit (P) to revenue (R) percentage, where minimum share was levied at 2.6 percent, when P/R ratio was between 10 to 12 percent and maximum share levied was 50 percent, when P/R ratio was more than 60 percent (Kernot, 1999).

During the 1920s, the United States was the global trading power. The subsequent crash of the New York Stock Exchange in 1929 led to the Great Depression in the 1930s. As a consequence of the world-wide financial depression, South Africa suffered from reduced foreign capital inflows. Exports dropped due to declining commodity prices of wool and maize, inducing factory closures and job losses. The decline was further exacerbated by severe drought, coupled with reduced prices for agricultural commodities and difficulty to pay for imports. However, the global appetite for gold, to support gold standard economies, kept gold production in demand, and to some extent, cushioning the economic impact of the depression in South Africa (Bell, 2001).

Until the 1930s, the United States and Europe adopted the “gold standard” which fixed the international price of gold. According to the gold standard, countries were required to keep gold reserves to the value of issued currency creating an unlimited⁵⁸ demand for gold, distinguishing gold from all other minerals and increasing South Africa’s gold exports (Stott, 2008). Table 3-1 shows the significance of the gold mining industry’s contribution to the South African economy in 1925.

Table 3-1: Contribution of gold mining to the South African economy, 1925

1925	
Gold production	290 714,8 kg (Grade 11,32gms)
Tons milled	25 676 000
Working costs per ton	£ 1,06 per ton
Working revenue	£ 1,54
Working profit	£ 0,48
World production	51%
Total revenue collection of South Africa	£ 25 336m
Revenue from mining	£ 3 202m or 12,6%
Revenue from gold mining	£ 3 202m or 12,6%
Number of employees in gold mines	193 802

Source: Bell (2001:30).

South Africa’s withdrawal from the fixed payment gold standard in 1932 resulted in a surge in profits, due to gold mines realising increased market prices on the world market (from 84 shillings to 125 shillings per fine ounce). Thus, providing the stimulus to exploit higher grade ore and generating excess profits (Bell, 2001). To the discontent of mine owners, the Gold

⁵⁸ According to Stott (2008:9): “An ‘unlimited market’ meant that gold was not subject to the same market conditions as other commodities; gold faced no ‘threat of over production’ and therefore ‘capitalists could plan production on the basis of assured returns on the sale of the commodity’”.

Mines Excess Profits Duty Act (33 of 1933) imposed a 70 percent tax on the gold premium, after certain deductions.

The objective of this tax was to capture a share of the windfall resource rent, as well as extending the lives of the mines by promoting the exploitation of low grade ore and preventing the extraction of only high grade ore (Krige, 1979). The tax was calculated on the division of profit into standard profit (based on the standard price of gold which was fixed at 85s. per fine ounce), excess profit tax and surtax (Shilling, 1950). The calculation sought to incentivise the tax benefit of mining low grade ore, effectively allowing lower grade ore to be taxed at standard profit, a lower rate, and deferring the mining of higher grade ore, which was subjected to the higher rate of excess profits tax (Whittaker, 1938).

The Excess Profits Tax Policy, supported by the government's motive to prolong the life of the mines, was met by the mines motive of profit maximisation. The legislation had the unintended consequence of creating irregularities where it was profitable for mines to reduce their taxable income by crushing waste rock with high grade ore and increasing underground developmental expenditure to gain the tax benefit of the exemption (Nattrass, 1995).

These factors, together with the exorbitant tax rates paid by the sector, prompted the review of mining tax policy. Table 3-2 shows the evidence submitted to the Departmental Committee on Mining Taxation in 1935, in order to support the comparatively high tax burden to which the South African mining industry was subjected to.

Table 3-2: Taxes on gold mining in various countries

Country	Approximate rate of tax as percentage of total profit
Australia	18
Canada	13 to 19
Rhodesia	23
Union of South Africa	42
United States of America	14 to 18
West Africa	12

Source: Whittaker (1938:699).

Table 3-3 presents the increased tax revenue collected during the period. At the same time, the decline in the production of the Witwatersrand gold mines while global production

increased, indicates that the government objective of mining sector stability could have been compromised (Whittaker, 1936).

Table 3-3: Government revenue from gold mining, 1932-1937

Year	Income from government ownership and participation in profits (USD' 000)	Taxes (USD' 000)
1932	11 400	5 800
1933	12 200	8 700
1934	23 800	47 400
1935	24 600	40 100
1936	22 900	47 100
1937	21 400	45 700

Source: Whittaker (1938:699).

The lowering of the grade of ore meant that a greater quantity of ore was required in order to achieve the same gold output. During the period, dividend payments, number of employees and value of output increased, inferring that the industry had shown signs of expansion and thus, its ability to meet its tax obligations (Whittaker, 1938). Table 3.4 depicts the increase in the Witwatersrand gold production during 1932 to 1937.

Table 3-4: Witwatersrand gold production compared with world output, 1932-1937

Year	Witwatersrand (million fine ounce)	World (million fine ounce)	Witwatersrand as a % of world total
1932	11.4	24.1	47.2
1933	10.8	25.4	42.7
1934	10.3	27.4	37.6
1935	10.6	30.0	35.2
1936	11.1	33.0	33.7
1937	11.4	-	-

Source: Whittaker (1938:700).

The Report of the Departmental Committee on the Taxation of Gold Mines⁵⁹ suggested that the corporate rate of tax be lowered from 20 percent to 15 percent. In addition, the levy of a surtax formula graduating the tax liability according to the ratio that the profit earned, bore to the total value of the gold recovered (Corbett, 1936). The surtax formula replaced the standard income tax formula and was similar to the lease formula, resulting in some mines

⁵⁹ Corbett, Commissioner for Inland Revenue in 1936, was appointed chairman of a committee which was tasked to conduct an inquiry on the existing system of taxing gold mining, and to explore the effective design of different tax regimes.

being liable for two formulas, one for lease consideration and the other for income tax (Cawood & Macfarlane, 2003).

Effectively, the formula provided assistance for marginal mines, where ore valued at £100 could be mined at a cost of £108,33 without loss to the mine. The gold formula has been a feature of South Africa's income tax system ever since 1936. The general tax formula for gold mines was computed as follows:

$$y = a - ab/x,$$

where:

y = the percentage of tax,

Using the applicable tax rates for that time, the variables are as follows:

$a = 40$ is the marginal tax rate,

$b = 12.5$ and represents the portion of tax free revenue (the tax tunnel), and x represents the percentage of mine profit to revenue,

Therefore, the percentage of tax was calculated as:

$$y = 40 - (40 * 12.5/x)$$

In 1945, the Holloway Commission was set up to establish the optimal benefit derived from the country's gold mines (Holloway, 1946). The report elaborated on the factors affecting the decision to invest and the significance of taxation on new investments and recommended the adoption of: profit based taxes, special capital redemption provisions of 100 percent on new and 20 percent on existing mines, support for the continuation of the sliding scale tax regime and the abolition of the basic tax rate of 15 percent (Holloway, 1946)

Altman's (1958) assessment of the South African gold mining tax regime indicates three methods used to account for the variable profitability of gold mining:

Adjusting tax rates applicable to taxable income:

- This was achieved by the imposition of an additional tax through the Gold Mines Excess Profits Duty Act 1933, on the difference between normal income tax and gold mining profits at USD 35 per ounce.
- The tax formula was changed to increase tax rates after the devaluation of the pound sterling in 1949.
- In 1956, rising working costs were granted tax relief by lowering the tax rate by 4.75 percent, later returning to the same tax rates prior to devaluation of the pound sterling.

Modifying the definition of taxable income:

- A measure to recognise profitability is to account for specific industry deductions. For example, the allowance for the write of pre-production capital expenditure including 5 percent per year compound interest on the balance to be charged off.
- In 1956, the acceptance of the government for the yearly payment of £500 000, for a 30-year period for silicosis legislation reduced tax liability of gold mines.

Treating gold mining as a special distinct class for tax:

- The tax rate of each gold mine is computed according to a formula being distinct from other mining and non-mining enterprises, where tax rates are not dependant on profitability for each mine, but on a separate uniform tax rate on the entire enterprise.
- Tax rates are higher than other mining and non-mining enterprises for profitable gold mines, and reverses as profit diminishes.

During the years 1899 to 1902, capital expenditure was written off in equal annual amounts over the estimated useful life of the mine. From 1902 to 1917, capital expenditure was redeemed by way of an annuity over the life of the mine at 3 percent compound interest. From 1917 to 1946 the amount redeemed was calculated by dividing the unredeemed capital balance brought forward from the previous year by the estimated life of the mine. The 1946 allowance was calculated as the greater of 20 percent of the unredeemed balance, or the unredeemed balance over the life of the mine. The rate of 20 percent was increased to 22.5 percent and 27.5 percent for the 1947 and 1948 year respectively (Shilling, 1950).

During the period 1966 to 1988, a surcharge was levied on more profitable mines, ranging from 5 percent to a maximum of 25 percent in 1985. The Gold Mines Assistance Act (1968)

offered relief to producing gold or uranium mines facing imminent closure in 8 years by lowering the operating pay limit of the gold mining tax formula (Krige, 1969). A dual system was introduced from 1968 until 1991, where the 'b' factor in the tax formula was reduced for pre-1966 gold mines requiring assistance. The Mining Rights Act (20 of 1967) reserved the right to prospect and exploit natural oil and precious metals with the state. The right of prospecting and mining of base minerals vested with the mineral right owner. Though mineral rights were in the landowner's hands, the state regulated administration and control over all mining operations (Van der Schyff, 2012).

By the 1970s, the Witwatersrand's mines had reached depths in excess of 3.5km and gold mining production from the 53 operational mines peaked at 1 147 tonnes (Davenport, 2013). During 1970 to 1975, gold mining tax receipts and other mining tax receipts, as a percentage of direct tax receipts ranged from 4.6 to 15 percent and 1.5 to 4 percent, respectively (Moncur & Jones, 2010). The prominence of gold tax revenue contributions related to the price gold price. After 1971, the world departed from the fixed gold standard, against which all currencies were measured, resulting in a free international gold market (Stott, 2008). Mining tax revenue increased by 285 percent, enabling infrastructure spending on the development of new ports in Richards Bay and Saldanha Bay, as well as new and improved road and rail systems linking the ports to mineral fields (Heyns, 1994).

South Africa experienced a drastic decline in the contribution of gold mining taxation from 24.8 percent of total taxes in 1980-81, when the gold price was at record high levels, to 1.7 percent in 1989-90 (Heyns, 1994).

In 1984, the Margo Commission was mandated to consider the effectiveness of the gold-mining formula-based taxation system (Margo, 1987). Due to time constraints, the commission proposed a further investigation by a technical working group to finalise the outcome of the tax reform proposals. The Margo Commission suggested that a separate technical group be established to investigate the recommendations put forward by the commission. The Margo Commission recommended that marginal mines should not be granted exemption from ring fencing, the redemption allowance should be abolished and replaced by current depreciation of capital equipment over three years, and the tax and gold mining lease formulae should not be extended to other minerals. Further recommendations

included the proposals of a severance tax similar to the levy of a mineral royalty, that the formula method of taxing gold mines should be replaced with a flat rate of tax, and the possibility of aiding ultra-deep level mines by direct grants, as opposed to capital allowances (Margo, 1987).

Accepting the recommendation regarding the establishment of a technical working group, the government constituted such a committee in 1988. It consisted of representation from the Chamber of Mines, the Department of Finance, the Department of Mineral and Energy Affairs and the Reserve Bank (Marais, 1988). Under the chair of Dr G. Marais, the technical committee reviewed the competitiveness of the South African mining tax regime. The Report of the Technical Committee on Mining Taxation proposed lower mining taxes for the industry. The recommendations included the continuance of the gold mining formula, which generates approximately the same collection as a CIT rate of 50 percent (Marais, 1988).

The committee further recommended that non-gold mining companies should pay the standard corporate rate of income tax, that surcharges and mining lease payments should be eliminated, that the capital redemption allowances should be retained, and that ring fencing provisions to assist marginal mines should be removed (Marais, 1988). The proposals were based on increasing the global output of minerals, thus the outcome of the technical working group deviated from initial proposals made by the Margo Committee.

Ledger and Nicol (1992) state that the Marais Committee Report was tabled on the wrong assumption that the gold price would show a moderate increase in the 1990s. The consequence of the committee's neglect and lack of planning to account for the decline in the gold price, rising operating costs and the limitation of state special assistance to marginal mines resulted in the economic crisis that the gold mining industry faced. The budget speech of 1993 offered gold mining companies the option of moving to the corporate rate of income tax, subject to a 15 percent secondary tax on companies on distributed profits, resulting in a dual system of taxation for gold mines (Nattrass, 1995).

The dependence of the fiscus on gold mining taxation was affected by a sharp decline in gold mining tax receipts from 26.1 percent to 1 percent of total tax revenue. This was

attributed to the deterioration in gold mining profitability over the period 1981 to 1993 (Nattrass, 1995).

Soon after taking office in 1994, the new ANC Government appointed the Commission of Inquiry into Certain Aspects of the Tax Structure. Chaired by Professor Michael Katz, it was mandated to review the tax structures in South Africa (Katz, 1998). The commission made a series of recommendations on the competitiveness of the CIT, and introduced broadening of the tax base by transitioning to the residence basis of taxation. The commission investigated the implementation of a land tax. A land tax was opposed on the grounds that collection costs to raise revenue are high, whereas the revenue raising potential is low. Furthermore, the imposition of such a tax could deter investment, creating a barrier to entrance of new landowners (Katz, 1998).

At the end of the apartheid era, mining companies accelerated their reintegration into the global economy by migrating their local financial market listings to the world's financial capitals, initiating a rapid capital outflow from South Africa (Antin, 2013). The reduced local tax base thus resulted in the country's inability to capture rent surpluses, contributing to the country's incapacity to benefit from the global commodity boom. The capital outflow was noted to have peaked at 20 percent of gross domestic product (GDP) in 2007. The 2008 global financial crisis negatively impacted the South African economy leading to "the financial and housing bubbles, persistent trade deficits, increased household debt, and persistent current account deficit" (McKenzie & Pons-Vignon, 2012:10). In 2009, the South African economy reacted in tandem with the rest of the world, entering into recession due to its dependence on the global market to stimulate demand and prices. The downturn during the period 2008 to 2011 has culminated in the current challenges facing the mining industry's underperformance, policy uncertainty, labour disputes and concerns over nationalisation (Antin, 2013).

One of the Davis Tax Committee tasks was to determine the appropriateness of the extractive sector tax regime in the context of maintain investment attractiveness of the industry and promoting growth and job creation (Ministry of Finance, 2013). The Davis Tax Committee recommendations are analysed in Chapter 5 in conjunction with the comparative review.

The Davis Tax Committee (2016b) has made the following recommendations with regard to hard-rock mining:

- Introducing additional tax instruments to the regime, such as windfall taxes and RRTs are not necessary. The mining CIT should be aligned with other taxpayers, allowing the royalty system to respond to the non-renewable nature of mineral resources.
- Equalise the recoupments of mining assets and write-off regimes for mining and manufacturing, by discontinuing the current upfront capex write-off and replace with depreciation allowance basis of (40/20/20/20), written off from the date at which such expenditure was incurred.
- The prospective removal of ring fences preventing the set-off of future capex expenditure against income from other mines and against non-mining income.
- The retention of the gold formula for existing gold mines only. Existing gold mines should be given a once off option to elect to stay in the regime or to be treated like all other taxpayers. The discontinuance of additional capital allowances available to gold mines and restrictions on the deduction of interest expenditure to accord with normal tax principles.
- A template contract should be devised as a guide to parties concluding contract mining arrangements. This will enable contract miners to claim depreciation tax allowance for their contract mining activities.
- The maintenance of the current royalty, but clarification of the determination of the gross sales tax base is required. The schedules to the MPRRA should be updated and removed from the Act. The schedules should be published by the Minister as a regulation in the government gazette. Furthermore, issues regarding liability for royalty payments when margins in this industry are low can be addressed by increasing the small business exemption within the Act.
- Remedy inconsistencies that create conflicts between the various tax Acts and the National Environmental Management Act.
- Deduction of expenditure of all infrastructure costs incurred in terms Social and Labour Plans.

The Davis Tax Committee (2016a) has made the following recommendations with regard to oil and gas:

- Due to an environment of geological uncertainty, minor amendments are suggested to the Tenth Schedule of the Income Tax Act to attract oil and gas investors. These enhancements include: transferability and preservation of fiscal stability; extension of the definition of oil and gas company; and rehabilitation trusts and companies.
- Amendment to the Eighth Schedule of the Income Tax Act, accommodating the taxation of the disposal of shares in an oil and gas company by a non-resident.
- Safeguard fiscal stability within the ambit of the Tenth Schedule. The legislator is not restricted from introducing new legislation. The Davis Committee recommends that government allow fiscal stability for the first companies entering the market. Thereafter, via the relinquishment provisions under the MPRDA of converting an exploration right into a production right, prospective application of any new tax dispensation should be considered.
- Simplification of the administration of royalties by applying a 5 percent fixed rate royalty for oil and gas to replace the current variable royalty rate formula.

3.2.3. Lessons for the mining sector from the previous committees on gold mining taxation

The objective of mining fiscal regime reform in South Africa was based on the state's policy of maximising the working life of gold mines and encouraging the exploitation of low grade ore (Corbett, 1936). Historically, the taxation of income from gold mining was subject to a choice of two tax instruments: a flat rate of tax or a progressive rate of tax. The flat rate was fixed at a specific rate throughout the lifespan of a project, whereas the salient features of the formula method were adjusted according to the ratio of profit to revenue, in addition to possessing a tax free tunnel (Holloway, 1946). Both methods have inherent strengths and flaws. However, the formula method was favoured during the mining tax reviews as an adequate instrument to capture resource rent (Ramfol, 2016b). Central to the design and selection of tax instruments in the mineral fiscal regime, was the government objective of "encouraging the mining of marginal ores, thereby prolonging the life span of marginal gold mines" (Van Blerck, 1992). This was achieved by lowering the ore pay limit, and creating a tax free tunnel to accommodate the mining of marginal ore bodies, encouraging high cost deep-level mining, thereby maximising the extraction of the available ore body (Krige, 1969).

The supporters of the formula method advocate that the benefits outweigh the costs (Marais, 1988).

Of significance is the role that the tax reforms have made in the design of the fiscal regime. This section focuses mainly on gold mining, being the subject of the commissions of investigation tasked to improve the fiscal regime. A reflection is done on the historic lessons, strengths and shortcomings of the gold mining tax regime in response to the contributions of the various commissions of inquiry.

The Corbett Commission (1936), the Holloway Commission (1946) and the Marais Committee (1988) supported the use of the formula method. The Margo Commission (1987) alluded to the use of the flat rate of tax as the mining of marginal ores is exploited at the expense of the fiscus. The Margo Commission (1987) proposed the abolition of the formula tax, emphasising the distortion created by a 25 percent surcharge on the gold formula to incentivise increasing marginal costs. The Marais Committee (1988) agreed with the Margo Commission (1987), but argued that a revision of the formula could eliminate this distortion (Marais, 1988).

The Marais Committee (1988) recognised that the formula was not designed to operate at a high marginal tax rate and could create distortions, in that a project yielding negative rates of return could increase its earnings, leading to a disincentive to be cost-effective. The formula further does not provide, nor reduce risk for new investment, but merely provides assistance for existing marginal mines (Cloete & van Rensburg, 1984). Moreover, the formula tax can only lead to an increase in tax revenue if the profit to revenue ratio is increasing. The distortions present in the formula can be reduced, but can only be removed by moving to a flat rate of tax (Ramfol, 2016b).

In addition, if costs increase exponentially to prices, deferral of production of higher-grade ores may decrease the present value of the potential positive cash flows which could have been available for reinvestment. The non-taxable portion of profits can alleviate cash flow problems in order to compensate for the high risk of exploration (Krige, 1979). Gold mining risk is affected by increasing costs and the fluctuating gold price, implying that a premium on the production of low-grade ores does not unduly discourage the production of higher

grade ores (Mangondo, 2006). The discrimination of quality of ore bodies can lead to a smaller mine paying more tax than a larger one if it mines higher-grade ores, because of its higher profit-revenue ratio. An implicit negative tax is another characteristic of the formula. When the profit-revenue ratio is less than its threshold value, the tax rate becomes negative (Cloete & van Rensburg, 1984).

The flat rate tax is simple to administer and comply with, as well as neutral given similar risks and treatment, and provides a more stable flow of tax revenue for the government than the formula tax. However, it does not conform to the ability-to-pay principle, and does not recognise possible inter-industry risk differentials. Furthermore, the absence of a tax tunnel removes the incentive to mine marginal ores (Mangondo, 2006). The type of tax instrument utilised can influence the decision to invest in a mining venture. This occurs when taxes levied on units of production create distortionary effects, by discouraging the exploitation of lower grade ore. Profits-based taxes can allocate risks between mining investors and government more uniformly. The levy of an efficient tax characterises a tax on corporate profits and acknowledges the innate risks in mining operations. The tax system has to be designed to adjust to costs and revenues over the lifecycle of a mining project.

Table 3-5 illustrates that prior to the 1980s, mining tax revenues represented a significant share of total tax revenues. However, since 1988 there is evidence of a major fiscal problem which led to the diminution of mining tax revenue by the overall reduction of the tax burden of the mines. The previous mining tax regime was effective in adjusting to variations in profitability and had features common with a RRT. “The average effective mining tax rate on profits including lease payments varied from 29.5 percent in 1958 to a peak of 61.5 percent in 1989” (Daniel, 1994:39).

Table 3-5: Historical comparison of gold sector tax burden, 1975-2004

Year	Taxes as % of Value-Added	Taxes as a % of operating Profit	Pre-capex profit-revenue Ratio
1975 – 1984	32.91	47.72	50.64
1985 – 1994	16.58	32.35	31.69
1995 – 2004	4.86	13.22	15.26

Source: Foreign Investment Advisory Service (2006).

The use of the gold mining tax formula as a mechanism that provides an equitable share of resource rent between government and investors is supported. By extrapolating South African gold-mining figures from 1951 to 2011, it is revealed that the same percentage return of 7 percent of revenue was returned to shareholders as dividends and paid to government in direct taxation. The formula's tax tunnel adjusts for differences in grades of ore extracted. A profit-to-revenue ratio of less than 5 percent attracts tax at 0 percent and graduates to a 50 percent tax on super profits (Creamer, 2012).

Ideally, the Davis Tax Committee preferred to incorporate the tax treatment of all gold and non-gold mining taxpayers. They found that the additional 10-12 percent tax incentive provided in the gold mining formula was adequately designed to encourage deep level and marginal ore mining. However, due to the economic impact of gold mining to the country, the committee chose to retain the gold mining formula for existing gold mines. Prospectively, it is envisaged that all new gold mines established will be incorporated into the tax regime applicable to non-gold miners (Davis Tax Committee, 2016b).

The lesson learnt is that the gold mining formula conforms to the ability to pay principle, unlike a flat tax rate. The formula progressively allows tax liability to increase, as profitability increases and assists marginal mines with a reduced tax liability when companies experience a low profit to revenue ratio. The formula also attributes greater tax liability to extracting high grade ore than low grade ore, thereby creating longevity of the mining industry, in addition to the stability offered by a flexible tax regime. The tax tunnel⁶⁰ compensates for possible unique risk elements of the mining industry by not taxing profits up to a threshold value. A corporate flat tax rate does not allow adjustment to the cyclical fluctuations inherent in commodity prices. While providing the flexibility of adjusting to the risks and rewards of a gold mining enterprise, the South African gold mining tax formula makes provision for the inherent mining risks by providing a tax free tunnel to reduce the financial risk associated with mining operations. The gold mining tax formula also supports the state's intention of extending the life of the industry. Therefore, there is merit in the gold mining tax formula as an adequate fiscal instrument to account for the variability and progressive elements of a resource tax (Ramfol, 2016b).

⁶⁰ A tax tunnel refers to the amount of income that is tax free.

It is observed that the specific commissions on gold mining tax all adopted a value based approach to policy formulation. As mentioned in section 2.5 the value based approach to policy formulation incorporates an analysis of the extractive sector to identify value based strategies aimed at enhancing the performance of the extractive sector in order to maximise shareholder value.

This approach provides insightful evidence, as these committees, while tasked with reforming the tax regime, also focused on increasing efficiency and longevity of the industry. In adopting this holistic perspective to policy formulation, it appears that the “shareholder value principle” was upheld. By taking a value-based approach to policy formulation, it is inferred that the objective of profit maximisation of the sector is given a higher priority. The tax principles of equity; certainty; neutrality; convenience and economy in the tax regime then follow as subordinate principles. Furthermore, reviews of the fiscal regime were conducted approximately after almost every ten years, thereby allowing the tax regime to remain competitive and account for changes in prevailing circumstances. Thus, maintaining reviews on a frequent basis are necessary due to factors such as resource depletion and new technologies that can have an impact on future demand and supply of resources.

3.3. DOES SOUTH AFRICA SUFFER FROM A RESOURCE CURSE?

Section 2.3.1 discussed that some resource-rich countries have poor economic performance, known as the resource curse. Symptoms of the resource curse include weaker institutions which may lead to rent-seeking and corruption, the incapacity to manage windfall resource rents and a pre-disposition to Dutch disease resulting in the crowding out of other economic sectors. To aid in the assessment of the presence of a resource curse in South Africa a two-fold analysis will be conducted of the symptoms. This includes a macro-economic assessment: assessing the presence of Dutch disease and the incapacity to manage resource rents and a socio-political and socio-economic assessment: assessing GDP growth, poverty, inequality and the manifestations of a rentier state.

3.3.1.1. *Macro-economic assessment*

Rattsø and Stokke (2005) state that South Africa earned the titled “The Japan of Africa”, signifying the rapid economic growth experienced post World War II. The country was an

exemplar for “catching-up growth”, a term implying developing economies will catch-up with economies with higher per capita income over time, based on its industrial diversification. At that point in time, South Africa was immune to the effects of Dutch disease, having successfully adopted the prescription of industrial diversification.

The growth period, then ended in the 1970s and a long period of stagnation followed. Rattsø and Stokke (2005) explain that the stagnation during the late 1970s and 1980s is attributable to the imposition of the increased trade barriers from international sanctions against the countries internal struggle during the apartheid regime. Rattsø and Stokke (2005) describe international sanctions in South Africa as representing “a natural experiment of changing international trade conditions”. Economic growth turned into stagnation during the sanction period, but the recovery of growth post-apartheid has been slow. Economic growth in South Africa declined to only 1.8 percent in the period post 1975 from an average rate above 6 percent during the 1960 to 1975 period. Mining exports accounted for more than 50 percent of total export earnings during the 1970s and 1980s and approximately 40 percent in the 1990s. South Africa’s dependence on gold mining and the rapid gold price increase in the 1970s is likely to have had a significant positive effect on the macroeconomic performance of the economy (Rattsø & Stokke, 2005).

Despite this shift in fortunes, South Africa has never been the focus of research, either as a country that avoided or endured the resource curse (Elbra, 2013). Elbra (2013) conducted the first diagnosis of the resource curse in South Africa. I therefore, draw an assumption that the South African experience is missing from the plethora of resource curse literature because international sanctions were imposed in 1984. During the period 1984 up to the end of sanctions in 1993, the South African case would offer an unequal comparative against other resource-rich countries that were operating under free market conditions.

Stokke’s (2008) simulation of the effect of the gold price fluctuations on the South African growth slowdown since the mid-1970s found that the gold price boom helped explain the deindustrialisation and disappointing growth experience in South Africa. Because of its high dependence on mining exports, the resource curse is a potential factor behind the growth decline, driven by standard Dutch disease effects combined with increased barriers to technology adoption.

The presence of a resource curse is further demonstrated in the rapid, and significant, increase in government consumption spending after the gold price boom in the 1970s. Public consumption as share of GDP started to increase in the mid-1970s from about 13 percent in the 1960s and early 1970s to about 20 percent in 1990. Standard Dutch disease effects with real exchange rate appreciation and deindustrialisation are observed in both the model and the data. The higher income generated in a resource boom increases demand for industrial goods and services. The non-tradable price accelerates more than the composite tradable price resulting in real appreciation of the currency. The higher elasticity of substitution between domestic and foreign industrial goods, the smaller the increase in the composite industrial price and consequently, the stronger the real appreciation. In the 1970s, the real appreciation of the ZAR was driven by domestic inflation (Stokke, 2008).

3.3.1.2. Socio-political and socio-economic assessment

Sachs and Warner (1995) state that resource-intensive countries have lower economic growth rates than countries lacking resources. Over the period 1994 to 2012, South Africa experienced slower growth of 3.26 percent relative to 4.18 percent for upper-middle income countries and 4.72 percent for sub-Saharan Africa. Furthermore, over the same period South Africa's GDP *per capita* growth was 1.56 percent relative to 3.15 percent for upper-middle income countries and 2.17 percent for sub-Saharan Africa (Elbra, 2013).

While, South Africa's GDP *per capita* growth figures in 2018 of USD 8070 is on par with upper-middle income countries of USD 8165, when compared to USD 2699 for sub-Saharan Africa. South Africa's income inequality is closer to sub-Saharan African. The main challenge is that the country remains a dual economy, with consistently high inequality reflected in a Gini coefficient index of 63.1 and unemployment standing at 27.2 percent, while the youth unemployment rate is closer to 50 percent. "The poorest 20 percent of the population consume less than 3 percent of total expenditure, while the wealthiest 20 percent consume 65 percent" (World Bank, 2018b:1). Thus, a substantial percentage of the population resides in the informal economy and have not benefited from resource extraction. Furthermore, the Poverty Trends Report indicated that the people living in poverty intensified from 53.2 percent in 2011 to 55.5 percent in 2015 (Omarjee, 2017). South Africa has the

highest *in situ*⁶¹ mineral wealth in the world while also having the most unequal society. This substantiates the resource curse hypothesis of a positive correlation between resource abundance and negative economic factors such as poverty (Lahn & Stevens, 2018). Despite efforts to reduce poverty by subsidising water, electricity, food and schooling, this has failed to reduce the number of people living below the 2015 poverty line of R441 per person per month. Therefore, it can be purported that South Africa is “resourced cursed” due to the inability of the country to utilise resource revenue to improve human development evidenced by worsening inequality, poverty and slow GDP growth.

The “rentier state” facet of resource curse theory, is deeply entrenched in the South Africa mining industry. There has been a downward spiral in investor confidence arising from governments aim of increasing ownership and rents in the extractives sector and the increasing level of corruption and abuse of state power. These sentiments were reflected in the Fraser Institute Annual Survey of Mining Companies 2017 interview where an investor commented that licencing administration regime is corrupt and favoured individuals with political connections (Stedman & Green, 2018).

In my opinion, the policy uncertainty surrounding the mining charter and the MPRDA, is tantamount to nationalisation without “effectively nationalising” the mining sector. EIs are faced with difficult decisions. In the absence of policy certainty, the outcome strongly favours relocation of investment to other jurisdictions. As a high risk, cost intensive business that has limited global mining capital, an exodus of investment capital could have dire consequences to an already constrained fiscus.

The masses of poverty-afflicted citizens, failing to receive anticipated benefits from the EI coupled with allegations of corruption, provides grounds for collective protests and populist agendas. A number of violent confrontations have been experienced over wage and working conditions in the extractive sector. The fundamental issues are related to poverty, elevated expectations of the disgruntled population and the incapacity of government to create equitable wealth. “The way in which the South African government has handled its citizens’ great expectations for the extractive industries could profoundly affect the politics and future

⁶¹ Refers to minerals within unbroken rock or still in the ground

of the country” (Stevens *et al.*, 2013:69). Thus, South Africa has a presence of rent-seekers and rent-seizers that has predisposed the country to weaker institutions, culminating in inadequate levels of public service delivery and poor economic growth. Based upon these poor economic performance variables, I submit that South Africa confirms the presence of the characteristics of a resource cursed state.

3.3.1.3. *Concluding on the existence of a resource curse*

Resource endowment should confer an economic advantage. As a country that was built on the strength of its mineral wealth, South Africa has largely benefited from its’ endowment. Nevertheless, the current landscape of an upper-middle income status country possessing a sophisticated financial system may not show signs of a resource-cursed state; but a closer investigation reveals a different picture. According to the resource curse hypothesis a resource boom has a negative impact on economic growth. A rally in the commodity markets followed by political coercion to increase domestic spending may generate real appreciation and Dutch disease effects (Gelb, 1988). The effects of Dutch disease have thus been exhibited in South Africa. Furthermore, it has been show that South Africa experiences many of the symptoms of a resource curse, including slower GDP growth, poverty, inequality and the manifestations of a rentier state (Elbra, 2013).

I therefore conclude that South Africa does suffer from the resource curse and can therefore learn from the inclusive decision making frameworks adopted in countries that have successfully avoided the adverse effects of the resource curse. The next section explores the current operating context of South Africa’s extractive sector.

3.4. SOUTH AFRICA’S EXTRACTIVE INDUSTRIES POTENTIAL

Mining of minerals has been the principal activity of the country, supplying global demand for gold and diamonds, while the mining of coal and iron ore supported the rapid industrialisation of the country. The mining sectors for platinum, uranium, chromium, vanadium, manganese and other minerals have grown (Davenport, 2013).

3.4.1. Minerals

South Africa possesses the largest *in situ* non-energy mineral resource base in the world, including 87 percent of the world's platinum group metals, 80 percent of high-grade manganese, 70 percent of chromium, 40 percent of vermiculite and approximately 33 percent of the vanadium reserves (Davis Tax Committee, 2014). Despite its long history of gold extraction, South Africa currently only holds 15 percent of the world's known gold reserves. Although held as small percentages in terms of global reserves, other strategic mineral deposits of coal and iron ore are key contributors to the South African economy (Rossouw & Baxter, 2011; Tucker, 2014). The mining sector is of economic importance to the country with mineral exports featuring as a major foreign exchange earner on the current account, contributing 30.4 percent to exports in 2013 and 26 percent in 2014. In 1981, the sector contributed 29 percent to tax revenue, with 93 percent representing revenue from gold. Nevertheless, contributions for 2013/2014 have dwindled, with diminished gold and minerals contributing an aggregate of 2.5 percent to government revenue. As an employer, the mining sector is of significant contribution by holding 5.9 percent of formal sector employment in 2013, down from approximately 15 percent in 1993 (Daniel *et al.*, 2015; Swart & Du Plessis, 2016⁶²).

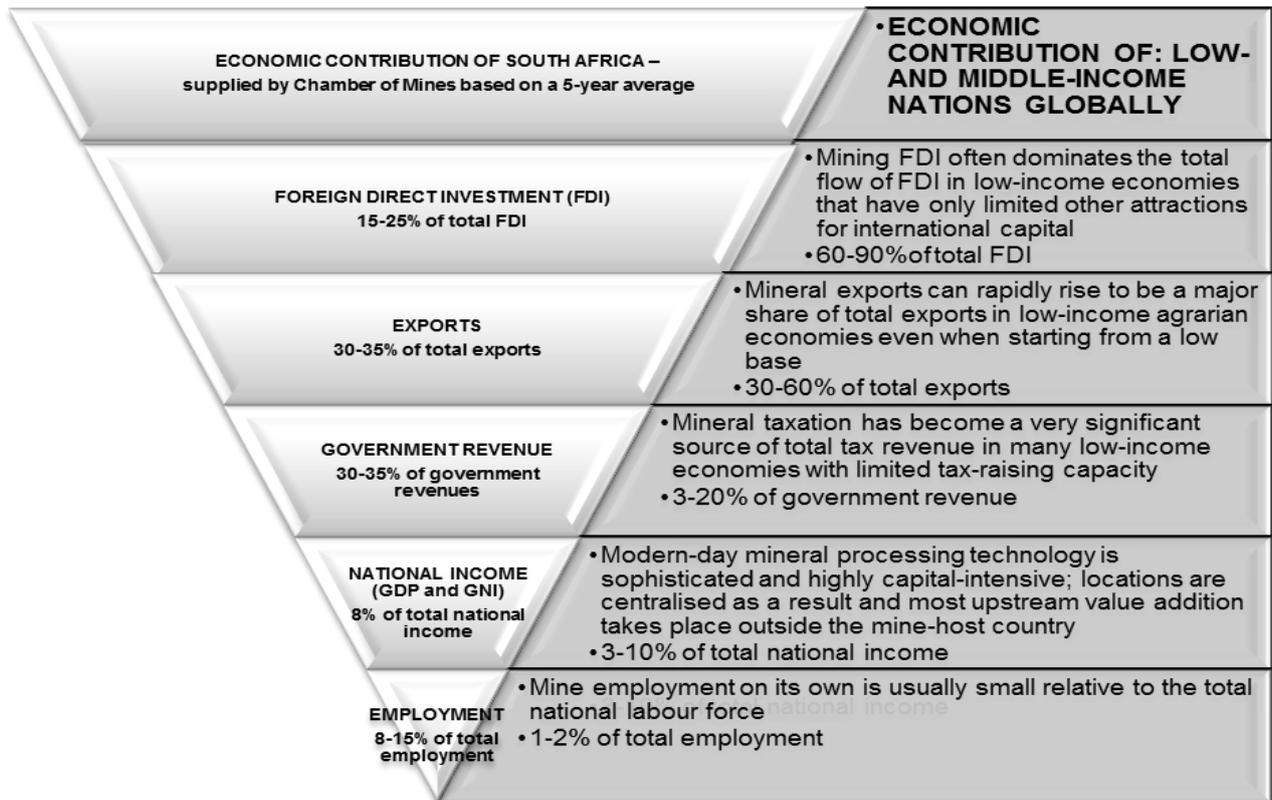
The extractives sector is the principal contributor to Broad-Based Black Economic Empowerment (BEE) (Hughes, 2012). The contribution of mining includes mining operations from both upstream and downstream activities. The contraction in the gold mining industry infers the sunset of the industry. Excluding gold and manganese, all other major minerals have experienced long-term growth (Segal & Malherbe, 2000).

Figure 3-1 illustrates the significance of the mining sector's contribution to the macroeconomics of South Africa compared to that of low to middle income countries. The

⁶² According to Swart and Du Plessis (2016:3), the South African mining industry "accounts for about 7.6 percent of GDP; 20 percent of investment in South Africa (12 percent direct); 9.7 percent of corporate tax receipts (R15.8 billion in 2015) and R5.4 billion in royalties; R78.0 billion spent on wages and salaries; attracts significant foreign investment (R1.9 trillion or 43 percent of the value of Johannesburg Securities Exchange) and consumes 15 percent of electricity demand (greater than 30 percent if smelters and refineries are included)".

percentages are not summative but represent the contribution of value-added to each category (International Council on Mining and Metals, 2014).

Figure 3-1: Macro-level mining contribution comparative



Source: International Council on Mining and Metals (2014:18); Chamber of Mines (2015:10).

The International Council on Mining and Metals (2014:18) identified “South Africa as the seventh most significant mining nation in the world”. The challenges in the mining sector manifest from the country’s inability to capitalise on its competitive position as one of the most richly endowed mineral nations. The exhaustibility of mineral resources implies that there is only one opportunity to convert the resource into reproductive capital and, to this end, requires judicious regulation by government and prudent management of resources by companies.

Cawood (2011) suggests that South Africa’s status as a competitive mineral jurisdiction is threatened by a lack of investment in research and development, inadequate infrastructure, labour insurgence, proposals of nationalisation and the standard of education. Nationalisation of the country’s mines, mooted as a perceived solution to poverty, inequality and unemployment, has created policy uncertainty in the industry and thus halting

exploration and investment (Antin, 2013). Adding to the list of externalities, is the labour tension brought about by the tragic police shooting of 34 mineworkers at Marikana in August 2012 (Harvey, 2015a).

3.4.2. Petroleum

Ocean currents and unreachable depths of resources previously limited exploration offshore. However new technology has enabled the issuance of 20 exploration licences off South Africa's coast. Table 3-6 illustrates South Africa's potential conventional petroleum reserves. The country's conventional proven reserves of 15 billion barrels are relatively small in comparison to global reserves. South Africa's oil and gas offshore reserves of approximately 1 billion barrels of recoverable reserves have been licenced (Daniel & Shah, 2016).

Table 3-6: Conventional petroleum reserves, 2014

South Africa	Production/ Reserves	Share of World
Oil Production (barrels per day)	191 000	0.22%
Proven Oil Reserves (million barrels)	15	0.001%

Source: South African Oil and Gas Alliance (n.d).

South Africa is a global leader in oil-from-coal synthetic fuel technology. Developed by Sasol, the company has an annual production of 8 million cubic metres; contributing 10 percent to the country's synthetic fuel supply (Vermaak, 1997).

3.4.3. Gas

A gas-condensate discovery was made in early 2019 by Total at the Brulpadda Prospect. It is estimated that the offshore find has a resource potential of approximately a billion barrels of oil equivalent. It was further noted that the discovery has potential to meet South Africa's fuel requirements for the next four years (Van Zyl, 2019). Rhino Oil and Gas Exploration South Africa has been granted a gas exploration right for a desktop study and an aerial survey (Kings, 2018).

South Africa's unconventional coal bed methane reserve has a global ranking of 12th position, and shale gas is in 8th position (Deloitte, 2016; South African Oil and Gas Alliance, n.d; Hughes, 2012). The Fischer-Tropsch process has enabled the Sasol to produce oil from coal, making it the largest global manufacturer of concentrated carbon dioxide. The country has the world's largest gas-to-liquid refinery, producing a capacity of 45 000 barrels a day. Twenty-five exploration rights for coal bed methane have been awarded and some of which have applied for production rights (South African Oil and Gas Alliance, n.d). Table 3-7 below shows the conventional and unconventional gas reserves.

Table 3-7: Conventional and unconventional gas statistics, 2014

Conventional	Unit	Quantity	Global share
Gas Production	Cubic metres per year	970 000 000	0.03%
Proven Gas Reserves	Cubic metres	27 160 000	0.00001%
Unconventional	Unit	Quantity	Global Ranking
Coal Bed Methane Resources	Trillion cubic feet	20-30	12
Shale Gas Technically Recoverable Resources		390	8
Shale Gas Potential Reserves		30	

Source: South African Oil and Gas Alliance (n.d).

In 2001, a moratorium on shale gas exploration was declared due to environmental concerns (Hughes, 2012). However, government has moved ahead with plans to exploit shale gas by issuing five technical cooperation permits (Petroleum Agency SA, n.d).

3.5. OBJECTIVES OF THE SOUTH AFRICAN EI FISCAL REGIME

It was identified in Section 2.6.1 that an understanding a country's risk appetite and dependence on resource revenue is a precursor to designing an effective EI tax regime. An individual country's circumstances, in terms of opportunities and risks, may differ and these differences inform the objectives of the EI fiscal regime. It was also shown in Table 2-2 and Table 2-3 how the different tax instruments are chosen to respond to the anticipated objectives.

The objectives of the South African EI fiscal regime is guided by the National Development Plan (NDP). The NDP is an overarching plan for the country that is developed with the objective of eradicating poverty and inequality by 2030. The plan proposes to achieve the aforementioned objectives by eliminating the constraints to business. To promote job creation, a 5 percent annual economic growth rate is required. To this end, the plan acknowledges the comparative advantage in the country's natural resource endowment. It is reported that the decline in mineral exports arises from inadequate infrastructure and investment-impeding policy (South Africa, 2012).

Mineral beneficiation and exports are identified as employment drivers. An enabling business environment needs to be created and stimulated by removing constraints to electricity supply, water, business registration, urban planning approvals and mining licencing and expanding the skill base of labour. Delivery of these action items is still outstanding with the objectives remaining unchanged. Maximising tax revenue generation in light of these circumstances remains a challenge until economic growth and investment in the sector can be rejuvenated (South Africa, 2012).

A SWOT analysis is conducted in order to identify the opportunities and the risks within the country that affect the objectives of the EI fiscal regime. Table 3-8 presents a SWOT analysis of South Africa's EI. Section 3.6 then sets out the risks experienced in the extractive sector that affect the performance of the sector. Identifying the risks provides insight into the potential tax instruments required to adjust to the cyclical nature of the extractives sector. Ultimately, raising tax revenue is dependant on the relative performance of the extractives sector. The best tax regime can produce little revenue if the sector is not performing.

South Africa's comparative advantage of large mineral reserves offers potential to break into new markets. As identified in table 3-8, a growing market for manganese could exist as a result of lithium battery technology (Vallabhjee, 2019). Understanding future resource demands created by new technology is important to harness the potential of the country's resource base. Furthermore, policy interventions are required to address the decline in the platinum sector. A plan is required to improve infrastructure, labour and power challenges. Addressing these impediments will improve the cost to producer and stimulate international investment in the extractive sector.

Table 3-8: SWOT analysis of the South African mining sector

Strengths	Weaknesses
<p>South Africa with its vast unexploited mineral reserves is recognised for offering the most stable investment environment on the African continent.</p>	<p>Government has proposals to increase its share of revenue from the mining sector by increasing taxes and beneficiation, while operational costs have simultaneously increased. Limited mining sector growth is affected by increased extraction costs to recover low-grade ore, electricity shortages and load shedding from 2008 which resulted in lost revenue of USD 28 billion, exorbitant labour costs relative to alternative markets in Australia and the United States, where the average cost to a producer is 30-40% as opposed to local averages of around 60%, and infrastructure bottlenecks from inadequate railway networks.</p>
Opportunities	Threats
<p>Government could offer gold reserves localised in the north for investment. Local and international demand from India is anticipated to increase. Steady recovery from the United States, Europe and increasing incomes in China will increase demand for diamonds (BMI Research, 2015). Research on the potential of lithium-ion battery technology suggests a growing market for a key battery component, manganese. South Africa holds approximately 80% of global manganese reserves and produces 5.3 million metric tonnes per annum (Vallabhjee, 2019).</p>	<p>A five-year decline in commodity prices is forecast across a range of minerals. Labour unrest is a significant disincentive, discouraging future investment. There are impending bankruptcies in the platinum sector from continued cost pressure experienced from strike action caused by unionised labour.</p>

Source: Author's own summary of BMI Research (2015:9).

3.6. RISK EXPOSURE

After identifying the objectives of EI, an assessment of the risks that influence extractive sector performance, provide the context and parameters within which fiscal policy can be formulated. The challenges facing the South African mining industry can be categorised into three categories: country risk, mining risk and global risk. Of significance, the mining sector has been experiencing: increasing costs, declining commodity prices and low yield tax revenue contributions. It should be noted that the tax system itself does not present an impediment to investment, but rather the presence of non-tax factors that have deterred investment. Country risks faced include: labour tension, instability of electricity supply, policy uncertainty, transportation and logistic infrastructure issues (World Bank, 2015b). The

decline in the industry is exacerbated by depletion of known reserves, increased labour cost from industrial strike action and infrastructure constraints of water, electricity and transport (Daniel *et al.*, 2015). World Bank (2015b) noted that transformational issues in addressing past inequality in favour of historically disadvantaged individuals, present further challenges to investment in the industry.

To an investor geological risk is the most significant risk (Heller, 2018). Ericsson, Löf and Petrilli Massey (2011:35) state that an investor considers geological risks: concerning the presence of a good deposit; mining risks: concerning whether “the shape and geometry of the deposit is sufficiently understood to make use of large-scale, efficient mining methods”; metallurgical risks: concerning profitability of extraction; market risks: concerning stability of demand and price of the commodity; financial risks: concerning sufficient to sustain an operation without returns.

A confluence of negative factors have affected the performance of South Africa’s extractive sector. This section provides an account of the country risk, global risk and mining risks facing. The resource horizon is discussed providing a context of the number of remaining years before depletion.

3.6.1. Country risk

South Africa’s mineral sector performance is predisposed to a confluence of factors which simultaneously affect mineral investor confidence. As indicated by Cawood (2011), an orebody’s value is only realised after extraction and conversion into a marketable product. The role of government is to ensure that investor returns are sufficient to safeguard investment, and are not compromised by a more favourable mineral jurisdiction (Davis Tax Committee, 2016b). The following country risks have been identified that cumulatively affect the EI performance: political stability, labour unrest and unemployment, power shortages and beneficiation.

3.6.1.1. *Political stability*

The mining industry has created income disparity in the South African population (Stott, 2008). The poorest 20 percent of the population only owns 2.5 percent of the available

income, whereas 53.8 percent of income is owned by 10 percent of the population. Thus government has rationalised reversing the past discrepancies by targeting remedial policies at addressing the historical inequality of resource ownership inherited from the apartheid regime.

During the period of transition from apartheid to an affirmative action policy regime, consensus was attained regarding the dire need to revitalise the mining industry by ensuring the provision of a low cost-stable power supply, trade and transport infrastructure. However, government policy concerns overshadowed these critical needs in support of addressing unemployment and BEE. Rent-seeking behaviour motivates government to deviate from optimal development policy. This is evident from the departure of the mining policy from principles in the NDP (Harvey, 2015a).

3.6.1.2. *Labour unrest and unemployment*

Harvey (2015a) states that a lack of skills, labour uncertainties and visa regulations limiting skilled labour have been reported as the second most severe impediment to growth in the country. Disruptive labour, brought about by restrictive labour regulations, which makes hiring and dismissal procedures more burdensome, does not alleviate unemployment. Industrial strike action is a frequent occurrence, with action becoming increasingly violent, even to the extent of burning factories and farm crops. These incidents have resulted in the demise of labour-intensive investment in favour of capital-intensive investment technologies. South Africa's school education has deteriorated to a point where it is rated amongst the lowest in the world. An educated and skilled workforce is required to address unemployment challenges faced (Venter, Parsons, Strydom, Stroebel, Naudé, Moeng, Mukhithi, Mmutle, & Ramakokovhu, 2015). The New Growth Plan identified mineral beneficiation as a strategy to address the employment of 5 million individuals by the year 2020 (Department of Mineral Resources, 2011).

3.6.1.3. *Power shortages*

Lack of infrastructure was the principal reason identified by the SIMS Report for South Africa's failure to benefit from recent resource booms (Solomon, 2012). It should be borne in mind that power is a critical consideration, as disruptions and restrictions result in delays and suspended activities. The energy sector struggle has arisen from poor policymaking,

where inadequate investment and maintenance dating back to the 1980s has resulted in an interrupted power supply, a maintenance backlog, a capital-intensive rebuild and expansion programme, and compromised industrial sector performance and output (Venter *et al.*, 2015). The deterioration in the energy sector has affected the economic growth of the country. Electricity supply constraints are intensified by strike action and delays in the construction at the Media Power Station, the Ingula Pump Storage Scheme and the Duvha Power Station (Chamber of Mines, 2015). The electricity capacity shortages have not been resolved and have resulted in intermittent power supply (Mtambo & Dlodla, 2019).

3.6.1.4. Policy uncertainty

Globally, policy uncertainty has been noted as a contributor to the underperformance of countries (NWU School of Business and Governance, 2016). South Africa's stagnation during 2008 to 2012, with an economic growth rate of 2 percent and inflation between 4.5 percent and 6 percent, is attributable to growing policy uncertainty in the country causing indecision and subduing investment. The current economic underperformance has been apparent in growing unemployment, widespread poverty, insignificant growth forecasts, a widening income disparity gap, severe balance of payments problems, depreciating currency and continuing inflationary pressures. Large cash reserves on corporate balance sheets corroborate the hesitancy of companies to spend, arising from the uncertainty of future growth prospects (Venter *et al.*, 2015).

Empirical evidence has shown that policy uncertainty has consequences for the economy (Venter *et al.*, 2015). The presence of strong economic policy uncertainty lowers investment, employment and output and contributes to sluggish growth. High levels of policy uncertainty impede investment and consumption. Lack of policy coherence and uncertainty has developed over the years from contradictory provisions issued by the various government departments (NWU School of Business and Governance, 2016).

In the process of addressing social transformation and preventing South Africa from being one of the most unequal societies in the world – as it was rated in 2011 by the World Bank for having a Gini coefficient of 65 – the relationship between business and government has been strained with over-regulation and a contradictory policy framework (World Bank, 2018b:1). Despite the intent of the legislation, the South African policy trajectory does little

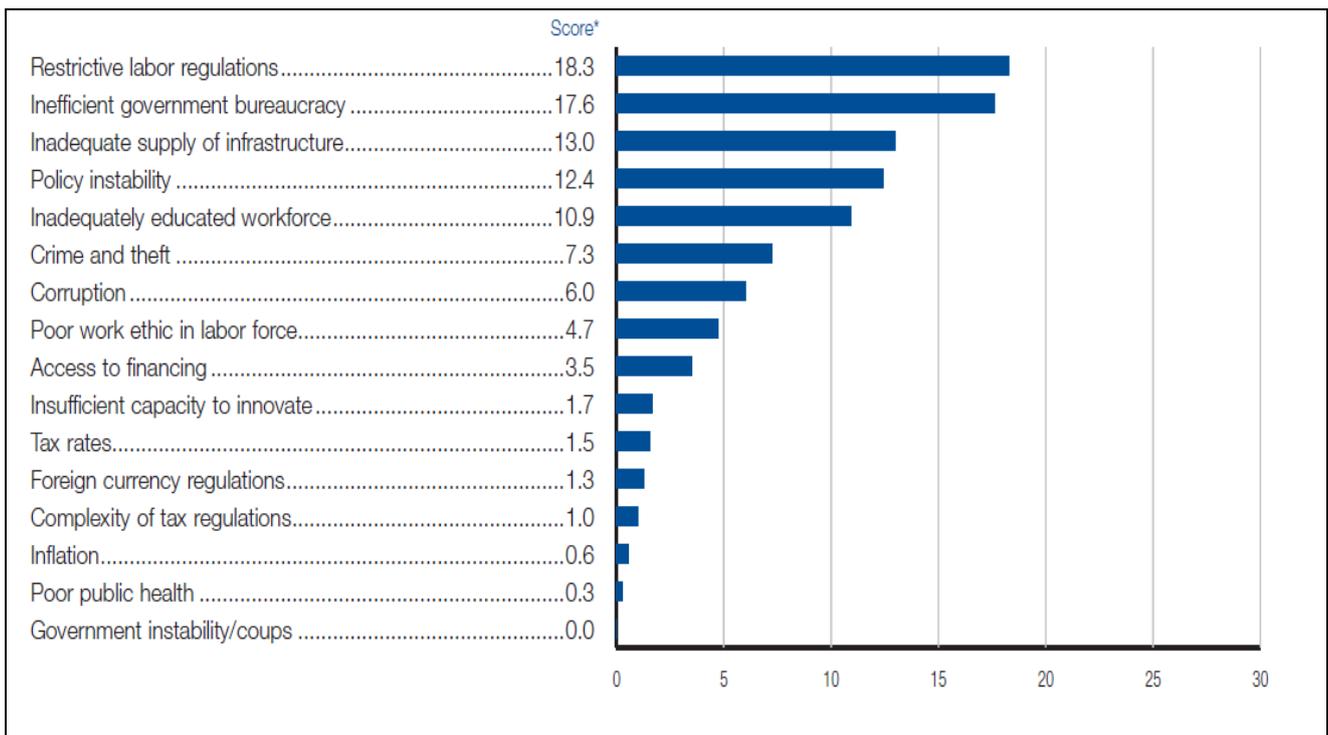
to address the interests of all South Africans and attract local and international investment. According to Venter *et al.* (2015), a convergence of policy thinking is required, or the South African economy will continue to underperform at an economic growth rate of less than 1 percent.

Anomalies lie in the inconsistencies of the numerous policy proposals creating conflict and confusion. Contradiction is implicit in failure to account for the fact that much-needed value creation in terms of beneficiation of mined outputs is limited by a critical energy deficiency in the country. Furthermore, wide-scale industrial development is dependent on efficient municipalities, which currently lack infrastructure, service capability and financial acumen. The service sector's exports, with a substantial contribution to the country's GDP, does not feature on the policy agenda. Shortcomings in international trade policy lacks provisions on how local producers can benefit from global and regional value chains. Impediments from the dire lack of education and skills in the country create fundamental challenges to value chain addition (Venter *et al.*, 2015).

The World Economic Forum (2015) produces a global competitiveness index amongst 140 countries, by ranking countries on the fundamentals of their economies as a tool to help identify reform areas for policymakers. South Africa is ranked 49th on this list. The report acknowledged that South Africa has an efficient financial market, a strong legal framework and institutions, and a sound goods market driven by strong domestic competition. The challenges identified include reducing corruption, the burden of government regulation and improving security, the inefficient electricity supply and an inflexible labour market seem to be obstacles for the country. Obstacles identified include: health and the quality of education required to create the skills needed for a competitive economy.

Figure 3-2 depicts the most problematic barriers to doing business in South Africa. The World Economic (2015) study administered a perception based survey to respondents' representing the main sectors of the economy. One aspect of the report examined the impediments to doing business in South Africa. The complexity of the tax regime scored a 1 and is therefore less significant in comparison to policy instability and restrictive labour regulations, scoring 12.4 and 18.3 respectively.

Figure 3-2: The most problematic factors for doing business in South Africa



Source: World Economic Forum (2015:326).

Venter *et al.*'s (2015) study recommends that the NDP should be used as the guiding framework in the policy making process. Social dialogue is important, however, protracted negotiations need to be limited in order to streamline policy. Public sector financial wastage should be eradicated, together with business-unfriendly policies. The failed apartheid regime industrial policy of identifying winning industries promotes inward industrialisation and should be abandoned. The adoption of a progressive trade policy, incorporating a services trade strategy that identifies constraints in industrial policy, while showing value for global and regional value chains is recommended.

Venter *et al.* (2015) provides examples of South Africa's business-unfriendly policies:

- Limitation of skilled foreign workers by complex and impractical regulations surrounding work and residence permits,
- Tedious new visa requirements, which has resulted in a 6 percent drop in visitors travelling to South Africa,

- Vetting of foreign investment deals, by the establishment of an investment screening agency, on the basis of how applicants conform to the government's national security goals and criteria,
- Termination of bilateral investment treaties between South Africa and European Union member countries,
- The Preferential Procurement Policy Framework Act 2000, which prescribes manufacturing contract proposals, to utilise local companies as suppliers of goods that are not necessarily efficient or cost-effective in the global value chain,
- The award of mining permits according to empowerment candidates provided for under the agreed quota in the industry, and
- Certainty regarding the vague and frequently changing land reform programme.

3.6.1.5. Beneficiation

The majority of mined mineral output is exported without processing, and consequently, the true value of the mineral achieved on the open market as a finished product is lost. South Africa's mineral endowment provides the country with both a comparative and competitive advantage (Department of Mineral Resources, 2011). Impediments to beneficiation have been identified as infrastructure deficiencies, lack of research and development, inadequate expertise and access to markets (Harvey, 2015a). Harvey (2015a) explored the benefit from downstream and upstream processing of raw materials. He states that there is little empirical evidence to support downstream beneficiation, on the basis of reduced transportation costs arising from the easy accessibility to local raw materials. Government, however, is in support of downstream mineral beneficiation.

Mining companies face exorbitant cost pressure, together with volatility of the global commodity market. Moreover, South Africa's beneficiation potential is limited by price manipulation from Chinese supply, arising from subsidisation received by the Chinese Government. The World Bank recommends an adoption of Hartwick's rule: "reinvesting mineral rent into produced capital (e.g. infrastructure and knowledge)" as an alternative policy to beneficiation (Harvey, 2015a).

3.6.2. Mining risk

The industry is exposed to geological risk inherent in the depletion of high-grade reserves. Lengthy lead times in generation of initial revenue streams, together with the industry being a price taker and experiencing persistent declining commodity prices, have led to the subdued performance of the domestic mining sector (Swart & Du Plessis, 2016).

Contamination of water supplies from high levels of toxic heavy metals and radioactive particles threaten mining operations. A further environmental hazard is that of acid mine drainage resulting from the leakage of tailings piles and water accumulated in abandoned deep underground mines into the groundwater system (Yager, 2014). Mine acid pollution contributes to several debilitating health conditions. Acid mine drainage has been identified as one of the most significant environmental threats to South Africa with an annual estimated rehabilitation cost of R1.3 billion (Hughes, 2012). Hughes (2012) reported that illegal mining is widespread, costing the industry on average R5 billion per annum. The global promotion of carbon-efficient operations suggests an inquiry into the continuation of Sasol's operations.

3.6.3. Global risk

South Africa's extractive sector is vulnerable to global risks and uncertainties. Growth prospects in the country have been inadvertently affected by the economic slowdown in China and the decline in global commodity prices. Countries cannot manage international economic uncertainty exposure, but can limit domestic uncertainty as such a factor is under national control (Harvey, 2015a; NWU School of Business and Governance, 2016). The turn of the 20th Century ushered in a commodity boom and stimulated investment and expansion. The decline in commodity prices has resulted in mining companies adopting prudent measures to limit costs. This policy of capital conservation has impeded exploration spending from 2012. It is projected that the market for commodities will improve by 2017 (Federal Ministry for Economic Cooperation and Development, 2016). Due to its dependence on commodity exports, South Africa is susceptible to global phenomena. In addition to the slowdown in China, global commodity prices adversely affected by the strengthening of the United States dollar, have resulted in the realisation of cheaper commodities due to a reduced demand from China's slowdown and the devaluation of the

Chinese Yuan. An anticipated hike in US interest rates will further strengthen the dollar. The ensuing economic weakness translates into depreciation of the Rand that in turn, leads to rising inflation (Deloitte, 2015).

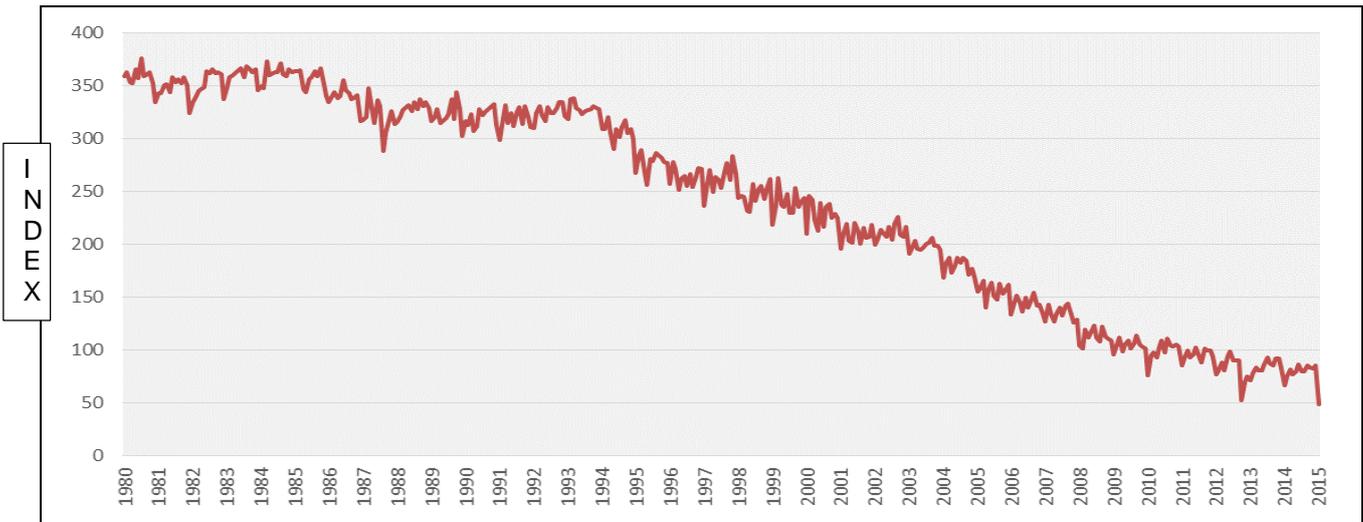
3.6.4. Resource horizon

South Africa has been mining for more than a century, having some of the deepest mines in the world. Sustainability of mining operations is a challenge with depleting reserves and declining grades, as extraction of remaining ore is located deeper into the earth's crust. This poses concerns as increased technical complexity requires fundamental research to develop mechanised solutions. The opening of new reserves requires skill, knowledge, research and technology in order to support designing smart mines that are productive, cost-effective and safe to the environment and mine workers (Cawood, 2011).

The estimation of the anticipated years in which a commodity will produce income is a precursor to fiscal policy design. Therefore, exhaustibility and obsolescence of a commodity is factored into account for the period post-resource depletion. New technological advancements can reduce or increase demand for a particular commodity. Countries dependent on natural resource revenue should thus diversify their income stream in anticipation of reaching the resource horizon (Daniel *et al.*, 2013). A local example is the demand for gold that was created by the adoption of the international gold standard. The consequent abandonment of the gold-standard resulted in a sharp decline in the economic importance of gold in the international market. Thus, the utility of resources and changes in economic importance of a particular commodity can have a significant effect on future viability of extractive ventures.

Figure 3-3 exhibits the declining gold production index. Gold production fell by 87 percent during the period 1980 to 2015. During the same period, growth in gold production was only experienced in: 1992, 1993, 2002 and 2013. In 2007, South Africa lost its long-standing global leader position and by 2014, fell to sixth place in terms of gold supply, behind China, Peru, the United States, Australia and Russia (Statistics South Africa, 2015).

Figure 3-3: Monthly gold production index, 1980-2015

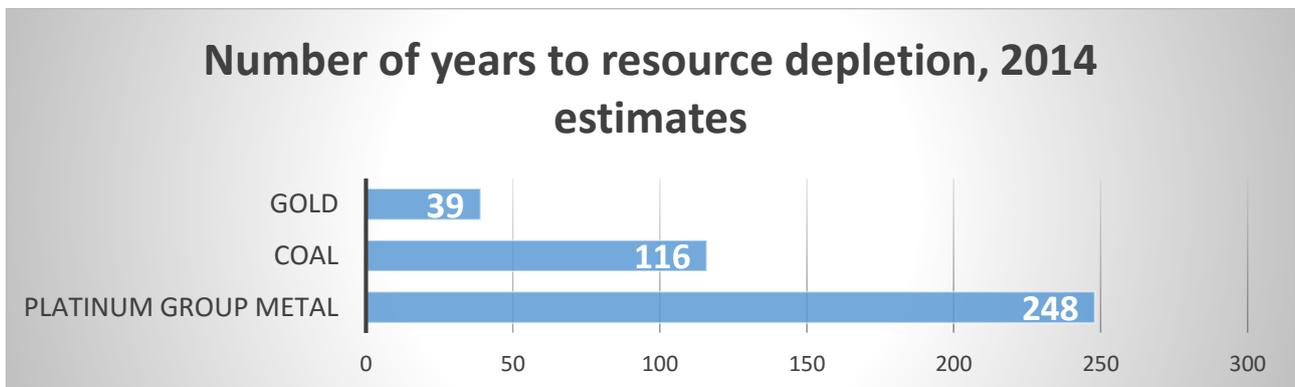


Source: Statistics South Africa (2015).

South Africa’s main source of energy is coal. The country’s energy supply mix constitutes 67 percent from coal, 15 percent from crude oil, 14 percent from petroleum products and 2 percent from nuclear power. The landscape is set to change with Total’s gas find in 2019 that is projected to meet local fuel supply for four years (Van Zyl, 2019).

For commodities with a long resource horizon, the challenge lies in managing commodity price fluctuations. Figure 3-4 depicts that an estimated 63 000 tonnes of proven platinum group metals have a resource horizon of 248 years, 30 156 million tonnes of coal is estimated at 116 years and 6 000 tonnes of gold will be depleted in 39 years (Statistics South Africa, 2017b).

Figure 3-4: Estimated resource horizon for gold, coal and platinum



Source: Statistics South Africa (2017b:13,17,21).

3.6.5. Concluding comments on risks

Otto (1998) conducted a study to identify corporate mineral investment decision criteria. The results of the survey revealed that most mining companies consider regulatory and fiscal systems to be the leading investment determinants following geological conditions. Furthermore, the study found that “perceived mineral endowment, infrastructure, political stability, investment policies, and institutional framework, are all key determinants of exploration and investment decisions”.

An assessment of South Africa’s extractive sector operating context against these criteria reflect that there are substantial issues prevailing. Adding to this conundrum is the fact that South Africa has a relatively mature geology when consider depletion rates and cost to extract. These factors could suggest a need to incentivise exploration in order to achieve competitiveness of South Africa’s extractive regime (this issue will be discussed in section 5.4.7).

I therefore submit that fiscal policy measures to support South Africa’s EI competitiveness include:

1. a stable legal and fiscal framework and a transparent allocation of oil, gas and mining rights.
2. contractual stability in terms of the Mining Charter 2018 requirements.
3. a guaranteed fiscal regime, encouraging exploration.

3.7. THE CURRENT SOUTH AFRICAN EI FISCAL REGIME

Baxter (2017) states that the extractives industry is in crisis. He cites governance and policy uncertainty as impediments to new investment and an overall loss of investor confidence. The sector is struggling, reporting an accumulated loss of ZAR 30 billion in 2015 and a drop in real mining GDP from ZAR 242 billion in 1994 to ZAR 226 billion in 2016. Policy uncertainty commenced with the publishing of the first draft of the mining charter in April 2016. Since then it was subject to several revisions. These issues were brought to a close on the 26 September 2018, when the Minister of Mineral Resources published Mining Charter 2018.

Leon (2019) commented that certain provisions of the Mining Charter 2018 were still contentious and do not create legally binding and enforceable obligations on mining right holders. He highlighted that the Minister's discretion to revise the obligations imposed under the Charter was a cause for concern.

3.7.1. Allocation of extractive rights

3.7.1.1. *Mining*

South Africa's mineral rights regime is governed by the MPRDA and associated Mining Charter. With the enactment of the MPRDA, ownership of mineral rights and security of tenure is vested with the state (Badenhorst, 2014). In order to realise the concept of state custodianship, holders of private existing old order prospecting and mining rights were afforded the opportunity to apply for new order rights. Failure to make such application resulted in the right ceasing to exist (Leon, 2012).

According to the MPRDA:

- New order permits are awarded for a reconnaissance permit, a prospecting right, a retention permit, a mining right and a mining permit.
- The reconnaissance permit is non-renewable, granted for a two-year period, and does not confer an exclusive right to apply for the prospecting right.
- The prospecting right is awarded for a period of up to five years, renewable once for three years.
- A retention permit is awarded for up to three years with renewal once for two years. A mining right is awarded for up to 30 years which is renewable for further periods of 30 years.
- Statutory regulations include compliance with the Mining Charter, financial and technical abilities, economic and work programmes, environmental, social and labour plans and the payment of royalties (South Africa, 2002).

The SIMS Report (2012) was commissioned due to calls for the nationalisation of the country's mining assets. One recommendation advised on the replacement of the existing system for awarding mining rights, based on the FIFA principle, with a competitive bidding system for the auctioning of these rights. The current licencing regime is an open access

system awarded on a first-come, first served basis to an applicant who satisfies the stipulated financial, technical, work programme, environmental and social criteria as per the Mining Charter.

The SIMS Report found that licencing exploration rights on a FIFA basis was ineffective in maximising returns. The report recommended that the practice of issuing licences via public tender could ensure that maximum returns are obtained for resources through public tender by achieving true price discovery for un-concessioned mineral assets (African National Congress, 2012).

South Africa collects no direct revenue from the allocation of mineral rights through the FIFA allocation system. Rights allocated on a FIFA basis are prone to corruption. Bello, Benkenstein and Harvey (2013) defend that a FIFA system is a quicker system of mineral rights allocation and is suitable when information of geological potential is not readily available.

A system of auctioning generates revenue, but is more expensive and takes a longer time to acquire data on the geological potential and value of the mineral deposit. In addition, Bello, Benkenstein and Harvey (2013) advocate that a cost-benefit analysis of mineral rights allocation between the two systems is necessary for the determination of the system which provides the maximum benefit to the country while considering factors such as the time and costs to develop the country's natural resources. James (2019:1) confers that jurisdictions that award mining concessions by auction offer a faster process, secure a commitment from the bidder and simultaneously secure income for the state. Furthermore, "prospecting and mining operations can start sooner."

The Department of Mineral Resources (DMR) conducted an audit investigation in 2011 on the rights granted. Audit findings revealed that there were irregularities, administrative inefficiencies and lack of transparency in the award of prospecting rights. On these findings, the department implemented an electronic mining cadastre system in order to limit opportunities for corruption and increase transparency and good governance (Adeleke & Humby, 2016). The World Bank (2016b) recommend that transparency and accountability can be created by separating the licencing function from the DMR, which effectively reduces

political interference and limits opportunities for irregular transactions in the licencing allocation process.

Mining is a high risk enterprise that requires a sound regulatory regime to mitigate against the extenuating business risks and encourage investment. Leon (2013:1) states that a “regulatory regime should provide certainty, stability and predictability to mining investors”. Table 3-9 compares the South African extractive regulatory regime to internationally recognised good practice principles.

Table 3-9: Benchmarking the EI regulatory regime with good practice

Good Practice	South African Scenario
A non-discriminatory regulatory framework providing for equality before the law.	The MPRDA, in accordance with the Mining Charter, provides that at least 26% of the attributable units of production of prospecting or mining projects should be held by historically disadvantaged South Africans. As provided for in Mining Charter 2018, this target has been revised to 30%.
The terms and conditions that apply to extractive rights should be standardised and legislated.	Mining Law is regulated by the MPRDA, royalties are governed by the MPRRA, title registration is dealt with by the Mining Titles Registration Act (1967) and health and safety is legislated in the Mine Health and Safety Act (1996).
The legal framework governing the allocation and management of extractive rights should be clearly and unambiguously stated, enabling ease of compliance to mining investors.	The MPRDA is uncertain, unclear and has ambiguous provisions. Compliant applicants are unaware of whether they will receive a licence, due to a lack of disclosure of screening criteria adopted by the DMR.
The law should limit administrative discretion. Where the allocation of discretionary powers to officials is necessary, these powers should be appropriately guided and limited by the law, restricting the potential for corruption or bias.	Wide discretion is conferred on the Minister to regulate the licencing process. Key licencing conditions are rendered susceptible to ‘back door’ ministerial discretion.
The roles and responsibilities of different regulatory agencies operating within the resources sector should be clearly defined and enforced in practice.	The mining industry is administered by the DMR. The Mine Health and Safety Inspectorate also falls under the DMR. The Director-General and a Deputy Director-General have delegated powers to make various decisions on behalf of the minister.
Timeframes for actions taken for the allocation of extractive rights, as well as for actions by mining companies, should ideally be specified in legislation or, at the very least, be publicly set out by the agency responsible for the management and/or allocation of extractive rights. Timeframes thereby ensure the efficient and predictable performance of the licencing functions.	The DMR slow turnaround time in the processing of mineral rights applications is reported by failure to meet the prescribed target of a 6-month processing period for prospecting rights and mining permits, and 12 months for mining rights. The DMR reported deterioration in its ability to meet target turnaround times from 63.5% in 2010/2011, to 82% of applications in 2011/2012.

Good Practice	South African Scenario
Holders of prospecting rights should have the exclusive right to develop any extractive resource they discover in the licencing area.	The holding of a prospecting right grants exclusive right to apply for a mining right. For petroleum, an applicant has to apply for an exploration right.
Suitable tenure for all exploration and mining rights and the renewal licences therefore are necessary to provide right holders adequate time to explore for and exploit the resource.	The MPRDA stipulates the period, and licences are issued for reconnaissance permission, prospecting right, mining right and production right for petroleum.
Legislation should protect the company's rights and security of tenure by providing extractive right holders access to administrative and judicial review, in order to challenge decisions of the regulatory authority. In the absence of this protection, investors may be reluctant to invest.	There is a system of appeals against administrative decisions. After exhaustion of internal remedies, an administrative decision can go to court in terms of the High Court rules.

Source: Author's own summary of Leon (2013).

An assessment of government practices when awarding mining rights identified the following problems (Corruption Watch, 2017):

- The application process is pre-disposed to corruption due to the manual lodging of applications. The online application system, administered by the South African Mineral Resources Administration System (SAMRAD), introduced as a measure to reduce corruption, is not functional.
- The timeframes provided are not adhered to resulting in long delays and a decline in investment. Furthermore, some DMR officials have excessive discretionary powers.
- There is a lack of procedural uniformity between regional offices, giving rise to inconsistent application of the law. In addition, the shortage of relevant skills and under-qualified individuals performing critical tasks poses further problems.
- The Mining Charter's BEE provisions are being misused to benefit a few elites. Specific BEE partners are favoured and licences are not granted if they are not appointed.
- The Regional Mining Development and Environmental Committee platform does not serve its intended purpose as objections are not being dealt with. Social and labour plan commitments are not adhered to and are not monitored. The One Environmental System has not been regulated and remains unintegrated.

3.7.1.2. *Petroleum and gas*

South Africa's upstream crude oil, petroleum and gas sector is in a nascent stage of development, focussing on exploration activity to locate commercially viable reserves. The international best practice for attracting and marketing upstream acreage recommends the use of an independent licencing agency to reduce the administrative burden. The Petroleum

Agency of South Africa, is an independent licencing agency and currently serves this function (Wait, Loots, Bezuidenhout & Rossouw, 2014). Table 3-10 presents South Africa's extractive rights allocation regime.

Table 3-10: Allocation of the extractive rights in South Africa

SOUTH AFRICA: EXTRACTIVE RIGHTS ALLOCATION STRATEGY
PRE-LICENCE ASSESSMENTS: Conducted and conflict minimised by establishing existing rights?
South Africa has developed geological surveys which have mapped most of the country. The Fraser Institute Annual Survey of Mining Companies 2017 reported that 32% of investors rated that the quality of geological information available would encourage investment, and 36% responded that it does not deter investment. South Africa ranks 61 out of a 104 jurisdictions "for the quality of their geological database (includes quality and scale of maps, ease of access to information, etc.)" (Jackson & Green, 2017:7).
ALLOCATION METHOD: Pre-qualification of applicants and allocation method is suitable to competitive interest.
The MPRDA does not make specific provision for the auctioning off of mining concessions by the DMR. Section 14(1) of the MPRDA states that the following criteria must be met in order to grant a reconnaissance permit: "(a) the applicant has access to financial resources and has the technical ability to conduct the proposed reconnaissance operations in accordance with the reconnaissance work programme; (b) the estimated expenditure is compatible with the proposed reconnaissance operation and duration of the reconnaissance work programme; and (c) the applicant is not in contravention of any relevant provision of this act." The Mining Charter also requires mining licence holders to meet thresholds of BEE. Petroleum licences are obtained through an application to the minister. Such applications are processed on a first-come, first-served basis.
LICENCE TRANSFERS: Subject to the same conditions on award of a licence?
The holder of the mining or prospecting right cannot transfer a licence without the written consent of the minister. The minister will grant consent if the transferee will continue to be capable of complying with the provisions of the MPRDA and the terms and conditions of the mining or prospecting right. The minister has a degree of discretion in deciding whether the requirements for the transfer of the respective rights have been met.
FISCAL TERMS: Included in the biddable terms?
The corporate tax regime is contained within the Income Tax Act. The MPRRA regulates the imposition of a royalty on the transfer of mineral resources.
LICENCE DISCLOSURE: Of pre and post licence information?
The MPRDA does not require disclosure of the winning applicant. Section 30 of the MPRDA gives effect to Section 32 of the 1996 Constitution, namely the right of access to information. The Promotion of Access to Information Act (2 of 2000), gives effect to the constitutional right of access to any information held by the state. The Mineral and Petroleum Titles Registration Office is responsible for the registration of all mineral and petroleum titles. Documents that are registered at this office are not publicly available and an application to access them must be made under the Promotion of Access to Information Act (2 of 2000).

Source: Compiled by the author.

3.7.2. EI fiscal instruments

The context of private ownership of mineral rights limited a CIT as the only available tax instrument. This landscape changed in 2004 when custodianship of mineral rights vested with the state (Department of Mineral Resources, 2009) thereby enabling the levy of a royalty in 2010. The royalty provides the state with an up-front and more stable revenue stream. The royalty regime captures part of the normal return and resource rent which influences investment decisions. A RRT offers an alternative regime as it does not affect an investor's required rate of return and would therefore not lower investment and production (Lewis & Alton, 2015). However, concerns regarding complexity, tax avoidance and revenue uncertainty of a RRT eliminated this option. In the four-year period since the adoption of the royalty regime, a 30 percent increase was noted in income taxes from the mining sector, thus achieving the objective of revenue maximisation (Lewis & Alton, 2015). Table 3-11 provides a summary of South Africa's EI fiscal regime.

Table 3-11: EI fiscal instruments in South Africa

SOUTH AFRICA: FISCAL INSTRUMENTS	
ROYALTY	
<p>The Minerals and Petroleum Resources Royalty Act (28 of 2008) commenced on 1 May 2010. Mining royalties are payable when mineral resources that were extracted from within the Republic, are transferred. The 'transfer' of the mineral resources is the trigger for the imposition of the royalty. Section 4 of the MPRRA prescribes the royalty formula: <u>Refined mineral resources</u>: $0.5 + \text{earnings before interest and taxes (gross sales} \times 12.5) \times 100$. The royalty percentage is capped at 5%. <u>Unrefined mineral resources</u>: $0.5 + \text{earnings before interest and taxes (gross sales} \times 9) \times 100$. The royalty percentage is capped at 7%. <u>Oil and gas</u>: companies are included under the "refined" royalty percentage rate formula. Two variables are used to calculate the royalty liability: the value of the minerals (the tax base) and the royalty percentage rate that is applied to the base. Relief will be provided in the form of an exemption from the mining royalty for small businesses, subject to certain conditions being met.</p>	
VARIABLE TAX ON RENT	
<p>Section 110 of the Income Tax Act deals with scale of taxation applicable to gold mining. This formula takes into account the marginal tax rate, the portion of tax free revenue and the ratio of taxable income to total income. Capital allowances are provided for gold mines due to the high capital investments incurred. Diamond and other non-gold mining companies are taxed at the same rate of normal taxes applying to other companies.</p>	
CORPORATE INCOME TAX	
Tax rate	The Income Tax Act regulates the levy of income tax at 28% and capital gains tax, and it provides differentiated tax treatment for gold. Specific provision pertaining to mining operations can be found in Sections 15 and 36 (capital and prospecting expenditure), Section 37 (capital expenditure on the sale of mining property) and Section 37A (mine closure and rehabilitation).

SOUTH AFRICA: FISCAL INSTRUMENTS	
	The Tenth Schedule to the Income Tax Act specifically deals with the taxation of upstream exploration and production.
Ring fencing	The deduction of capital expenditure incurred on a particular mine is restricted to the taxable income derived from that mine only. Any excess (unredeemed) capital expenditure is carried forward and is deemed to be capital expenditure incurred during the next tax year of the mine to which the capital expenditure relates. Furthermore, the capital expenditure of a mine cannot be set-off against non-mining income. Losses incurred during the exploration phase may be offset against oil and gas income generated in the post-exploration phase and any balance of assessed loss remaining may be carried forward without limit. Losses in respect of exploration or post-exploration may only be offset against oil and gas income of that company and income from the refining of gas acquired from South African wells. 10% of any excess loss may first be offset against any other income and any balance must be carried forward to the succeeding year.
Rehabilitation expenditure	A tax deduction is granted to mining companies which pay cash into a rehabilitation fund which complies with Section 37A.
Capital Gains Tax	The disposal of mining, oil and gas rights is subject to the general capital gains tax rules. 80% of a capital gain realized on the disposal of an asset is taxable. In the case of a resident company, the effective tax rate is 22.4% (28% of 80%).
INVESTMENT INCENTIVES	
Mining, oil and gas companies may deduct all expenditures and losses actually incurred (whether revenue or capital in nature; 100% accelerated capital expenditure allowance). A further deduction is permitted over and above the expenditure actually incurred, including: <ul style="list-style-type: none"> • 100% of all capital expenditures incurred in respect of exploration activities • 50% of all capital expenditures incurred in respect of post-exploration activities. 	
STATE PARTICIPATION	
<ul style="list-style-type: none"> • The African Exploration Mining and Finance Corporation (Pty) Ltd is a wholly owned subsidiary of the Central Energy Fund (Pty) Ltd, incorporated and registered on 26 October 1944 in terms of the Companies Act (46 of 1926). The Central Energy Fund (Pty) Ltd is a state owned entity reporting to the Department of Energy. • State-owned diamond producer, Alexkor SOC Ltd (Ericsson, Löf & Petrilli Massey, 2011). • PetroSA is the country's national oil company. 	
PRODUCTION SHARING	
Production sharing arrangements have not been entered into in the mining, oil and gas sector.	
VALUE-ADDED TAX (VAT)	
The normal VAT rules apply to mining, oil and gas companies. The supply of a mining right by a vendor is subject to VAT at the rate of 15%. Exports are zero-rated. Sales of crude oil are zero-rated. Gas does not qualify for zero-rating.	
DIVIDENDS WITHHOLDING TAX	
Dividends withholding tax of 20% is levied subject to the relevant agreement under the specific tax treaty. Any dividends paid will be subject to dividends tax at the standard rate of 15%. The Tenth Schedule provides that the rate of dividends tax may not exceed 0% of the amount of any dividend that is paid by an oil and gas company out of amounts attributable to its oil and gas income.	
IMPORT DUTY	
VAT at the rate of 15% is payable on the importation of goods, except where a specific exemption applies. Special rebates exist for oil and gas rigs and related equipment used in exploration and post-exploration activities. These rebates require regulatory permits.	

SOUTH AFRICA: FISCAL INSTRUMENTS
TAXATION OF DOWNSTREAM ACTIVITIES
Mining companies treated their mineral processing or beneficiation operations as "mining operations" for income tax purposes in order to benefit from the 100% accelerated capital expenditure allowance. However, interpretation issues have arisen from the unclear definition of "mining" or "mining operations" and the absence of a definition for "mineral" in the Income Tax Act. The provisions of the MPRRA pose similar interpretation issues with regard to the definition of "unrefined mineral resources". These provisions are contrary to the governments positions on encouraging beneficiation.
FISCAL STABILITY
In recognition of the need for oil and gas companies to have certainty as to the tax treatment of future revenues, and in conformity with international practice, the Minister of Finance may enter into a fiscal stabilization contract with an oil and gas company. Such a contract binds South Africa and guarantees the provisions of the Tenth Schedule as of the date that the contract is concluded. An oil and gas company may unilaterally rescind any such agreement (usually to pursue a more favourable dispensation if the Tenth Schedule is further changed to the taxpayer's benefit.)

Source: Compiled by the author.

Lewis and Alton (2015) note that the exploration disincentive presented by the application of a royalty is mitigated by the investment incentives offered, including up-front depreciation on mining investment, which can be carried forward indefinitely, and specific incentives to encourage exploration and development in the oil and gas industry. However, ring-fencing provisions prevent offsetting losses against profits on another project (the oil and gas industry allows for 10 percent of the benefit to be transferred to another project). Despite affording protection to the tax base, this provision reduces the benefit of the incentives. If large-scale exploitation of oil and gas reserves become feasible, they recommend the use of a RRT, which could preserve investment incentives and maximise the long-run return to the state.

Wait *et al.* (2014) evaluated the economic impact of using South Africa's current crude oil, petroleum and gas sector upstream licencing and tax policy. The study found that even though the country would benefit from the additional tax income generated, the cost to the economy in developing the sector would outweigh the benefits received from increased revenue. By increasing government's take, there is a trade off between stimulating investment and GDP growth. The Davis Tax Committee (2016a) noted that despite the oil and gas sector yielding low revenue the multiplier effect provides the platform for job creation

The provisions within the Tenth Schedule provides adequate tax incentives to lure investment to the oil and gas sector⁶³.

3.7.2.1. Mining Charter 2018 fiscal provisions

In section 2.2 it was identified that regulatory provisions can have the same intended consequence of a tax. The mining charter 2018 provisions, albeit not a form of state participation have the same economic effects of state participation. Effectively, the provisions detailed below can be classified as a form of “BEE shareholders, qualifying employees and host community” participation. In terms of section 2.1.2.1 of Mining Charter 2018 existing mining right holders must within a period of five years increase their BEE shareholding to a minimum of 30%. While, section 2.1.3.2 of the Mining Charter 2018 provides that from the effective date of a mining right all:

- “new mining right must have a minimum of 30% BEE shareholding distributed as follows:
- (i) a minimum of 5% non-transferable carried interest to qualifying employees...;
 - (ii) A minimum of 5% non-transferrable carried interest or a minimum 5% equity equivalent benefit ...to host communities;
 - (iii) A mining right holder shall ensure that any reduction in shareholding of existing shareholders through the issue of new shares, shall not reduce qualifying employees carried interest and host communities' carried interest or equity equivalent benefit...
 - (iv) A minimum of 20% effective ownership in the form of shares to a BEE Entrepreneur, 5% of which must preferably be for women.
 - (v) A mining right holder of the minimum 20% shares referred to in subparagraph (iv) shall not be diluted below 51 % ownership and control by BEE Entrepreneur” (South Africa, 2018).

Section 2.7.5.2. discussed state participation in detail. Here, it was noted that the objective of state participation focuses on revenue maximization, where additional revenues are anticipated in the form of commercial profits by way of dividends. It is submitted that the income distributable to BEE shareholders, qualifying employees and host community should be evaluated within the same parameters as a carried interest under state participation. As explained this type of state participation functions like an additional profits tax, under the conditions of “full carry” the investor pays all costs and compensation is paid out of the

⁶³ “The interaction between this incentive and the remainder of the legislation, however, reduces the stability afforded to investors and may create uncertainty in the application of the incentive. Also, an apparent lack of monitoring of the regime may result in the impact and necessity of the incentive not being determinable, especially if the investor environment were to be affected by new discoveries” (Moolman & van der Zwan, 2016:227).

state's share. In section 5.4.6, I will analyse whether the regulatory provisions in Mining Charter 2018 should be included when evaluating government's fiscal take.

Once the question of how the EI fiscal regime is set up, there still remains the need to address how the resultant revenues are managed. In order to achieve the objective of achieving inter-generation savings, the concept of using a NRF as a management tool for South African resource revenues is explored.

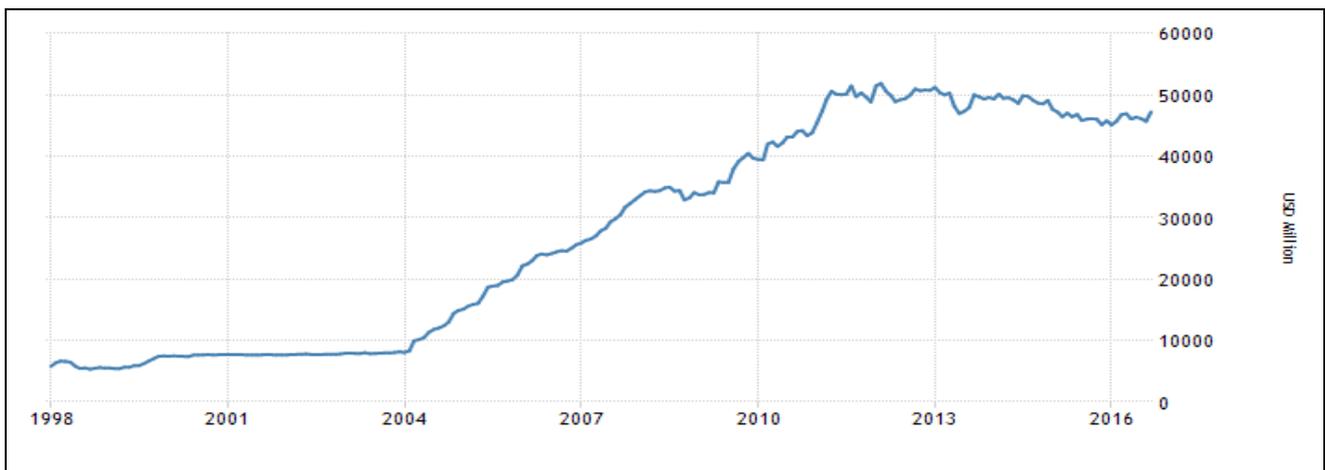
3.7.3. The case for a South African NRF

In 2010, the New Growth Path Framework was adopted in South Africa as the guiding economic policy framework to attract investment and drive employment creation in the country. The framework recommended the creation of an African Development Fund, functioning as a NRF (South Africa, 2011). This recommendation was corroborated in the SIMS Report in 2012. A South African NRF is a mechanism for attaining and retaining fiscal discipline and managing the country's endowment. Critical fiscal considerations, such as accounting for revenue spending decisions in the allocation of natural resource revenues, are assessed to determine spending in the short term against saving for the long term. As evidenced by South Africa's diminished gold mining industry and the dwindling resultant resource revenues generated from the sector, natural resources of a country have a depletion resource horizon and cannot be replenished. It is important that income generated from depleting resources be saved to meet future developmental needs. The fund can also be used to replenish the resource industry in the future and fund replacement industries and thereby diversifying the economy. Excess resource rents can be abused and the NRF can be an instrument to protect that income from immediate abuse, cushioning the country from the risk of sudden large inflows of excess income. The NRF is a state fund invested by independent advisers, thus ring-fencing revenue from political interference (Cameron & Stanley, 2017).

Ojah (2016) supports the notion that establishing a NRF for capital investment planning is a measure that would save South Africa from a downgrade to "junk debt" status by the Standard & Poor international credit rating agency. Goodson (2014) advocates that despite comparative low foreign exchange reserves relative to other resource-rich countries, a NRF,

in addition to other long-term benefits, would alleviate South African Reserve Bank losses from increased returns on invested assets. He adds that NRF membership of organisations such as the International Reciprocal Trade Association facilitate cheaper trade where financing costs and intermediaries to broker investment of foreign exchange reserves are obviated. Johnson (2015) warns that South Africa’s failure to heed World Bank recommendations that forward linkages from the beneficiation of mineral products will not succeed against competition from the major manufacturing nations of China, the EU and the USA, nor would backward linkages to engineering services and education survive against Canadian and Australian counterparts⁶⁴. Under these circumstances, he suggests that a NRF would be an option to diversify the economy. Figure 3-5 illustrates South Africa’s foreign exchange reserves for the period 1998 to 2016 averaged USD 27 377.85 million. Reserves of USD 47.25 billion were reported in September 2016, peaking at USD 51 889 million in February of 2012 and slumping to USD 5316 million in September of 1998.

Figure 3-5: South Africa’s foreign exchange reserves 1998-2016



Source: Trading Economics (2016).

The South Africa Mining Report (2014) states that the mining industry anticipates growth at an annual average rate of 0.8 percent between 2014 and 2018, from USD 2.6 billion in 2014 to USD 33.7 billion in 2018. South Africa's share of global mined output is set to decline, as other mining jurisdictions experience faster rates of growth.

⁶⁴ According to Mopila (2014) "...stops or reversals in capital flows have been frequent in South Africa since the 2008 recession, and have crippled the country’s job-creating potential. Capital flows affect the currency’s stability, which also affects export prices. In the manufacturing sector, when the price of tradable goods is volatile, few jobs will be created, as companies are unlikely to take on additional costs in the face of uncertain profits."

The mining industry is waning and the deficit in revenue from this sector will affect the economy of South Africa. South Africa, being an emerging country facing developing country challenges, has severe infrastructural needs in terms of basic services, and social needs which are aggravated by an ever-increasing unemployment rate. A savings fund would have been beneficial during these economic hardships.

3.8. CONCLUSION

It is evident, from the discussion that improvements are required to the extractive rights regime to limit opportunities for corruption, and increase transparency and good governance. The World Bank (2016b) recommends that transparency and accountability can be created by separating the licencing function from the DMR. This recommendation is congruent with the petroleum sector best practise of maintaining an independent licencing authority. While a competitive bidding system fosters competition and transparency, captures upfront revenue and is an efficient strategy to allocate extractive rights, the use of the instrument is limited to establishing a proven commercial resource and the presence of robust competition. Therefore, it can be concluded that a dual system of open access or competitive bidding system of allocating extractive rights should be considered.

The South African EI tax regime is well-established and efficient. The low yield tax revenue contributions from the extractives sector can be attributed to the inadequacies created by barriers to business and prolonged policy uncertainty. I submit that while the future of the extractives sector is dependent on exploration, the non-tax impediments should be addressed before any fiscal incentives can be considered to stimulate investment in the sector. In assessing the competitiveness of South Africa's EI fiscal regime I draw the conclusion that South Africa has the necessary legislative provisions and mix of tax instruments in place that can act as a foundation for future development ensuring shareholder value is maximised by capturing a fair share of resource rents. The royalty that was introduced is designed to balance responsiveness to different economic circumstances. The regime for oil and gas appears generous, however the environment of substantial geological and policy uncertainty warrants the retention of the regime. I support the Davis Tax Committee recommendations to align and provide consistency in the CIT regime for the resource and non-resource sectors in the interest of furthering simplicity.

CHAPTER 4

COMPARATIVE ANALYSIS

4.1. INTRODUCTION

This chapter explains the criteria applied in the selection of the comparative jurisdictions. In Chapter 3, it was established that South Africa is suffering from the resource curse. Therefore, countries that have avoided the resource curse can offer valuable policy lessons. Concurrently, global exploration capital is limited and EI decision to invest is based on a jurisdiction's tax policy in addition to an assessment of geological potential and political stability. An equitable tax regime for the extractive sector is one that provides sufficient revenue to the owner of the resource without compromising the investors return on investment.

In this chapter, countries identified as having successfully avoided the resource curse will make up the initial sample of comparative jurisdictions. Independent industry research reports to establish "EI perceptions" on the fairness of those countries tax regimes are then consulted in order to make a final selection of comparative jurisdictions that appear "fair" to both the government and investor.

4.2. SELECTION OF COMPARATIVE JURISDICTIONS

4.2.1. COUNTRIES THAT HAVE AVOIDED THE RESOURCE CURSE

Matsen and Torvik (2005) identified Australia, Botswana, Canada, Chile, Ireland⁶⁵, Malaysia, New Zealand, Norway, Oman, Thailand and the United States as countries that have escaped the resource curse. In this study, I specifically investigate the decision-chain on the allocation of extractive rights; revenue generation strategies and the management of resource revenues in a NRF. To commence the selection process, countries that do not have a NRF; namely: New Zealand, Ireland and Thailand are eliminated from the selection.

⁶⁵ Ireland's resources include natural gas, peat, copper, lead, zinc, silver, barite, gypsum, limestone, dolomite

In Canada, the province of Alberta has an NRF, therefore Alberta will be included in the selection.

The United States is the only country in the world currently allowing private ownership of extractive rights and is essentially different from South Africa's state custodianship of natural resources regime thus rendering the United States comparative futile (Venables, 2016).

Australia will be excluded from this study, as the country's mining tax regime is in a transient state due to the failure of the Mineral RRT. The country is currently investigating tax reform measures; therefore, an examination of the Australian tax regime will not provide a valuable contribution to this study. An argument exists to support the inclusion of Australia as the Australian example could provide lessons as to why the policy failed. However, the nature of this study seeks to investigate the decision making process involving how the rights are allocated, returns generated and invested. Therefore, finding countries that are successful in all three facets of the investigation provides a better comparative (Buijze, 2016).

The Fraser Institute Annual Survey of Mining Companies 2016 excluded Oman as a comparative jurisdiction as insufficient questionnaire responses were received to provide a meaningful contribution to the report. Oman, is therefore excluded from this study for a lack of comparable information.

The countries remaining in the selection are: Botswana, Alberta, Chile, Malaysia and Norway. I then used the country rankings of the 2017 Resource Governance Index⁶⁶ that measured the quality of resource governance in 81 countries to establish resource-rich countries having good resource governance policies. The index's intellectual foundation is set in the Natural Resource Charter and are administered by way of detailed questionnaires. Table 4-1 shows the performance of countries measured on governance of their resource sectors.

⁶⁶ The Resource Governance Index: "assesses policies and practices that authorities employ to govern their countries' oil, gas and mining industries. The index provides a composite score for each assessment...[T]he first component—value realization— covers the governance of allocating extraction rights, exploration, production, environmental protection, revenue collection and state-owned enterprises. The second—revenue management—covers national budgeting, subnational resource revenue sharing and SWFs. The index's third component assesses a country's enabling environment. This component draws on pre-existing research to measure the broader governance context." (Natural Resource Governance Institute, 2017:7).

Table 4-1: 2017 Resource Governance Index country scores

Jurisdiction	Resource governance index score
Norway	86
Chile	81
Alberta, Canada	75
Botswana	61
South Africa	57
Malaysia	56

Source: Natural Resource Governance Institute (2017:4).

Malaysia is excluded from the comparative on the basis that the country scored poorly, with a score of 56 compared to South Africa's score of 57 and would therefore not offer a valuable contribution to this study. Having established resource-rich jurisdictions that have avoided the resource curse, are similar in terms of ownership of oil, gas and mining rights and have achieved a higher score than South Africa on governance of their natural resources, I, now consider EI perceptions on the selected countries taxation regimes. This is achieved by investigating the Fraser Institute's annual survey⁶⁷ of mining and exploration companies. Table 4-2 reflects the perception of EI on the effect that the tax regime has on their decision to invest in the selected jurisdictions. The last column in the table, tax regime investment attractiveness is obtained by adding percentages obtained for encourages and not a deterrent to investment.

Table 4-2: EI perceptions on the taxation regime

Jurisdiction	Encourages investment	Not a deterrent to investment	Mild deterrent to investment	Strong deterrent to investment	Would not pursue investment	Tax Regime Invest. Attrac.
South Africa	3%	41%	32%	24%	0%	44
Botswana	18%	73%	5%	5%	0%	91
Alberta, Canada	48%	36%	12%	0%	3%	84
Chile	21%	43%	32%	4%	0%	64
Norway	8%	83%	8%	0%	0%	91

Source: Jackson & Green (2017).

⁶⁷ "This report presents the results of the Fraser Institute's 2015 annual survey of mining and exploration companies. The survey is an attempt to assess how mineral endowments and public policy factors such as taxation and regulatory uncertainty affect exploration investment. The survey was circulated electronically to over 3,800 individuals between September 15th and November 27th, 2015. Survey responses have been tallied to rank provinces, states, and countries according to the extent that public policy factors encourage or discourage investment".

Chile is excluded from the comparative on the basis that the differential on the investment tax regime attractiveness scoring is considerable lower at 64 percent compared to that of 91 percent for Botswana and Norway and 84 percent for Alberta. Therefore, from a policy perspective the higher scoring indicates that better lessons could be identified from these jurisdictions. Thus, the comparative countries selected for this study are Botswana, Norway and Alberta, Canada. It is important to note that these countries have been reported as countries that have avoided the 'resource curse' (as discussed in Chapter 2). The selected jurisdictions tax regimes are not a deterrent to investment as identified by mining companies. Therefore, I conclude that these selection criteria propose jurisdictions that can be considered as 'fair' to both parties, government and investor and thus offer useful policy lessons for South Africa.

4.2.2. COMPARATIVE TAX REGIMES

Thuronyi (1999) established a classification system of distinguishing jurisdictions into a tax law "family" with the purpose of providing a historical context of a country's legal culture. A country can be classified to fit within one of several families. Countries within a family have roots dating from colonial times and share common legal rules and tax institutions. The taxonomy of these families are listed as:

- Commonwealth family (influenced by the United Kingdom),
- American family (tax legislation is based on the United States),
- French family (adapted their laws from France),
- Latin-American family (developed independently and modelled on Germany, United States and Italy),
- Transition and post-conflict family,
- Northern European family (German influence and includes five subcategories: Germanic, Dutch, Nordic, Belgian and Baltic),
- Southern European family (historic origins based on schedular taxation and includes four subcategories: Portuguese, Italian, Spanish and Greek),
- Japanese/Korean family (German and United States influence and certain distinct features of their own),
- Miscellaneous family (dissimilar income tax laws to the other families).

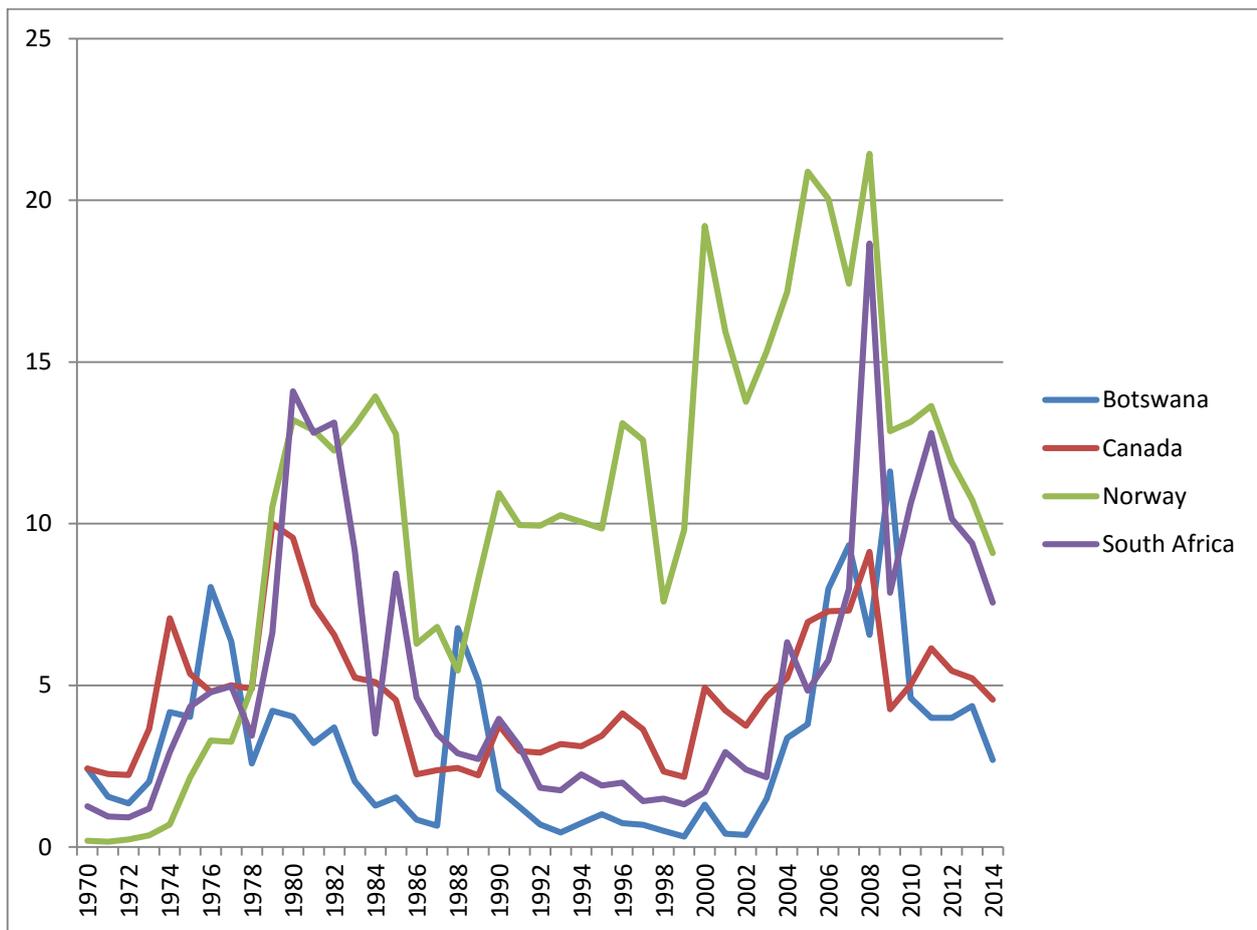
Commonwealth and American families are referred to as “common law” countries, the other families are “civil law” countries. In common law countries tax law is developed through the courts, whereas in civil law countries the rigour of the law is in the detail reducing the role of legal precedence. The European Union family overarches the common and civil law distinction. Evans *et al.* (2017) highlight that the colonial background produced institutional arrangements and practices, while the “tax mix” in developing countries have been determined by local commercial and environmental conditions. Further a country’s approach to “source” or “residence” based taxation is influenced by whether a country is a net-capital importer or exporter on its external account.

It is noted for the purposes of the comparative that the selected jurisdiction of Botswana, Alberta and South Africa fall within the Commonwealth family and are influenced by a common law system, while Norway is located in the Northern European family having a civil law distinction (Evans *et al.*, 2017). The underlying economic conditions and significant differences that exist between the jurisdictions within the comparative study will affect the outcome of the taxation rules; however meaningful conclusions can be made from understanding the tax law in these jurisdictions. Furthermore, on the note of economic conditions, South Africa and Botswana are upper-middle income, developing countries, while Alberta and Norway are both high-income developed jurisdictions (World Bank, 2018a).

Garbarino (2007) states that due to the dissimilarities in operative tax rules, the function of tax rules can serve as a benchmark within tax systems. Thus, by identifying similarities and differences of domestic tax systems, with the objective of comparing the functions of tax rules potential alternative solutions to common problems can be presented. In this study of the comparative taxation of the selected jurisdictions, I adopt a functional analysis which goes beyond formal legal rules, by looking at solutions which are adopted in the selected jurisdictions; as long as they serve a similar function.

Figure 4-1 compares the total natural resource rents as a percentage of GDP in Botswana, Norway, South Africa and Alberta, Canada over the period 1970 to 2014. The graph illustrates the selected jurisdictions dependency to resource-rents as a measure of GDP. All three jurisdictions share similar characteristic of being resource-intensive economies.

Figure 4-1: Total natural resources rents (% of GDP)



Source: Adapted from World Bank (n.d).

Rated as the world’s largest diamond producer, Botswana’s diamond mining contributed 70 percent to total exports in 2011, while 9 percent of export earnings were derived from copper, nickel, gold and coal. The country has large coal reserves, estimated at 208 billion tonnes, however, due to the low value of the commodity, only an estimated 23 percent is economically extractable. Botswana levies a variable income tax depending on the profitability of a project. The country’s success in renegotiating contracts with foreign investors has benefited the economy (Harvey, 2015b). Botswana’s mineral regulatory regime is also an exemplar of international benchmark principles, offering clear, predictable, limited administrative discretion and timely licencing outcomes to investors (Leon, 2013). Botswana’s Pula Fund received a score of 52 percent for governance of natural resource funds (Natural Resource Governance Institute, 2014).

Canada has a decentralised tax system. Most provinces adopt a profit-based charging system of determining economic rent. The extractive industry is significant to the Canadian

economy. “Canada hosts the only major oil sands mining industry in the world; almost half of the country’s oil production comes from northern Alberta” (Parlee, 2015:425). South Africa, experiences similar socio-economic equity and development challenges as Alberta. Alberta, has a colonial history of land and resource dispossession of indigenous communities. Furthermore, Alberta allocates rights for minerals, petroleum and natural gas leases by tender, in first price, sealed bid auctions representing 20 percent of natural resource revenue. Alberta was primarily selected for this study because it has a NRF, the Alberta Heritage Savings Trust Fund which received a score of 73 percent for governance of natural resource funds (Natural Resource Governance Institute, 2014).

Norway is the tenth largest oil exporter and third largest gas producer in the world, supplying 2 percent of the world’s crude oil production in 2013. The country has been dependent on petroleum revenue for more than 40 years, representing 15 percent of GDP in 2015. In 2011, the extractive sector contributed 30 percent to government revenue and 74 percent of exports. Norway produces a variety of industrial, energy and construction minerals, metallic ores and, and natural and dimension stone. In 2013, a cumulative 97 million tonnes of mineral resources were sold, generating a turnover of NOK 13 000 million and exports of NOK 7 600 million (Geological Survey of Norway and the Directorate of Mining, 2014). Norway and South Africa have concession-type fiscal regimes. Norway’s NRF, the Government Pension Fund, is the largest investment fund in the world and an exemplar of natural resource funds, scoring a rating of 100 percent for good governance (Natural Resource Governance Institute, 2014; Extractive Industries Transparency Initiative, 2015). Table 4-3 shows the year when each NRF was created, the source of revenue, and the amount of assets under management as at July 2014. It is noted, that Alberta and Norway have comprehensive investment rules and investment guidelines that offer good governance policy measures (Bauer, 2014b).

Table 4-3: Natural resource funds in the comparative jurisdictions

Jurisdiction	Fund name	Year established	Value of assets July 2014	Financing resource
Botswana	Botswana Pula Fund	1994	USD 5.7 billion	Minerals
Alberta	Alberta Heritage Savings	1976	USD 16.2 billion	Petroleum
Norway	Government Pension Fund Global	1990	USD 850 billion	Petroleum

Source: Bauer (2014b:9).

Botswana, Norway and Alberta, Canada were selected for the comparative analysis, primarily because these jurisdictions avoided the resource curse and are perceived by EI as jurisdictions with tax regimes that do not deter investment. Understanding how these countries and Canadian province have successfully managed decisions regarding allocation of extractive rights, generating a fair share of resource revenue and effectively creating intergenerational equity from a depleting resource, may offer useful lessons to the formulation of the South African extractive sector fiscal regime.

4.3. COMPARATIVE JURISDICTIONS

Contrary to the anticipated delivery of social, economic and infrastructure improvements associated with windfall resource revenues, high poverty rates, weak state institutions, corruption and conflict plague natural resource-rich countries (Elbra, 2013). Building a strong, stable country with prospects of sustainable long-term economic growth requires sound fiscal policy decision management. Botswana, Norway and Alberta, Canada demonstrate effective management of their natural resources. The objective of establishing a fair share of resource rent is not an autonomous exercise. Thus, the sustainable development of natural resource wealth requires analysis of the policy measures adopted in the comparative countries in addressing key questions in managing the decision chain on:

1. How to allocate extractive rights,
2. How to generate revenues and other benefits, and
3. How to manage the revenue from extraction.

This framework pre-empts effective resource management by providing an inclusive approach towards prioritising the employment of scarce resources against the assessment of competing concerns and challenges. In this chapter, I review policies in the selected jurisdictions on the three key questions identified above to establish how these jurisdictions averted the resource curse and secured a fair share of resource rent represented by the tax package.

4.4. BOTSWANA

4.4.1. Background

The efficacious governance of Botswana's natural resources, outstanding economic growth and concurrent aversion of conflict and corruption is a unique success amongst resource-rich African countries. Botswana's development strategy is motivated by the country's geopolitical location and socio-political history. Being a small landlocked, drought-prone, mineral dependent state, much of the country's success is attributable to prudent macroeconomic management, growth and development promotion policies and leadership expertise in negotiating partnerships with mining conglomerates, while building a democratic society. This was achieved by fostering collaboration and transparency in the management of resources. The mutual co-operation between the community, the state and De Beers Mining Company ensured a fair share of fiscal benefits distribution through royalties, taxes and profit sharing (Sebudubudu, 2011; Auty, 2005).

On attaining independence in 1966, Botswana was one of the poorest countries in Africa. Beef was the dominant export and source of government revenue, while the country was dependent on international development assistance to fund approximately 60 percent of government expenditure. At this time, the only known discoveries were gold, asbestos and manganese. The first major discovery of diamonds was made in Orapa in 1967, while diamond production commenced in 1971. By 1999, the country accounted for 25 percent of the world's diamonds with an estimated production of 30 million carats (6000 kg), positioning Botswana as the highest and richest producer of diamonds, by value. Notably, in 2007 Botswana attained upper-middle income country status, comparable to Chile or Argentina (Lewin, 2011; Sebudubudu, 2011; World Bank, 2016b).

A lengthy consultation period with different tribes during the 1960s nationalisation of the country's resources allowed a peaceful transfer of private mineral ownership rights to the state. Known as "kgotla", these consultations created trust in a government serving the people. Drawing on their strong institutions, the state further embarked on forming joint ventures with business. This culminated in the successful re-negotiation of their initial 1970 minimal shareholding of 15 percent in Debswana Diamond Company Ltd (Debswana), a

jointly held company between De Beers Diamond Mining Company and the Government of Botswana, to its increased 50 percent shareholding in 1975 (Lewin, 2011).

The revival of the economy during the period from 1980 to 2010 yielded a threefold increase in GDP *per capita*, with the average GDP growing at about 7 percent since diamonds were produced, and EI contribution to GDP ranging from 30 to 50 percent (Wilde, 2016; World Bank, 2016b). This transformation arose from the government's ability to leverage forward linkages with the interests of DeBeers. During the 1980s, the national development strategy objectives of employment creation and beneficiation were promoted with the establishment of three diamond cutting and polishing factories. In 2005, the renegotiation of DeBeers mining licences provided an opportunity to authorise the development of a further sixteen factories. The 50-50 joint venture between DeBeers and the state provided the advantage to facilitate the transfer of DeBeers London's diamond sales operation to Botswana, and the regulation of the supply of diamonds by offering a prescribed amount of diamonds to local manufacturing companies via the Diamond Trading Company (OECD, 2013). The Diamond Technology Centre generates approximately USD1 billion a year from the beneficiation of diamonds (Nzenzema, Zinyama, & Nhema, 2015). As an alternative to competitive bidding, Botswana promoted national objectives by negotiating the allocation of diamond extraction rights. This approach ensured that rights were awarded to the best-qualified investor (Venables, 2016).

Further endowments include soda ash, platinum, silver, talc, plutonium, uranium, zinc, manganese, lead, kaolin, gypsum, graphite fluorine, feldspar, sulphur, antimony and chromite. Norilsk Nickel and the Government of Botswana respectively share an 85-15 percent joint ownership in the Tati Nickel Mining Company. The critical power shortage in the southern Africa sub-region has brought about further export opportunities to exploit the vast deposits of coal. Potential petroleum and gas bearing formations exist in western Botswana (Sebudubudu, 2011).

Due to Botswana's landlocked location, the country's ability to harness coal production and exports is contingent on the country's ability to resolve power constraints and transportation infrastructure impediments. To this end, access to Asian markets is dependent on the construction of a 1,100-1,500 km railway line connecting Botswana to the port in

Techobanine in Mozambique. The proposed alternative route is a “1,500 km rail line to Walvis Bay in Namibia, costing USD 11 billion for the railway and a further USD 4 billion for development of the port and a heavy haul railway network through South Africa to Richards Bay” (BMI, 2016a:18). Botswana has maintained its competitiveness as a destination for international mining investment. This is achieved by adopting policies to reduce red tape and increase profitability across the sector, while encouraging companies into less developed areas of Botswana's mining industry, including coal, copper and silver (BMI, 2016a). Table 4-4 presents Botswana’s resource potential.

Table 4-4: Botswana’s mining sector

Main mineral mined	Diamonds account for 53% of all prospecting licences issued comprising 473 licences operated by 29 companies (2008). Copper-Nickel production in 2008 reached 61 686 tons, of which 52 423 tons are produced by BCL Limited and the Tati Nickel Company. In 2013 mining accounted for 24.5% of GDP.
Mining exports	2016 reports reflect that the mining sector accounts for 89.9% of total exports comprising 85.4% from diamonds (5,456.9 million BWP) and copper-nickel comprising 4.5% (290.4 million BWP).
Mining contribution to national revenue	Mineral tax revenue for the 2015/2016 fiscal year constituted 4,458.02 BWP (USD 404 million), comprising 9% of total government revenue. Mineral royalties and dividends account for a further 27% of government revenue.
Local procurement	In 2010, 50% of imported goods and services, approximately 14 billion BWP (USD 1.27 billion), were for the mining industry.
Petroleum and gas proven reserves	Botswana has no known hydrocarbon reserves and no upstream oil industry. SacOil Holdings Ltd’s, Botswana subsidiary, Transfer Holdings (Pty) Ltd, was awarded three petroleum exploration licences on the 29 April 2013.

Source: World Bank (2016b:6).

Table 4-5 presents a SWOT analysis of Botswana’s EI. Botswana has established a reputation for offering a favourable business environment from its successful diamond mining operations. The presence of high grade copper and coal deposits offer new resource industries subject to addressing the transportation impediments to trade.

Table 4-5: SWOT analysis of Botswana’s mining sector

Strengths	Weaknesses
Botswana has forged partnerships with foreign investors providing a favourable business environment by offering low taxes, political stability and an efficient licencing system. The country is the world’s largest diamond producer and has large high grade copper and coal deposits.	The country’s dependence on the diamond industry, together with a depletion of diamond reserves, will slow growth over the next few years. Debswana’s current diamond production has been adversely affected by depressed diamond prices. Transport and power impediments create further limitations to export growth.
Opportunities	Threats
Long term demand from China and India for copper and coal will provide a market for exports. Mining costs in South Africa are expected to increase, creating a competitive advantage for Botswana. Governments’ national objective is to diversify the economy away from reliance on diamond imports, by utilising coal supplies to become an electricity exporter and embark on coal beneficiation, converting supplies of coal into liquid energy products.	Competition from other diamond producers and long term weakening of diamond prices are immediate threats to the mining industry. Botswana’s reputation as one of the safest jurisdictions in Africa could be threatened by corruption and political risk.

Source: BMI Research, (2016a:9-10).

4.4.2. Aversion of the resource curse

Lewin (2011) states that Botswana avoided the resource curse by:

- Investing in public goods and infrastructure, improving efficiency by limiting parastatals and avoiding trade barriers created from import substitution policies. Auty (2005) states that as an alternative to lowering taxes or subsidising prices, rent was redistributed to the private sector and rent-seeking behaviour was thus limited.
- Real exchange rate volatility was overcome by delinking public expenditure from revenue. This was achieved by establishing a savings fund in 1972, which facilitated the saving of two-fifths of the resource rent to offshore investments. In the 1980s, prudent policy measures were implemented, reacting to declining commodity prices by depreciating the exchange rate by 20 percent, increasing interest rates, cutting public investment and postponing public sector pay increases. In 1996, the Pula Fund accumulated AUM of USD 5 billion, invested in offshore assets. By 1998, the country’s financial reserves were 125 percent of GDP. The investment returns now contribute to government revenue (Auty, 2005; World Bank, 2015a; Overseas Development Institute, 2006).

The World Bank (2015a) adds that the success of Botswana can also be attributed to:

- Democratic governance achieved by holding regular elections has allowed citizens to hold government responsible and accountable for the management of natural resource revenue.
- Exercising the long-term economic planning and budgeting of mineral revenue spending in accordance with capital expenditure priorities as outlined in the NDP. Corruption is limited in this process by adopting fiscal discipline in linking fiscal rules with the NDP. This is subject to extensive public consultation. These measures, together with a transparent budget, a centralised procurement agency and the establishment of the Directorate on Corruption and Economic Crime in 1994 concurrently minimise corrupt practices.
- Clearly defined regulation and management of the mining sector has minimised conflict of interest. The issuance of prospecting licences on a FIFA basis and collection of mineral royalties is controlled by the Minister of Minerals, Energy and Water Resources. The collection of mining taxes and dividends is managed by the Botswana Unified Revenue Service. These authorities report to the Office of the Auditor General and Parliament (World Bank, 2015a).
- The strategic adoption of a beneficiation strategy counters the narrow linkage of the mining sector with the rest of the economy (Meija & Castel, 2012).

4.4.3. Allocation of extractive rights

The Mines and Minerals Act Cap 66:01, currently under review, governs the mining industry and sets out a clear regulatory framework for the development of minerals (the process of licencing - the grant, renewal and transfer of licences). Botswana's Mines and Mineral Act Cap 66:01 1977 was revised in 1999 to eliminate uncertain and unclear provisions, while encouraging investment in the mining industry. The Precious and Semi-Precious Stones (Protection) Act (3 of 1969) provides for the prospecting and mining of precious and semi-precious stones (Leon, 2013).

Licence applicants are treated equally under the Act's provisions, as the Act prescribes explicit conditions, thus limiting the discretionary powers of the Minister of Minerals, Energy and Water Resources, who grants licences. The concept of a retention licence was

introduced into the Act to protect the security of tenure of explorers who, after discovering a mineral deposit, determine that it is not economical to be mined immediately. In terms of a retention permit, the development of the mineral resource may be deferred for two successive three year periods, while the exclusive right to mine the resource is retained. Despite not being legislated, Botswana maintains competitive internal timeframes for issuing licences: prospecting licences, within 60 days; diamond export permits, within two days; small-scale mining concessions, within 15 days: and, large-scale mining concessions, within 20 days (Leon, 2013). Paragraph 51 of the Mines and Minerals Act Cap 66:01, makes provision for the negotiation between the applicant and the government regarding the licencing of diamond mining.

A prospecting licence is granted for three years, renewable for 2 two-year periods (i.e. effectively a total of seven years), with a commitment to a minimum level of expenditure over the licence period. On application to renew the licence, companies must submit reports regarding their exploration activities and information on existing deposits. This information can be made available to other companies in the event that a prospecting licence does not lead to a retention or mining licence. The award of a retention licence is subject to escalating fees and is granted for a period of three years, renewable for a further three years. The cost of holding a retention licence is higher than the cost of holding a prospecting licence. The levy of the escalating fees provides a disincentive to companies holding unproductive rights and encourages the release of concessions that they do not intend to mine. The holder of the prospecting licence has a preferential right to apply for a mining licence. On the submission of proof of technical competence, access to adequate financial resources and other requirements, mining licences are granted solely to companies registered in Botswana, issued for up to a period of 25 years, and are renewable for a further 25 years. Debswana's 25-year licence for mining diamonds was renewed in September 2004 (Korinek, 2014). Table 4-6 illustrates Botswana's extractive rights allocation regime.

Table 4-6: Allocation of extractive rights in Botswana

BOTSWANA: EXTRACTIVE RIGHTS ALLOCATION STRATEGY
PRE-LICENCE ASSESSMENTS: Conducted and conflict minimised by establishing existing rights?
Botswana has developed geological surveys. During the early 1980s an aero-magnetic study was completed. This information was enhanced in 1993 when a study was undertaken at a higher level of resolution (1:125 000). Geochemical maps are also used. The country's geological databases are updated every quarter, from information supplied by prospectors once their licences lapse.

BOTSWANA: EXTRACTIVE RIGHTS ALLOCATION STRATEGY

Section 33 of the Mines and Minerals Act Cap 66:01, makes provision for the ‘surrender of information upon expiry of the first period of a retention licence of all geological information relating to that licence and to the prospecting licences which preceded it, which shall be placed on open file at the Department of Geological Survey’. The efficiency of up-to-date and easily accessible geological information has made it quicker, easier and less costly for exploration firms to get started (Korinek, 2014).

The Fraser Institute Annual Survey of Mining Companies 2016 report indicated that 14% of investors rated that the quality of geological information available would encourage investment and 64% responded that it does not deter investment. Botswana ranks 51 out of a 104 jurisdictions “for the quality of their geological database (includes quality and scale of maps, ease of access to information, etc.)” (Jackson & Green, 2017:7).

No public available registry of licences exists.

ALLOCATION METHOD: Pre-qualification of applicants and allocation method is suitable to competitive interest.

Section 14 of the Mines and Minerals Act Cap 66:01 states that a prospecting licence shall be granted if the applicant has adequate financial resources, technical competence and experience to carry on effective prospecting operations. Furthermore, where an application is made for a prospecting licence in respect of an area which was previously held for seven years, the minister shall consider competing applications and grant a prospecting licence to the applicant which has the best proposed programme.

Section 27 adds that a retention licence is granted if the applicant has carried out a feasibility study in respect of the deposit, and the study has established that the deposit cannot be mined on a profitable basis at the time of the application, and the approved prospecting programme in respect of the area applied for has been completed.

Section 37 states that three months prior to the expiry of the prospecting or retention licence, holder of such licence may apply for a mining licence for an area within his prospecting or retention area.

Section 39 provides that a mining licence shall be granted to the applicant if the minister is satisfied that the proposed programme of mining operations:

- “will ensure the most efficient and beneficial use of the mineral resources in the proposed mining area,
- the proposed mining area does not overlap an existing mining or retention area unless the holder of that area consents to the grant of a mining licence, or in the case of a retention licence, has failed to make application,
- the applicant has secured access to adequate financial resources, technical competence and experience to carry on effective mining operations,
- the proposed financing plan submitted as part of the feasibility study provides for a debt to equity ratio of no more than 3:1, unless the minister otherwise agrees,
- in the case of an application to mine diamonds, agreement has been reached following a negotiation under Section 51”.

Section 17 of the Petroleum Exploration and Production Act Cap 67:01 states that an applicant can apply for an exploration licence, or the minister can invite applications. The application must include the applicant’s financial status, technical competence and experience, a proposal regarding the employment and training of Botswana citizens, a proposed programme and estimated cost of exploration operations.

Section 35 adds that a registered holder of an exploration licence may make application for the grant of a development licence, if the applicant satisfies the minister that the block contains a petroleum reservoir, or part of a petroleum reservoir. Development licences are granted for a period of 25 years and may be renewed subject to certain criteria being met.

BOTSWANA: EXTRACTIVE RIGHTS ALLOCATION STRATEGY
LICENCE TRANSFERS: Subject to the same conditions on award of a licence?
The Mines and Minerals Act Cap 66:01 and the Petroleum Exploration and Production Act Cap 67:01 provide for the transferability of licences. The transfer or assignment of a mining licence is subject to the approval of the minister. Investors do not hold property rights but acquire a licence, which is revocable, under exceptional circumstances, hence the system offers less security and continuity of tenure. More transparent procedures for the transfer of mining rights should be adopted.
FISCAL TERMS: Included in the biddable terms?
Diamond mining licences are issued subject to negotiated terms and conditions regarding taxes and royalties. For all other minerals, the tax and royalty regimes are fixed in the legislation. Korinek (2014) reports that in practice new diamond mining companies appear to be subject to the same terms as legislated for other mining companies. It is good practice to achieve uniformity in subjecting mining companies to the same fiscal regime. Despite this practice, greater transparency would be afforded if this were clearly stated in legislation. Section 40 states that “upon the issue of a mining licence, the government shall have the option of acquiring up to 15% working interest participation in the proposed mine in the following manner - (a) upon its exercise of its option, government shall be issued a single P1.00 special share at par, which shall carry the right to appoint up to two directors, with alternates, and to receive all dividends or other distributions in respect of its working interest percentage; and (b) government shall be obliged in the same manner as other shareholders to contribute its working interest percentage”.
LICENCE DISCLOSURE: Of pre and post licence information?
Details of all licences are disclosed on the Ministry of Minerals, Energy and Water Resources Department of Mines’ website. “Concession maps are displayed that include the name of the company, coordinates of the area under licence, the type of licence, the type of commodity, and the status of the licence (i.e. original, renewal, etc.). The only contracts that exist are those negotiated for diamond mining as noted above” (World Bank, 2016c). Botswana has not completed “the process of installing a permanent mining cadastre, and although the mineral concession map is updated regularly, it does not provide for an interactive process between the concession holder and licencing officials or provide up-to-date information on the cadastre for potential mineral investors” (World Bank, 2016b).

Source: Compiled by the author.

4.4.4. EI fiscal instruments

The primary objective of government in mineral development has been to negotiate fiscal arrangements wherein both the state and EI investor would mutually maximise their financial returns, without pushing the other party to abandon the proposed project (Curry, 1987). The system of taxation in Botswana prescribes a formula for Variable Rate Income Tax, which will meet government’s taxation objectives without creating a disincentive to investors. The tax regime automatically applies very low tax rates to marginal mining projects, with higher rates applicable to very profitable projects (Matshediso, 2005).

Botswana's EI is subject to a corporate profits tax, a royalty, and withholding tax on dividends. While all non-EI companies pay a corporate profits tax of 22 percent, the EI is subject to a corporate profits tax calculated according to a formula:

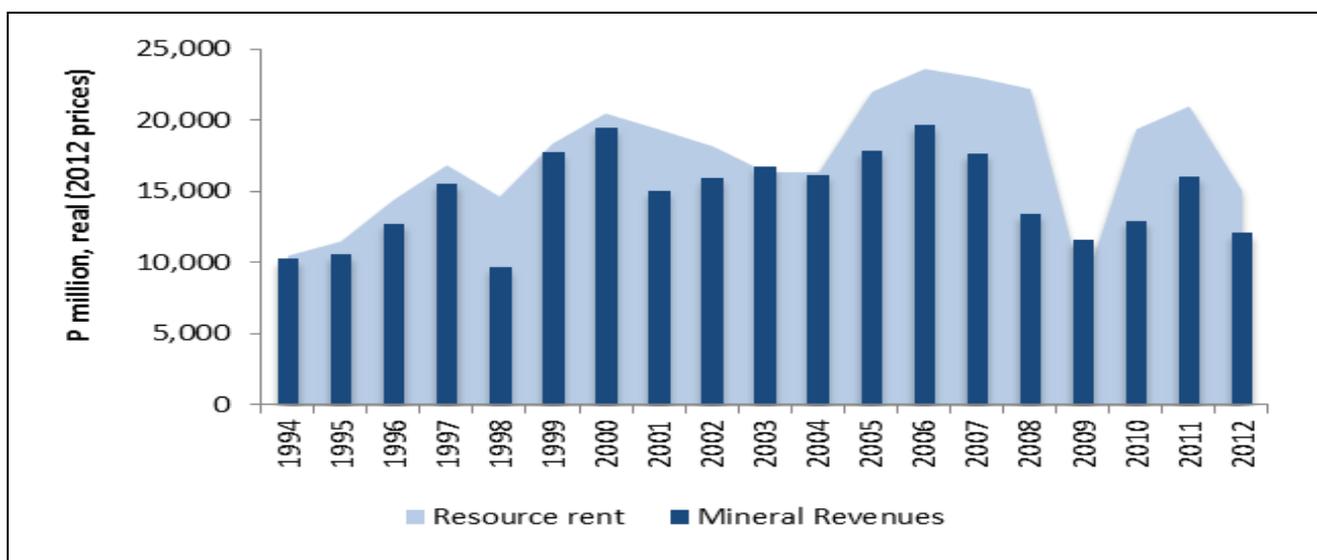
$$70-1500/x,$$

where x is the ratio of taxable income to gross income in percent (subject to a minimum of the general corporate tax rate of 22 percent).

The EI may deduct capital expenditure made in the current year and carry forward unlimited losses. The design of a variable rate income tax formula provides a degree of certainty and transparency to investors and is effective in capturing resource rent.

Figure 4-2 illustrates the effectiveness of Botswana's fiscal regime in capturing 83 percent of total mineral revenues over a twenty-year period, using a range of instruments such as dividends, taxes and royalties. This substantial share of revenue is without precedent globally and attributable to the strength of the government's ability to negotiate favourable terms for the state with the EI (World Bank, 2015a).

Figure 4-2: Botswana's resource rent and mineral revenues, 1994 – 2012



Source: World Bank (2015a:61).

The payment for royalties commences when a mine goes into production. Government has experienced problems in ascertaining the proper valuation of diamonds as the market is

small, specialised and controlled within the De Beers network. In terms of the joint venture Debswana agreement, the remaining profits are distributed equally between the Republic of Botswana and De Beers SA. The government effectively receives between 80 and 82 percent of the revenue after cost (including capital expenditure) of Debswana (World Bank, 2015a). Botswana's EI fiscal regime is presented in Table 4-7.

Table 4-7: Botswana EI fiscal instruments

BOTSWANA: FISCAL INSTRUMENTS	
ROYALTY	
Mineral royalties	
Section 66 of the Mines and Minerals Act Cap 66:01, stipulates that royalties are payable on the gross market value of mineral sales at the "mine gate": Precious stones – 10% Precious metals – 5% Other minerals – 3%	
Petroleum royalties	
Section 73 of the Petroleum Exploration and Production Act Cap 67:01, states that the holder of a petroleum development licence is liable to pay a royalty in accordance with the conditions of the licence granted. On application, the Minister for Mines and Minerals may defer payment of any royalty for such period and subject to conditions as he or she may determine. Royalties are tax deductible, even in instances where they have been deferred.	
MINERAL RIGHTS TAX	
Mineral Rights Tax Act Cap 52:02, imposes a tax on mineral rights. The tax in respect of each tax year is the higher of the following rates - “(a) a rate of BWP40 for every square kilometre of land or part thereof over which mineral rights were held on the effective date or as the case may be on the anniversary of the effective date; or (b) a rate of 10 percent of the value of the mineral rights held on the effective date or as the case may be on the anniversary of the effective date (referred to as "the <i>ad valorem</i> rate")”.	
VARIABLE TAX ON RENT	
The higher of the standard company income tax rate of 22% or the tax rate derived from the formula $70-1500/x$, where x = the percentage taxable income/gross income. The VITR is for non-diamond mineral profits. The diamond tax regime is negotiated on a case by case basis with government and includes the technical, financial and commercial aspects of the project.	
CORPORATE INCOME TAX	
Tax rate	Mining income from a source within or deemed to be within Botswana is taxed according to the VITR formula. The corporate rate of income tax is 22%. As stated above, income tax payments for non-diamond mining companies must not be lower than the corporate rate of income tax. The effective maximum tax rate according to the formula is therefore 55%.
Ring fencing	Section 43, Paragraph 2 of the Twelfth Schedule of the Income Tax Act (18 of 2006) states that “where separate and distinct mining operations are carried on in mines which are not contiguous, the deduction to be allowed shall be calculated separately and shall not be transferable between such operations, except expenditure on a licence or lease which has been relinquished by the mining company”. This effectively provides for the ring fencing of individual mine losses, except in the instance described.
Rehabilitation expenditure	Where any amount paid by a mine rehabilitation fund is not expended for the rehabilitation of the mine, a 10% withholding tax is applied.

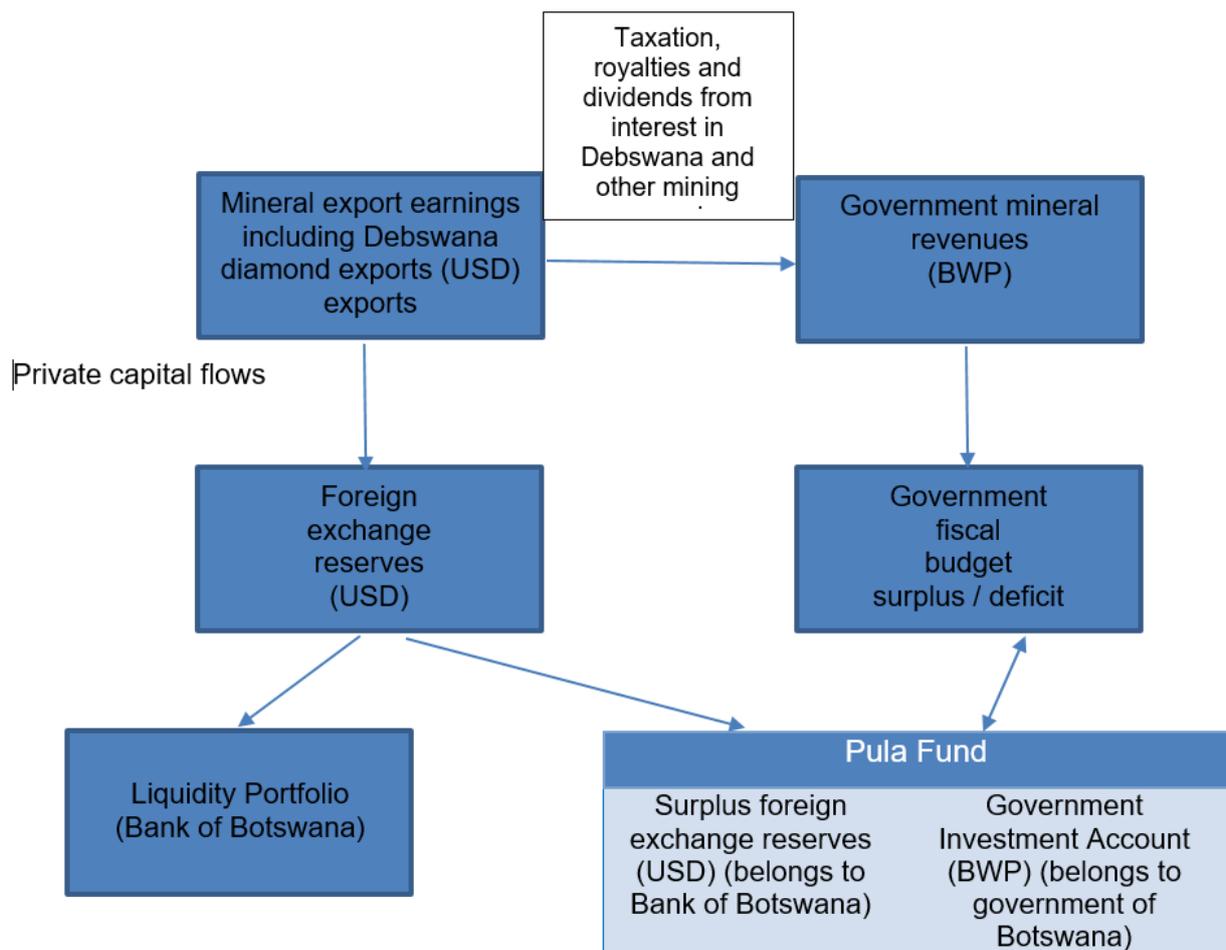
BOTSWANA: FISCAL INSTRUMENTS	
Capital Gains Tax	<p>Capital gains from disposal of property are subject to capital gains tax at 22%. The disposal of mining property is exempt from capital gains tax, but, is subject to corporate tax at the tax rate determined by the corporate tax formula for non-diamond mining companies and at the agreed rate for diamond mining companies.</p> <p>Capital losses can be offset only against other capital gains and not against other business taxable income. The capital loss can be carried forward for one year.</p>
INVESTMENT INCENTIVES	
<p>Section 43, Paragraph 1 of the Twelfth Schedule of the Income Tax Act (18 of 2006) provides for the allowance of 100 percent of the mining capital expenditure made in the year in which such expenditure was incurred with unlimited carry forward of losses.</p> <p>Exploration expenditure is deductible in the year in which the expenses are incurred.</p>	
STATE PARTICIPATION	
<p>Section 40 of the Mines and Minerals Act Cap 66:01 provides that on the issue of a mining licence, the government shall have the option of acquiring up to 15% working interest participation:</p> <p>“(a) upon its exercise of its option government shall be issued a single P1.00 special share at par, which shall carry the right to appoint up to two directors, with alternates, and to receive all dividends or other distributions in respect of its working interest percentage; and</p> <p>(b) government shall be obliged in the same manner as other shareholders to contribute its working interest percentage of -</p> <p>(i) all audited arms-length expenditure incurred by the company to which the licence was issued that is directly attributable to the acquisition of the licence, including relevant prospecting expenditure; and</p> <p>(ii) all expenditure on the mine incurred subsequent to the issue of the mining licence.</p> <p>(2) Government shall on issuing the licence inform the applicant as to whether or not it is exercising its option and of the working interest percentage it wishes to take.</p> <p>(3) The provisions of this section shall not apply to a licence to mine diamonds, where the extent and terms of government participation shall be agreed under Section 51”.</p> <p>The government’s option of acquiring up to 15% working interest participation has not discouraged investment. The management and control of the company is left to the investor. Government participation has a good track record, of providing the investor with explicit guarantees, with government involvement limited to Board and Management Committees (Matshediso, 2005).</p>	
PRODUCTION SHARING AGREEMENTS	
<p>For diamond mining there is no production sharing agreement. Debswana is a 50/50 joint venture between De Beers and the Government of Botswana. The government is involved in the operation and management of the venture, carrying some of the risk and the reward.</p>	
VALUE-ADDED TAX (VAT)	
<p>VAT was introduced in Botswana with effect from 1 July 2002. VAT is levied on standard rated supplies at the rate of 12%. Export goods and services are zero-rated. No export duties are applied.</p>	
DIVIDENDS WITHHOLDING TAX	
<p>Dividends distributed to residents and non-residents are subject to 7.5% withholding tax.</p>	
IMPORT DUTY	
<p>The importation of mining equipment is subject to VAT at 12%. The VAT is payable at the point of entry into Botswana at the time of importation. Customs may not release goods until such a time as the VAT has been paid. To alleviate cash flow, a VAT deferral account enables VAT payment to coincide with VAT return submission and recovery within 25 days.</p>	
TAXATION OF DOWNSTREAM ACTIVITIES	
<p>A concessionary corporate tax rate of 15% is applicable to all manufacturing companies.</p>	

Source: Compiled by the author.

4.4.5. The Pula Fund

The Pula Fund was established in 1993 and re-established under Section 35 of the Bank of Botswana Act (1996). The Pula Fund functions as both a stabilization and savings fund. The objective of the fund is to manage foreign exchange reserves while investing in long term assets. The Pula Fund is managed by the Bank of Botswana and comprises two accounts, the Government Investment Account (belonging to the Government of Botswana) which reflects savings from accumulated fiscal surpluses, and the Bank of Botswana’s foreign exchange reserve accumulation (Natural Resource Governance Institute, 2013b). The prior years’ fiscal surpluses are saved in the Government Investment Account and used to fund fiscal deficits. The Bank of Botswana account is used to save mineral revenues (Meija & Castel, 2012). Revenue from minerals is deposited in the general government revenue account. Figure 4-3 depicts the flow of funds of the Pula Fund.

Figure 4-3: Flow of funds



Source: Natural Resource Governance Institute (2013:6).

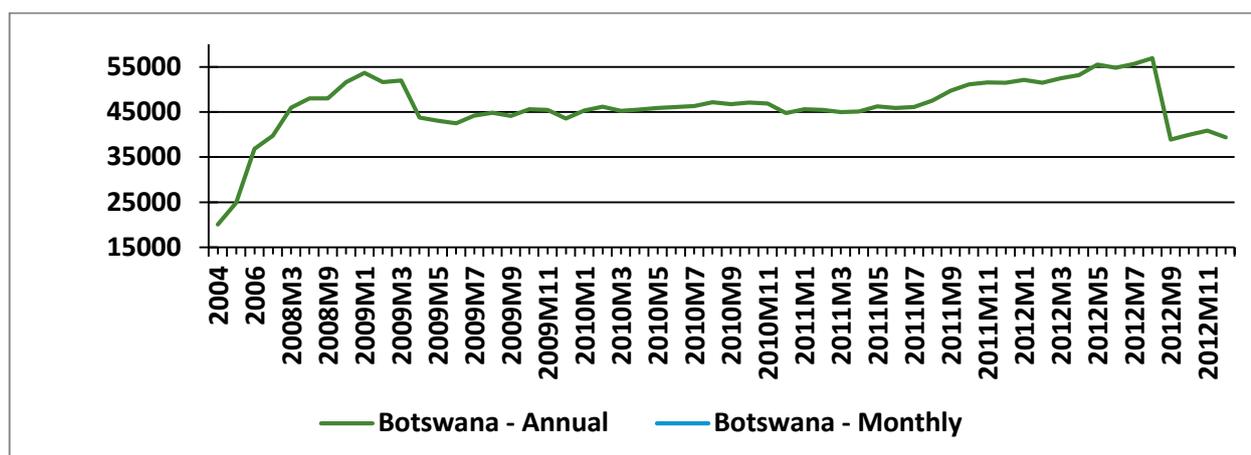
The public expenditure policy framework stipulates that mineral revenues represent the sale of an asset and should thus finance investment in other assets. The objective is to preserve the country's overall asset base and provide a source of income on the depletion of mineral revenues. Thus, recurrent non-investment spending must be financed from recurrent non-mineral sources of income⁶⁸.

Central to public financial management; spending on investment projects is only sanctioned if it is incorporated into the NDP. This is coupled with a commitment to only use mineral revenue for public investment or savings in the Pula Fund, and a legal restraint on the accumulation of public debt subject to a statutory limit of 40 percent of GDP (Korinek, 2014; Bauer, 2014a).

During the 1990s, financial savings reached 88 percent of GDP. These savings were partially reduced by the establishment of a new government employee pension fund, which involved funding the contingent liabilities accrued under the previously unfunded pension scheme. Savings recovered to approximately 40 percent of GDP in the mid-2000s. These gains were then substantially depleted during the global financial crisis. In 2015, financial savings have since risen to 31 percent of GDP. The Bank of Botswana Annual Report records the Pula Fund value at BWP 54 145 billion as at 31 December 2016. Figure 4-4 illustrates the reported fund value over the period 2004 to 2012. Due to the lack of statutory rules governing the transfers and withdrawals of funds in the Pula Fund, it is possible to spend accumulated assets indiscriminately. Therefore, implementing numeric fiscal rules and achieving greater transparency in the management of the fund would limit the potential for this occurrence (Korinek, 2014).

⁶⁸ The Sustainable Budget Index (SBI), implemented in 1994, is defined as the ratio of non-investment spending to recurrent revenues. "A SBI value of more than one means that non-investment spending is being financed in part from mineral, or non-recurrent, revenues. If the SBI is less than one, mineral revenue is either being saved or spent on public investment, while recurrent spending is being financed from non-mineral (recurrent) sources. An SBI of one or less is therefore interpreted as being "sustainable". In calculating the SBI, the normal budget classification of expenditure is adjusted slightly in that recurrent spending on education and health is classified as investment in human capital" (Korinek, 2014:241).

Figure 4-4: Pula fund



Source: Central Statistics Office of Botswana (2015).

The revenue management strategy of the Pula Fund is presented in Table 4.8.

Table 4-8: The Pula Fund

BOTSWANA'S PULA FUND
EFFECTIVE NATURAL RESOURCE FUND MANAGEMENT: Managed in a transparent, accountable and efficient manner.
<p>The Pula Fund is not a separate legal entity and the management of the fund is entrusted to the board of the Bank of Botswana. No reports are specifically drafted for the Pula Fund; however, the fund value is reported in the Bank of Botswana's monthly statistics. Annual audited results are disclosed by way of a nominal Balance Sheet and Income Statement, which is included in the Notes to the Bank of Botswana's Annual Report. While the value of the Pula Fund is reported in the Bank of Botswana's financial statements with some information on the asset composition, the explicit present rate of return on the fund and fund transactions are not available.</p> <p>The Bank of Botswana Act (1975) legislates the terms for establishing, managing and governing the fund, but does not stipulate the fund's objectives or set rules for the operations in terms of deposits into and withdrawals from the fund. However, it is implicitly understood that the purpose is to stabilise revenue for natural resources and to save future generations. The government has managed the volatility of resource revenue by restricting the use of resource rents for investment and re-investing it in productive development (Ghura & Pattillo, 2012).</p> <p>Several institutions have conducted comparative reports on the transparency of NRFs. The Pula Fund has performed poorly as far as transparency is concerned. In 2011, the Oxford SWF Project assessed compliance with Santiago Generally Accepted Principles, where the fund was rated 22nd out of 26 NRF's, with only 15% compliance. The SWF Institute reported in 2014 that the fund was rated 26th out of 51 funds, scoring a 6, and a minimum of 8 is recommended to claim adequate transparency. The Resource Governance Index (RGI) reported that Botswana received an overall "weak" score of 47 out of 100, due to the poor quality of reporting for the Pula Fund (Korinek, 2014).</p>
INVESTMENT STRATEGY: Investment strategy meets the fund's objectives.
<p>The Pula Fund is invested entirely offshore. The Bank of Botswana uses a Special Drawing Right benchmark for constructing the investment portfolio. The Financial Markets Department of the Bank of Botswana is responsible for the execution of the investment strategy using internal and external asset managers. The board reviews operational compliance with the agreed investment strategy. Investment data over the period 2008-2012 shows that the composition of the Pula Fund has averaged "71.5% bonds, 25.9% equities, and 2.6% other assets" (Korinek, 2014). No public disclosure is made of the detailed Pula Fund's asset holding and the manager's mandates or</p>

BOTSWANA's PULA FUND
performance. Since inception the fund has grown significantly, reported to be valued at BWP 54 145 500 000 in the 2016 Bank of Botswana Annual Report.
FISCAL RULE
In 2006, an expenditure rule was implemented that prohibits government spending more than 40% of GDP per year. Fiscal savings are transferred to the Pula Fund.
DEPOSITS AND WITHDRAWALS
Since there are no rules governing deposits of mineral revenues into or withdrawals from the fund, savings accrue as a residual from budget surpluses. General foreign exchange reserves are maintained by the Pula Fund and the Liquidity/Transactions Tranche. The liquidity portfolio finances short-term foreign exchange transactions, while the magnitude of fiscal savings transferred into the Pula Fund is determined as a residual, once the liquidity portfolio has been allocated. No numerical rules exist governing the size of withdrawals or deposits and the fund has opted for a qualitative approach enabling flexibility, where decisions are based on prevailing fiscal conditions (Bank of Botswana, n.d). Government spending is only authorised on budgeted expenditure approved by Parliament. However, withdrawals from the fund can be used to finance spending on approved national development objectives. These drawdowns are limited to government's share of the Pula Fund. No deposits or withdrawals have been disclosed in the 2016 financial statements.

Source: Compiled by the author.

4.4.6. Policy lessons from Botswana

Botswana has been one of the fastest growing economies in the world (World Bank, 2016c). This extraordinary growth has been driven by the production of diamonds. However, Botswana is expected to reach its diamond resource horizon in approximately 20 to 30 years (Shantyaei, 2017). Key to the successful transformation of Botswana's economy was the consensus that minerals were a strategic resource. This strategy was empowered by the mutual trust and alliance built between the communities who ceded their mineral rights to the state, and to the EI who exploited the minerals. The country's advantage of low corruption, a strong political framework and implementation of measures aimed at increasing its competitiveness as a destination for international mining investment has made Botswana one of the most attractive places to do business in Africa. Entrenched in Botswana's mineral policy strategy is the protection of private property rights, accepting foreign investors and their entitlement to make and repatriate profits, a streamlined mineral licencing system and maintaining low tax levels while promoting the formation of joint ventures (Harvey, 2015b). This policy has enabled the country to capture 83 percent of mineral revenues, which is almost without precedence globally. It is inferred from the case study of Botswana, on the merits of a fair share of fiscal returns, that EI are inclined to take

investment decisions based on stability and security of mineral investment, rather than the sharing of fiscal benefits.

Botswana's acclaimed economic transformation into upper-middle income status is attributable to effective management of its natural resources. The country boasts five decades of continuous growth, while offering a stable, corruption free environment. This phenomenal growth is attributable to the design of policies constructed to achieve a balanced system of taxation and management of natural resource revenue, investment in infrastructure and supporting human capital development from the establishment of a diamond hub (Korinek, 2014).

Millar and Rietveld (n.d.) identified three prudent economic policies that were adopted. Firstly, the government's successful aversion of the boom and bust cycles by undertaking to jointly minimise external debt and spending while increasing savings. This allowed the government to draw down on savings and not borrow or cut spending when the price of diamonds plummeted and exports declined. Secondly, the government has avoided Dutch disease by closely managing its exchange rate. Thirdly, investment of mineral revenue in the Pula Fund will provide revenue after resource depletion. In addition to these policies, the presence of good institutions and democratic governance has allowed for a stable framework for taxing mining companies and a fair, stable system of holding private property rights (Matshediso, 2005).

Contrary to the premise that lower tax rates are a draw card to the EI, Botswana's EI provide a substantial share of government revenue. Botswana's development strategy has hinged on the mineral sector, thus in order to attract diversified and sustainable investment, Botswana has undertaken a review of its domestic and foreign investment policies to identify and address areas which require reform. Cumulatively, the country's political and regulatory stability and investment policies have created a favourable business environment for EI investment (Matshediso, 2005). Acknowledging the importance of good quality and detailed geological information to the investor, the country secured development assistance funds to attain a comprehensive review of the country's resources. A further measure to increase the attractiveness of the country's geological data is achieved by supplementing this database with information collected by prospectors once the right to explore has been released. The

EI highly rate Botswana's legal process "...in terms of fairness, transparency, absence of corruption, timeliness and efficiency" (Korinek, 2014:235).

Due to the high capital-intensive and long-term nature of the EI investment, Botswana's stable, clear and relatively transparent tax system has been of value to the investor. To mitigate against weak tax collection capacity and the information disadvantage from not understanding the constraints and the potential of diamond mining, the government entered into a joint venture with De Beers, the largest private firm in the industry, subsequently, obtaining two seats on the Board of Directors of De Beers S.A (Sebudubudu, 2011). This strategic partnership has assisted the government to design and revise its mineral tax policy in a balanced manner, while securing 80-82 percent of the revenue minus costs from its joint venture (Korinek, 2014). Furthermore, the close contact with the industry has enabled government to influence its minerals policies to its advantage. In particular, the government has influenced policies aimed at obtaining the correct valuation of rough diamonds required for calculating tax and royalty payments. Botswana's reputation for good governance and transparency has ensured that changes to the tax regime have been instituted without damaging investor confidence (Korinek, 2014; Matshediso, 2005).

Botswana has successfully leveraged its relationship with Debswana to sort and value its own diamond production, in addition to the creation of 21 diamond cutting and polishing firms creating 3 500 jobs for Botswana. Moreover, "approximately 30-35 percent of the world's rough diamonds are now sold in Gaborone" (Korinek, 2014:255). The government's mineral development policy identifies that building internal capacity in undertaking negotiations with foreign investors was an imperative to attaining and managing the revenue from the minerals sector. The partnership with De Beers has facilitated Botswana's internal capacity building in the diamond industry (Harvey, 2015b).

One of the foundations of Botswana's revenue management strategy has been that mineral revenues result from the sale of an asset and should therefore be used to finance capital investment in other assets. The implementation of the Sustainable Budget Index Principle ensures that recurrent spending is financed only with non-resource revenue (Lundgren *et al.*, 2013). The limitation on spending ensures that no projects are financed outside the six-year NDP process. Simultaneously Botswana has built up a substantial savings in its Pula

Fund. It functions as both an inter-generational fund and a stabilisation mechanism. The fund's assets are invested offshore in foreign currencies, which circumvents pressure on the national currency. However, the lack of transparency in the management of the fund leaves room for improvement (Korinek, 2014; Natural Resource Governance Institute, 2013b).

4.5. ALBERTA, CANADA

4.5.1. Background

The province of Alberta has established a NRF, hence Alberta offers a good comparative to inform policy selection on how rights are issued, and how the resultant revenues generated and managed. Alberta has the third largest crude oil reserves in the world. The majority of the resource is found in Alberta's oil sands with proven reserves of over 170 billion barrels of bitumen. Alberta has a production capacity of 2.5 million barrels per day of crude oil, of which approximately 78 percent comprises raw bitumen from oil sands. The province has natural and conventional natural gas in addition to unconventional coal bed methane and shale gas resources. Alberta's estimated coal reserves are around 33.3 billion tonnes. The 2013 revenue generated for oil and gas technology and services totalled approximately CAD 33 billion, representing a threefold increase in size within a ten-year period. Energy exports in 2016 totalled CAD 51 billion, representing two thirds of the province's total commodity exports (Canada, Alberta, n.d). Direct taxation in Canada has resulted in a system in which the two major tax bases, income and sales are taxed by both federal and provincial governments. In Alberta, only the federal GST is applied (Vaillancourt & Bird, 2016). Alberta's status as a province in the federal environment means that EI are subject to federal laws over and above the laws of the province.

Table 4-9 presents Alberta's resource potential. Alberta has a range of resources in the energy and mineral complex. The SWOT analysis reveals that there are future growth prospects for the EI. The stable business environment offers a lucrative mining investment jurisdiction proposition; however, competition is growing from other low cost jurisdictions. Red-tape regarding licencing regime needs to be addressed.

Table 4-9: Alberta's EI sector

Main minerals mined	Non-energy minerals excavated and mined in Alberta include sand and gravel (production value of CAD 289 million), sandstone and other building stone (CAD 6 million), iron and magnetite, and gold. Salt (CAD 17 million) and limestone continue to be the leading non-fuel minerals produced in Alberta. Other minerals produced or potentially available in Alberta include metallic minerals, diamonds, ammonite, and other precious stones, industrial minerals and stone. Presently, there are no underground mines active in Alberta. There are four major quarries in Alberta.
Petroleum Reserves	Alberta accounts for 68 percent of the natural gas produced in Canada. Alberta's oil sands are the third-largest proven crude oil reserve in the world, next to Saudi Arabia and Venezuela.
Mining exports	The Mining and Energy sector accounted for 67% of Alberta's total goods exports in 2009.
Mining contribution to national revenue	In the 2015/16 fiscal period, Alberta received about CAD 2.8 billion in non-renewable resource revenue accounting for seven percent of government revenue.
Local procurement	In 2012, approximately 121,500 people were employed in Alberta's upstream energy sector, which includes oil sands, conventional oil, gas and mining.

Source: Adapted from (Canada, Alberta, n.d).

Table 4-10 presents a SWOT analysis of Alberta's EI.

Table 4-10: SWOT analysis of Alberta's extractive sector

Strengths	Weaknesses
Alberta's substantial reserves, strong credit market and stable business environment have made it a lucrative mining jurisdiction. Albertan companies' are leaders in exploration and mining development. An established presence of multinational companies provides economies of scale, thereby supporting cost effective and efficient mining operations from the availability of capital, skilled labour and infrastructure. An expanding and stable economy.	Dependence on the developed world for mineral trade could adversely affect the industry's growth prospects. Lengthy turnaround licencing timeframes have increased costs and deterred projects. Iron ore production has been lagging due to the regionally high cost curve.
Opportunities	Threats
The projected growth in infrastructure could support increased projects. The vast size of the country and low population density provide opportunities for new exploration discoveries. Improvement in commodity prices can potentially improve future mining industry value growth.	Politically stable, lower-cost countries in Latin America and Asia could offer competition. Countries such as India are increasing their own domestic production. Reduced economic growth in China in the future could negatively affect commodity prices. Stringent emissions reductions targets could result in an escalation in decarbonisation efforts.

Source: BMI Research (2016b:8-9).

4.5.2. Aversion of the resource curse

Gelb (2014) suggests that Alberta has averted the resource curse due to the following factors:

- Diversity of resources including minerals, hydrocarbons, forestry and agriculture ensures that there is no reliance on a single commodity. This is coupled with the fact that the EI contribute a small percentage to the larger economy, insulating the economy from the negative effects of resource windfalls. Thus economic diversification has created upstream, downstream and horizontal linkages with other industries.
- Financial transparency and accountability are enshrined in well-established and diligently enforced regulations and standards. Provincial authorities are responsible for royalties, taxes, incentives, permits and licencing of extractives, while a federal National Energy Board administers regulation and is partnered on a provincial level in offshore drilling.
- Albertans ascribe to creating sustainable development from investing resource rents to further diversify national capital, by strengthening human capital, through education and social services, improving infrastructure and better governance and institutional capacity.
- Engaging in prudent counter-cyclical macroeconomic management by restraining public spending and implementing fiscal rules that provide a transparent benchmark. This achieves a balance between consumption and saving, and creates intergenerational equity from the investment of rents in a NRF.
- Creating transparency and avoiding corrupt activities from the capture of rents by an incumbent elite.

4.5.3. Allocation of extractive rights

With the passing of the Constitution Act in 1930, ownership of Alberta's resources vested with the province. Subject to the federal legislative authority set out in the Constitution Act, the province reserved the legislative framework for regulating and managing its resources. Alberta has a dual system of mineral rights ownership. The Crown owns 81 percent of the province's mineral rights, and the residual 19 percent of freehold mineral rights are "owned by the federal government under National Parks and held in trust in Indian Reserves (10.6 percent), and by individuals (0.55 percent) and companies (7.28 percent)" (Amoateng,

2014:14-15). The private ownership of all freehold mineral rights is registered on a Certificate of Title at Land Titles. Table 4-11 presents Alberta's extractive rights allocation regime.

Table 4-11: Allocation of the extractive rights in Alberta

ALBERTA: EXTRACTIVE RIGHTS ALLOCATION STRATEGY
<p>PRE-LICENCE ASSESSMENTS: Conducted and conflict minimised by establishing existing rights?</p> <p>Alberta has developed geological surveys that have mapped most of the country. The Fraser Institute Annual Survey of Mining Companies 2016 report indicated that 61% of investors rated that the quality of geological information available would encourage investment and 39% responded that it does not deter investment. Alberta ranks 2 out of a 104 jurisdictions “for the quality of their geological database (includes quality and scale of maps, ease of access to information, etc.)” (Jackson & Green, 2017:7). No public available registry of licences exists.</p> <p>Section 26(1) of the Mines and Minerals Act states that if the minister deems it necessary to conduct a survey of any location “<i>to determine the exact position of the location, or in order to settle any dispute that may arise,</i>” The minister:</p> <ul style="list-style-type: none"> • may request that the survey be carried out by an Alberta land surveyor, at the lessee’s cost. • has authority to cancel the leases for failure to make such payment. • will furnish the lessee with a copy of the surveyor report.
<p>ALLOCATION METHOD: Pre-qualification of applicants and allocation method is suitable to competitive interest.</p> <p>Section 16 of the Mines and Minerals Act stipulates that the minister may issue an agreement, on application, by way of sale by public tender or any other procedure determined by the minister. The act is silent with regard to pre-qualification criteria. Section 23 details ineligibility criteria, however no minimum pre-qualification criteria are stipulated in the Mines and Minerals Act. Section 18 further provides that the minister has the right to refuse to issue an agreement to a person who is indebted to the “<i>Crown in right of Alberta, the Alberta Energy Regulator or the Alberta Utilities Commission</i>”. The Ministry of Energy describes the detailed bidding process. Bidding for extractive rights must be submitted via a web-based bidding system i.e. the Electronic Transfer System, which is only available to Alberta registered companies, holding a Canadian bank account.</p>
<p>LICENCE TRANSFERS: Subject to the same conditions on award of a licence?</p> <p>The act allows for the transfer of ownership of existing agreements between parties. The minister has discretion to refuse to register a transfer, unless executed in a satisfactory manner and accompanied by proof of execution.</p>
<p>FISCAL TERMS: Included in the biddable terms?</p> <p>The tenure guidelines state that public offering bid is for “the right to the minerals associated with a particular piece of land for a set term—in exchange for a bonus payment, an annual rental, a fee and a royalty on recovered minerals. Oil sands rights are leased at a public offering, not sold, to the highest bidder. There is no guarantee that a bidder who wins oil sands rights at a public offering will get a surface lease that allows access to the minerals. Surface leases for Crown land are managed by the Department of Sustainable Resource Development.” “The minimum bonus amount is CAD 2.50 per hectare for a lease and CAD 1.25 per hectare for a licence. The bid request includes the CAD 625.00 agreement application fee, the first year rental</p>

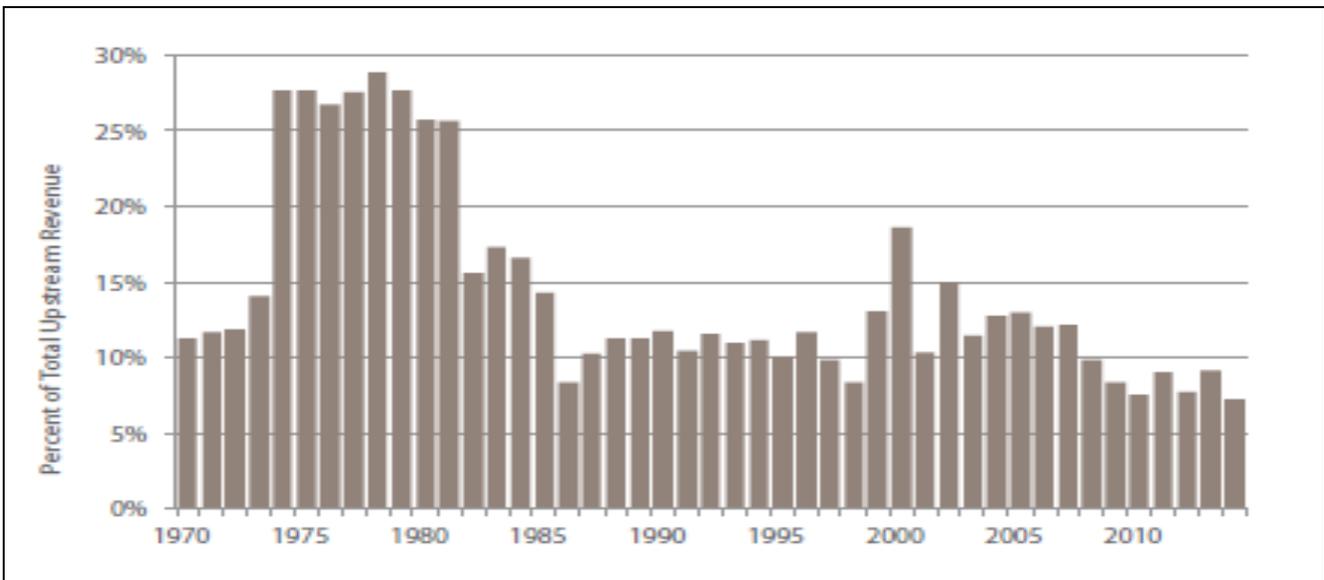
ALBERTA: EXTRACTIVE RIGHTS ALLOCATION STRATEGY
of the agreement of CAD 3.50 per hectare or CAD 50.00 (whichever is greater) and a bonus amount”.
LICENCE DISCLOSURE: Pre and post licence information?
Pre-qualification criteria to participate in the bidding process for licences are not disclosed. The Ministry of Energy tenure guidelines state that agreements are granted to the highest bidder. Accepted offers information is published on the sale day on the department’s website, naming the successful bidder and the bonus amount paid for each parcel. Information about unsuccessful bids is not disclosed.

Source: Compiled by the author.

4.5.4. EI fiscal instruments

The province of Alberta imposes mining taxes, royalties and mineral land taxes on mining operations. This represents a third level of taxation that is separate and distinct from federal and provincial income taxes. Thus Alberta’s comprehensive EI fiscal system includes bonuses, royalties, land rental fees, a freehold mineral tax and income taxes (Federal and Provincial) (Mintz & Chen, 2012).

Figure 4-5: Alberta oil and gas royalties as a percent of total upstream revenue



Source: Alberta Energy (2016:79).

Figure 4-5 shows the percentage contribution of oil, natural gas and oil sands royalties to total upstream revenue. The period between 1973 to 1982 yielded high royalty rates averaging about 27 percent arising from oil price shocks and easily accessible oil and gas reserves. The period from 1983 to 2005, royalties realised on average, more than 10 percent of annual total upstream revenue. However the period post 2005 shows a steady decline in

contribution to revenue (Alberta Energy, 2016). Albertans' were of the opinion that the royalty system was inadequate⁶⁹ and did not provide a "fair share of rent" (Onifade, 2017). This prompted the establishment of the Royalty Review Advisory Panel⁷⁰ by Alberta's New Democratic Party Government to modernise the royalty regime. The approach to modernisation of the royalty system went beyond establishing a simpler method to calculate royalties, to addressing broader issues in the context of obtaining a better understanding of the system (accounting for technological issues, resource horizons, environmental concerns and capital availability) with the objective of securing a fair royalty share, while capturing public values (job creation and environmental performance).

The panel discovered that the energy landscape had significantly changed during the past seven years, rendering the royalty formulas that govern the rate out-dated. The industry was significantly affected by competition, oilfield technologies, processes and production profiles. New, expensive technologies have become the operating standard, which resulted in the United States, who was Alberta's biggest customer, becoming their biggest competitor and drastically impinging on their market share. Within a 4-year timeframe, Texas expanded its unconventional oil production to a level that supersedes Alberta's entire oil production (Alberta Energy, 2016).

The panel found that the current regime did provide a fair return to Albertans, and rather than focusing on an increased royalty rate, the focus should be directed at receiving an optimum share of the resource value (Onifade, 2017). The panel's recommendations included that the existing royalty system would remain effective for 10 years and that changes to legislation would only be applicable to new oil and gas wells. The royalty design would be harmonized across crude oil, liquids and natural gas and be based on "revenue

⁶⁹ The report identified that the decrease in royalty rate results from a combination of: "maturing oil and gas fields, disruptive processes and price-driven inflation which had raised both capital and operating costs as a percentage of revenue. The drop over the past five years is directly attributable to a jump in capital and operating costs over the same period. Since 2010, an average 90 percent of the value in a barrel has been taken up as cost, leaving only 10 percent to share between resource owner and producer" (Alberta Energy, 2016).

⁷⁰ The mandate of the panel was to: "ensure that Alberta optimizes the value of its resources by providing: optimal returns to Albertans as owners of natural resources, continuing to encourage investment, encouraging diversification of opportunities such as value-added processing and innovation as well as other forms of investments in Alberta, and supporting the responsible development of Alberta's natural resources" (Alberta Energy, 2016:15).

minus costs” (Alberta Energy, 2016). Onifade (2017) commends the review framework for the prioritisation of the maximisation of “economic rent” to the “royalty rate”. Royalties ultimately depend on the value of the economic rent, and maximising the upstream returns affects other industries, such as manufacturing, creating associated economic risks.

The provincial mining tax and royalty regimes provide for the immediate expensing of capital expenditure for exploration and excessive credits for processing. The CIT system provides generous write-offs for exploration, development and processing mining assets. Loss carryover rules are provided for the carry-back of losses for three years, and the carry-forward of losses for 20 years, as well as an indefinite carry-forward of exploration and development expenditures. An appraisal of these provisions in the tax regime identifies the economic distortions created by generous tax terms and the unwarranted administrative and compliance costs borne by government and the taxpayers (Chen & Mintz, 2013). Alberta’s EI fiscal regime is presented in Table 4-12.

Table 4-12: Alberta’s EI fiscal instruments

ALBERTA: FISCAL INSTRUMENTS
ROYALTY
<p>Mineral royalties: 1% tax on mine mouth revenue for the month before pay-out, and after pay-out the greater of 1% and 12% on net revenue. For conventional oil and natural gas, the royalty is assessed on a sliding scale, factoring in the oil and natural gas price and the level of production at the well.</p> <p>Conventional oil royalties: Royalty rates range up to 40%.</p> <p>Natural gas royalties: Royalty rates range from 5% to 36%.</p> <p>Oil sands royalties: Royalty rates range from 1% to 9% pre-pay-out and 25% to 40% post-pay-out. For oil sands the royalty is based on net revenues, and depends on whether the project has reached “pay-out” (point at which the oil sand developer has earned sufficient revenue to recover all allowed costs plus a return allowance).</p>
MINERAL RIGHTS TAX
<p>A freehold mineral tax is an annual tax, levied on ownership of freehold rights (the owners of whom possess 19% of Alberta's mineral rights). Typically, lease agreements between industry and freehold mineral owners contain a payment of tax clause that transfers the tax payment obligations to the lessee of the mineral rights. The freehold mineral tax is imposed to prevent the oil and gas industry from developing freehold lands in preference to Crown lands. Furthermore, the justification includes the fact that Alberta does not receive any royalty from the production of freehold rights.</p> <p>“On average, the tax levied is 4 percent of revenues reported from freehold properties. The tax formula used takes into consideration the amount of production, the hours of production, the value of each unit of production (unit value), the tax rate, the percentages that the owners hold in the title, and the percentages that the title and well(s) hold in the production entities being taxed. The basic formula is: Revenue less allowable costs equals net revenue divided by wellhead production equals the unit value. If companies do not wish to file individual unit values, a default price will be supplied by the Crown. The tax rates are 0.269 for oil and/or field condensate and 0.069 for gas</p>

ALBERTA: FISCAL INSTRUMENTS	
and/or solution gas with reductions for low productivity wells. On gas and oil, the first CAD 1,600 of tax is exempted for each tax statement" (Alberta Energy, 2007).	
VARIABLE TAX ON RENT	
Alberta does not have a separate mining tax statute applicable to the EI. EI revenues are taxed under federal and Alberta income tax regimes, as with other revenue from other business activities in the province.	
CORPORATE INCOME TAX	
Tax rate	EI are taxed at the same rate as other corporations. Corporations are taxed by the federal government and by the provinces. The basic rate of federal corporate tax is 25%, but it is reduced to 15% by an abatement of 10% on a corporation's taxable income earned in a province or territory. Alberta's provincial tax rate is 12% and the federal tax rate is 15 %, which is a combined tax rate of 27%.
Ring Fencing	Business losses referred to as non-capital losses may be carried back three years and carried forward 20 years. Capital losses are exclusively deductible against capital gains and not against any other income. However, non-capital losses are deductible against taxable capital gains, which are included in taxable income. Capital losses can be carried back three years and forward indefinitely for use in future years, unless the company has been acquired, in which case they expire. When a company is acquired, all net capital loss carryovers are lost.
Rehabilitation expenditure	Reclamation costs are not tax deductible until the reclamation year. Canadian courts have disallowed an earlier deduction for these costs on the basis that the legal obligation to pay them is conditional until the reclamation year. The Canada Revenue Agency takes the same position (Frankovic, 2004).
Capital Gains Tax	Gains resulting from a disposal of capital property are subject to tax. Capital gains or losses are determined by deducting the adjusted cost base of an asset from the proceeds of disposition. For corporate taxpayers, one-half of the capital gain (the taxable capital gain) is subject to tax at regular income tax rates.
INVESTMENT INCENTIVES	
<p>Alberta currently has no incentives for mineral exploration.</p> <p>Federal incentives include the Canadian Exploration Expense and Flow-Through Shares.</p> <p>Canadian Exploration Expenses: The federal Income Tax Act provides a deduction of 100% of eligible exploration expenses against taxable income. Pre-production development expenses are deductible at 30% on a reducing balance basis.</p> <p>Flow-Through Shares: A flow-through share allows a corporation to obtain financing for expenditures on mineral exploration and development. A company can "flow through" certain expenses to the share purchaser. These expenses are then deemed to have been incurred by the investor, not the corporation, effectively reducing the investor's taxable income. However, when the share is sold the entire income from the sale is subject to capital gains tax.</p>	
STATE PARTICIPATION	
Alberta does not participate in the extractive industry.	
PRODUCTION SHARING AGREEMENTS	
Alberta does not issue production sharing agreements and does not hold any share in developing the province's oil and gas resources.	
VALUE-ADDED TAX (VAT)	
A sales tax is applied as a percentage of the final purchase price of a good or service when it is sold. Sales taxes are considered to be direct taxes borne by the final consumer, at the provincial level. Alberta does not have a provincial sales tax, so only a 5% value-added tax, called the goods and services tax (GST) applies to supplies made in the province.	

ALBERTA: FISCAL INSTRUMENTS
DIVIDENDS WITHHOLDING TAX
Dividends paid to non-residents are subject to 25% withholding tax, unless the rate is reduced by an applicable treaty. Generally, the reduced treaty rate is 15%. If the non-resident shareholder is a corporation that has a substantial interest in the payer (usually defined as 10% of the votes and value), the dividend withholding tax rate is typically reduced to either 5% or 10%, depending on the applicable treaty.
IMPORT DUTY
A 5% value-added tax, called the goods and services tax (GST), is charged on the supply of goods and services within Canada where such supplies are not exempt or subject to a zero rate of tax. The GST is charged on imports, but exports are zero rated. All goods imported are subject to both 5% GST and applicable duties. Customs duty is assessed on the tariff classification of the imported goods and the corresponding duty rates set out in the Customs Tariff.
TAXATION OF DOWNSTREAM ACTIVITIES
The objective of the Petrochemicals Diversification Programme is to encourage construction of petrochemical processing plants by awarding royalty credits to companies, which in turn can be sold or traded to natural gas producers. The province of Alberta estimates that two to three new plants could be built under the plan. The programme's aim was to encourage investment in the development of new petrochemical facilities by providing up to CAD 500 million in incentives through royalty credits.

Source: Compiled by the author.

Table 4-13 reflects resource revenue collections for the period 2010-2017. The information shows the declining contribution of resource revenue to total government revenue over the period. In addition, it should be noted that there have been no transfers made to the Alberta Heritage Savings Trust Fund.

Table 4-13: Alberta resource revenues collected

RESOURCE REVENUE (CAD Millions)	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17
Natural Gas & By-product Royalty	1 416	1 304	954	1 103	989	493	520
Conventional Oil Royalty	2 236	2 284	2 038	2 476	2 245	689	716
Oil Sands Royalty	3 723	4 513	3 560	5 222	5 049	1 223	1 483
Coal Royalty	31	29	-3	16	16	14	26
Bonuses & Sales of Crown Leases	2 635	3 312	1 053	588	476	203	203
Rentals & Fees	161	169	176	173	173	167	148
Special Royalty Features (for 2009/10 and 2010/11 is the Energy Industry Drilling Stimulus programme)	-1 774	25	0	0	0	0	0
ARTC	0	0	0	0	0	0	0
Non-Renewable Resource Revenue	8 428	11 636	7 779	9 578	8 948	2 789	3 097
Transfer to Heritage Fund	0	0	0	0	0	0	0
Gas Rebates	0	0	0	0	0	0	0
Net Non-Renewable Resource Revenue	8 428	11 636	7 779	9 578	8 948	2 789	3 097
Freehold Mineral Tax	128	129	119	146	172	79	57

RESOURCE REVENUE (CAD Millions)	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17
Departmental Revenue	8 556	11 765	7 898	9 724	9 120	2 868	3 154
Total Government Revenue	38 802	43 225	38 756	45 293	49 481	42 619	42 404
Resource Revenue as % of Total Revenue	21,72%	26,92%	20,07%	21,15%	18,08%	6,54%	7,30%

Source: Alberta Energy (2017).

4.5.5. Alberta Heritage Savings Trust Fund

This fund was established in 1976 as a savings fund, with an initial capitalization of CAD 1.5 billion and the goal of economic diversification and social improvement. The initial deposit rules stipulated that 30 percent of non-renewable resource revenue would be transferred to the NRF. With the economic crises of the early 1980s, this allocation was subsequently reduced to 15 percent in 1982 until its suspension in 1987. Moreover, all financial returns generated by the NRF were fully diverted into the government budget. During the period 1976 to 1982 inflation proofing was not an issue, as the returns on the NRF offset the negative effect of inflation. However, in the period thereafter the inflationary effects had begun to erode the capital base.

The NRF's limited success in promoting these outcomes resulted in restructuring into a financial investment fund targeted at maximising returns subject to acceptable risk, hence the amendment to the Alberta Heritage Savings Fund Act in 1996. This amendment replaced the old mandate with a new mission "to provide prudent stewardship of the savings from Alberta's non-renewable resources by providing the greatest financial returns on those savings for the current and future generations of Albertans" (Alberta, 2000b:1). In 2005 the fund began retaining a portion of the investment income to offset the effects of inflation. Once the Alberta Government had reduced its accumulated debt in 2005, two deposits were made, for an amount of CAD 3 billion in 2006 and CAD 918 million in 2008. It is reported that since its inception, CAD 41.4 billion has been withdrawn from the NRF to support spending in health care, education, infrastructure, debt reduction and social programmes. In addition to this fund, a second Contingency Account was created in 2013, to smooth revenue arising from volatility resource prices (Van den Bremer & Van der Ploeg, 2016; Natural Resource Governance Institute, 2014a; Natural Resource Governance Institute,

2013a). The revenue management strategy of Alberta's Heritage Trust Fund is presented in Table 4.8.

Table 4-14: Alberta Heritage Trust Fund

ALBERTA: HERITAGE FUND
EFFECTIVE NATURAL RESOURCE FUND MANAGEMENT: Managed in a transparent, accountable and efficient manner.
<p>The Alberta Heritage Trust Fund is established under the Alberta Heritage Trust Fund Act which functions as an intergenerational fund. The Alberta Heritage Savings Trust Fund Statement of Investment Policy and Goals governs the investment mandate of the fund and strategic asset allocation. The Fiscal Management Act of 2013 created the Contingency Account as a stabilization or liquidity fund. The NRF is subject to audit by the Auditor General and transparency is maintained by publishing quarterly and annual reports. The 2016/2017 Annual Report specifies the net financial assets of the fund, discloses transfers made and investment expenses, and specifies the fund's asset allocation by asset class such as equities, bonds, private mortgages, real estate and infrastructure. The Minister of Finance is responsible for the investment management of the fund. The Alberta Investment Management Corporation and the province's investment manager are responsible for developing the investment policy and handling the day to day management of the fund. There is a Standing Committee consisting of nine members of the Legislative Assembly who review the fund's performance each year. Several institutions have conducted comparative reports on the transparency of NRFs. The Alberta Heritage Savings Trust Fund and Contingency Account has performed well on the transparency score card. The fund received a 77% compliance rating on the Santiago Generally Accepted Principles and an 86% scoring on the Truman SWF Scoreboard. The Resource Governance Index (RGI) reported that the fund received a 73% transparency rating.</p>
INVESTMENT STRATEGY: Investment strategy meets the fund's objectives.
<p>The Statement of Investment Policy and Goals specifies asset allocation, and permitted and restricted investments. The Alberta Heritage Savings Trust Fund Act states that the "investments of Heritage Fund assets must be made with the objective of maximizing long term financial returns." The fund's long term target return, as stated in the Statement of Investment Principle and Goal, is Canadian Consumer Price Index (CPI) plus 4.5%. The 2016/2017 Annual Report stated that "over a five-year period ending March 31, 2017, the fund returned 11.0% on an annualized basis, which is higher than the return on the policy benchmark of 10.1%. Over the last five-year period, the CPI plus 4.5 target was 5.9%, which the fund has beaten. Over a 10-year horizon, the fund has returned 6.8% versus a policy benchmark return of 6.4%. The Heritage Fund net of fees return was 10.7% during the 2016-17 fiscal year, while the policy benchmark return was 10.1%. The asset classes that added the most value were global equity, timberlands and infrastructure". Thus the rules set in the Statement of Investment Policy and Goals have been adhered to. The Alberta Heritage Savings Trust Fund had a fair value of CAD 17.2 billion as of 30th June 2017.</p>
FISCAL RULE
<p>With the Fiscal Management Act of 2013, deposits of non-renewable resource revenues will resume under the following rules each year:</p> <ul style="list-style-type: none"> • 5% of the first CAD 10 billion in non-renewable resource revenue; • 25% of the next CAD 5 billion above that; and • 50% of all non-renewable resource revenue in excess of CAD 15 billion. <p>"The 2013 budget commences the deposit of the first CAD 5 billion in resource revenue into a new Contingency Account for fiscal stabilization purposes. In subsequent years, all or some of any fiscal surpluses will be deposited into the Contingency Account. The Alberta Treasury determines the portion of fiscal surpluses to be deposited into the account. The size of the Contingency Fund cannot fall below CAD 5 billion. Once the Contingency Fund has reached CAD 5 billion, the deposit rules in the Fiscal Management Act of 2013 will apply. Non-renewable resource revenues will be distributed to the Alberta Heritage Savings Trust Fund as well as other provincial endowment</p>

ALBERTA: HERITAGE FUND
funds, specifically the Alberta Heritage Science and Engineering Research Endowment Fund, the Alberta Heritage Foundation for Medical Research Endowment Fund and the Alberta Heritage Scholarship Fund” (Natural Resource Governance Institute, 2013a).
DEPOSITS AND WITHDRAWALS
<p>Non-renewable resource revenues deposited into the Alberta Heritage Savings Trust Fund cannot be withdrawn. Under the Fiscal Management Act of 2013, the net income of the fund will no longer be withdrawn after fiscal year 2017/2018 and will instead be retained in the fund using a graduated process. Although originally set to start in fiscal year 2015/2016, the government has decided to move the starting date up one year and will now be implemented as follows:</p> <ul style="list-style-type: none"> - 30% of net income or the amount needed for inflation-proofing, whichever is greater, is retained by 2014/2015; - 50% of net income or the amount needed for inflation-proofing, whichever is greater, is retained by 2014/2016; and - 100% of net income is retained by 2016/2017. <p>At the end of the fiscal year, the government may draw down on the Contingency Fund if it ran a budget deficit. However the account must be replenished to a minimum of CAD 5 billion when the government runs a budget surplus (Natural Resource Governance Institute, 2013a). Only two deposit were made in the fund between the years 1987 and 2012.</p>

Source: Compiled by the author.

The effectiveness of Alberta’s NRF has been compromised by political interference and poor governance. The provincial authorities circumvented the rules governing Alberta’s Heritage Savings Trust Fund and were thus able to frequently raid the fund, using the returns of the NRF to pay down provincial debt (Dabán & Héris, 2010). These factors, together with maintaining unsustainable consumption and the failure to save for almost 25 years, coupled with the erosive effects of inflation, resulted in the poor performance of the fund. A critical factor to explore is whether a fund meets its stated objectives. To illustrate this point, the objective of the Alberta Heritage Savings Trust Fund is to save resource revenues for future generations. However, despite historically high prices during the period 1987 to 2012, only two small deposits were made into the fund. Furthermore, the lack of a deposit rule resulted in the fund saving less than CAD 4 billion in resource revenues in 25 years (Natural Resource Governance Institute, 2014b). Assuming that Alberta saved 30 percent of resource revenues as originally planned, it is estimated that it would have generated “CAD 471.4 billion in oil and gas royalties between 1971 and 2014, as opposed to the CAD 20bn it recently held” (Onifade, 2017:194).

Gordon (2015) presents a contrarian view. He purports that when income rises, three options exist: the option to save, to spend or to do both. The theory of optimal savings suggests that the decision to save is based on whether or not the increased income is

temporary or permanent. A temporary increase in earnings should be saved, in order to provide enduring benefits. This rationale substantiates the need for a NRF. He adds that in 1976, the estimated lifespan of oil sands was only a few decades, prompting the establishment of Alberta's Heritage Trust Fund. He concedes that the perceived temporary resource windfall at the time justified a NRF in preparation for resource depletion in a few decades. However, the scenario changed when the oil price increased and new techniques for extracting usable hydrocarbons from the oil sands improved the province's resource horizon. The U.S. Energy Information Agency reported that Canada's proven oil reserves escalated from 4.9-billion barrels in 2002 to 180 billion in 2003. Canadian oil production was 1.2-billion barrels in 2013, thus extending Canada's resource horizon for centuries and weakening the case for a NRF to save for future generations (Gordon, 2015).

4.5.6. Policy lessons from Alberta

Albertans have significantly benefited from the development of their oil, gas, coal and mineral resources. However, their aversion of the resource curse and reputation for successful management of resource revenues could be challenged. The adequacy of the fiscal regime's derivation of a fair share of resource revenues is also questionable. The regime appears to be complex and distorts investment decisions from the generous tax treatment of the EI. Investor preference over this jurisdiction is skewed on the basis of the preferential tax incentives, and thus the long term sustainability of these decisions for Canada and the province of Alberta is uncertain. However, the province of Alberta has provided lessons in obtaining early upfront revenue from bonuses received from the sale of Crown leases. Tax regime changes are implemented through a transparent consultative process, while the amendments respond to technological and industry related trends and challenges experienced.

Alberta's bonus bidding system is an effective method of awarding resource licences/leases. The contextual enabling factors to this system include a favourable investment climate, proven recoverable reserves and a stable political environment, which cumulatively offer security of investment. The efficient automated bonus bidding system is transparent, eliminates corruption, is virtually risk free and presents relatively no cost to the government, while realising a significant amount of revenue at the pre-production stage. Economic theory

posits competitive bidding on the basis that the system enables price discovery, and in addition, that the highest bidder will be most optimistic about the cost versus benefit relationship and is therefore most likely to succeed in the venture. Furthermore, the bonus payment is motivation for the developer to undertake exploitation earlier rather than later. The automated system awards licences/leases to the highest bidder, thus offering no discretion in the award of contracts. However, the system will tend to favour well-established companies (Amoateng, 2014).

Canada's EI tax regime is stable and internationally competitive. Further taxation changes are implemented through a transparent consultative process, while the amendments address trends in the industry. The regime accounts for the highly cyclical and capital-intensive nature of the EI, by allowing the rapid write-off of intangible and capital investment costs before accruing any tax liabilities. Generous loss carry-over rules allow for the carry forward of operating losses for 20 years and capital losses indefinitely, while one half of the capital gain is included in income. These investor friendly tax terms allude to the perceived preference of the jurisdiction to the EI. However, Chen and Mintz (2013) note that the federal government has revised its tax policies, scaling back on preferential and unreasonable incentives for mining investment. The federal and provincial mining-tax and CIT systems have resulted in economic losses and undue complexity, arising from the non-neutral treatment of investment expenditures for the EI. Simplifying the tax structure for mining and improving the neutrality of the overall business-tax system should address the depreciation of assets according to their economic life, while avoiding credits and accelerated tax deductions and encouraging discovery by implementing the tax treatment of exploration costs on a similar basis to research costs (Chen & Mintz, 2013).

The lesson to be taken from this case study is the manner in which the royalty system was modernised. The review was instituted from concerns raised that Albertans were not receiving their fair share of resource revenues. In particular, the modernisation of the royalty system extended to accounting for technological issues, resource horizons, environmental concerns and capital availability in the context of job creation and environmental performance. The holistic integration of industry challenges in the design of a tax regime ensures that taxes are more effective in ensuring proper sharing in the EI investment. Tax reforms are generally considered in isolation. Addressing tax policy design or reform in this

manner ensures robust changes that are targeted to align the interests of the state and the investor.

While the intent of the Alberta Heritage Trust Fund was to create intergenerational equity for future Albertans, this was not achieved. The drawbacks experienced in the mismanagement of the fund offer lessons, emphasizing the importance of ensuring that the objectives of a fund are met and fiscal rules governing deposits and withdrawals are legislated. The fund's comprehensive investment rules limit risk exposure which fund managers can assume, and the presence of independent oversight bodies are meritorious in encouraging good financial management and governance. Annual reviews of fund performance are conducted by the legislature to ensure compliance with regulations. Transparency is maintained by holding annual public meetings on fund activities and by making external audits publicly available (Natural Resource Governance Institute, 2014b).

4.6. NORWAY

Norway is an important supplier to the world's energy market. Globally, the country is the second largest exporter of gas and the seventh largest exporter of crude oil (Norway Exports, n.d). Oil production accounts for more than one fifth of total GDP, one quarter each of government revenues and total investment, and over 50 percent of total exports. Norway's petroleum era started more than 50 years ago, however government estimates reveal that nearly 50 percent of oil resources, including new discoveries, have already been extracted and sold. The Norwegian oil industry is rated as the most carbon efficient in the world and is a market leader in innovative and technological cost effective strategies (Cheptea, Mordonu & Shirono, 2013; Norway Exports, n.d).

4.6.1. Background

Norway is one of the richest countries in the world. Shipping has been a predominant export activity, while the economy is supported by natural resources such as fishing, hydroelectric power and petroleum exploration and production (Chambers, Dimson & Ilmanen, 2012). Norway's exemplary conversion of oil revenue into public revenues, and its adherence to prudent policies of consumption and investment expenditure have transformed the country.

During the 1960s there was no Norwegian involvement in the oil industry. Investment was initially attracted by offering concessionary tax breaks and a 10 percent royalty rate. With the discovery of oil in 1969, and production commencing in 1971, the poor fiscal terms were inadequate to capture a fair return for the state. In 1972 the Norwegian Petroleum Directorate (the regulator) and Statoil (the national oil company) were created to regulate and participate in the sector. Statoil secured an initial 50 percent stake and now controls 80 percent of Norwegian petroleum operations. The tax rates were progressively increased with the regime including a 54 percent oil tax and a 24 percent corporate tax. By 1990 the decision was taken to create an Oil Fund to invest resource rents offshore in order to smooth against revenue volatility. In 2006 the assets of the Oil Fund were officially restructured into the Norway Government Pension Fund Global mandated to save for future generations (Denning, 2008; Torres, 2015).

Replicating the Norwegian experience under a different context does not offer a practical comparative for a developing country. However, when considering the fact that Norway was not a “rich” country when oil was discovered, the remarkable transformation of the country offers lessons against which policy may be benchmarked. Part of the country’s success is attributable to the flexible approach to policy reforms in the face of a changing economic context (Denning, 2008; Torres, 2015). Table 4-15 presents Norway’s resource potential.

Table 4-15: Norway’s EI sector

Main minerals mined	Norway produces zinc, steel, copper, cobalt, cadmium and aluminium, and the industrial minerals include sand and gravel, nepheline syenite, limestone and aggregates.
Petroleum Reserves	Norway’s economy has grown increasingly focused on oil and gas. Estimated total net cash flow from the petroleum industry in 2017 including tax, dividend from Statoil and various fees, is estimated to NOK 180 billion.
Mining exports	Exports of crude oil and gas accounted for about 57% of total goods exports in 2013. The total export value of the mining industry in 2014 was NOK 7 billion, representing 54% of the overall turnover.
Mining contribution to national revenue	In 2013, there were three metal mines in production, with a turnover of NOK 2.7 bn. Turnover of gravel, hard-rock aggregate and clay was NOK 5.4 billion, that of natural stone NOK 1.1 billion, and that of industrial minerals NOK 2.4 bn. In the same period, coal production had a turnover of NOK 1.3 bn. Government income from oil related revenue is above 10% of GDP, or 25% of total revenue.

Local procurement	There is partnership with multinationals to transfer technology, acquire skills and conduct research and development. It is required that at least 50% of research for technology must be conducted in partnership with local institutions.
--------------------------	---

Source: Compiled by the author.

Table 4-10 presents a SWOT analysis of Norway's EI. Norway is a stable investment jurisdiction that incentivise exploration. Even though the Norwegian North Sea is mature there is still potential for development and costs can be reduced by using existing infrastructure.

Table 4-16: SWOT analysis of Norway's oil and gas sector

Strengths	Weaknesses
Norway has the largest proven oil and gas reserves in Western Europe. The stability of the political and regulatory environment are a drawcard to investors. Exploration drilling is incentivised by offering a tax deduction for exploration costs. It has a well developed services industry to support oil and gas.	The Norwegian Continental Shelf is mature and oil production has reduced by over 1mn b/d since 2005. Specific environmental equipment used adds to project costs. The high tax rate of 78% of profits could be seen as a deterrent to investment. Furthermore, there are currently no incentives to develop marginal fields.
Opportunities	Threats
Lower project costs could be achieved due to Norway's global lead in subsea production solutions. The value of small field and marginal projects could be maximised by leveraging underutilised existing infrastructure. Development of the Norwegian North Sea, which still has considerable potential despite its maturity. Exploration of the Barents Sea and the Southeast. Low service costs in engaging in new projects.	High labour costs could make Norwegian services less competitive. Low production volume fields are at risk of being closed. Government efforts to diversify the economy away from the crude industry will affect operators in Norway.

Source: BMI Research (2017:8-9).

4.6.2. Aversion of the resource curse

The Norwegian Government developed policy on the basis that the resources belong to the nation and should benefit society and future generations. The challenges encountered in formulating the policy are that oil revenues are volatile, and temporary, and recovery of oil is technically onerous requiring involvement of international oil companies. To achieve this, a multitude of policies were developed covering different content. The aim was to build expertise amongst Norwegian companies to participate in this sector. This culminated in the

adoption of the 'Ten Oil Commandments' in 1972 and was subsequently followed by policies on the management and spending of petroleum wealth (Holden, 2013:871).

The Norwegian Petroleum Directorate (n.d) lists the principles enshrined in the "Ten Oil Commandments"⁷¹ which the Standing Committee on Industry produced to direct the shape of Norwegian petroleum policy.

In the Norwegian model of resource governance, government deposits 100 percent of oil and gas revenues (tax revenues comprise a corporate tax of 24 percent and a special 54 percent tax on profits earned from off shore oil and gas production) into its NRF, and then withdraws an average of 3 percent to pay for public services. The income deposited in the Government Pension Fund Global is invested in terms of the fund's legislated investment asset allocation holding of 60 percent in equity, 35 percent to 40 percent fixed income, and up to 5 percent in real estate. The savings of the fund are highly protected by exercising self-discipline, preventing any withdrawals from the fund until the oil runs out. The government cannot use more than 3 percent for current expenses, and none of the investments from the fund can be placed in Norway. The result of these guidelines is that the fund acts like a shock absorber for the economy, avoiding inflation and forcing domestic competitiveness (Torres, 2015).

-
- ⁷¹ "1. National supervision and control must be ensured for all operations on the Norwegian Continental Shelf.
2. Petroleum discoveries must be exploited in a way which makes Norway as independent as possible of others for its supplies of crude oil.
3. New industry will be developed on the basis of petroleum.
4. The development of an oil industry must take necessary account of existing industrial activities and the protection of nature and the environment.
5. Flaring of exploitable gas on the Norwegian Continental Shelf must not be accepted, except during brief periods of testing.
6. Petroleum from the Norwegian Continental Shelf must as a general rule be landed in Norway, except in those cases where socio-political considerations dictate a different solution.
7. The state must become involved at all appropriate levels and contribute to a coordination of Norwegian interests in Norway's petroleum industry, as well as the creation of an integrated oil community which sets its sights both nationally and internationally.
8. A state oil company will be established which can look after the government's commercial interests and pursue appropriate collaboration with domestic and foreign oil interests.
9. A pattern of activities must be selected north of the 62nd parallel, which reflects the special socio-political conditions prevailing in that part of the country.
10. Large Norwegian petroleum discoveries could present new tasks for Norway's foreign policy".

Weak governance is generally cited as one of the leading causes for the resource curse (Calder, 2014). Transparency is the fundamental principle of good governance for EI. Several issues prevalent with EI can obscure transparent practice, from the complexity and sizable financial values associated with the sector to asymmetry of information between the investor and the state. Transparency affords citizens with information to monitor the activities of both governments and investors, thereby facilitating open dialogue on good governance of natural resources. Transparency can promote accountability, by creating structures upon which citizens can hold government and investors to account. “Together, transparency and accountability are thus the foundation for trust in government and effective management of natural resources” (OECD, 2013:29). Cameron and Stanley (2017:222) state that transparency and accountability applies across the entire decision-chain: decision to extract; legal, contractual, and policy frameworks governing the allocation of licences; segregating mandates with regard to regulation and monitoring of operations; public reporting of EI fiscal regimes; revenue management and distribution.

Norway is one of 51 member countries that adhere to the Extractive Industries Transparency Initiative (hereafter “EITI”)⁷² global standard. The EITI was established in 2002 with the aim of promoting transparent and accountable management of oil, gas and mineral resources. The EITI seeks to increase transparency over payments and revenues in resource-dependant countries by publicly disclosing information from the point of extraction through to government revenue collection and distribution of benefits to citizens. A central function of the EITI is to collate revenue data across different government departments, which is then verified against EI audited data. This enables the EITI to identify inconsistencies in the tax administration system (Cameron & Stanley, 2017).

Thus, the first precursor to avoiding the resource curse emanates from the clear and simple legal and institutional frameworks which evolved since their inception in the early 1970s. These institutions were supported by the presence of relatively stable economic, social and political conditions and the lack of poverty alleviation related issues that existed prior to the discovery of oil. These institutions allowed the country to avoid becoming economically and politically dependent on oil revenues.

⁷² South Africa is not a signatory to the EITI

Secondly, by excluding oil wealth from the political system, and not posing any temptation for Norwegian politicians, this allowed the petroleum industry to gradually develop. Thirdly, apart from the good governance practices of the Norwegian NRF, growing and maximising oil production generated large revenues. Fourthly, these economic resources were further capitalized by financial strategy to invest in global equity, debt and real estate. Finally, transparency management of the cash flows, adequate taxes generated and a 3 percent limit on spending for public services, have obtained tangible benefits for Norwegian citizens (Torres, 2015).

4.6.3. Allocation of extractive rights

Petroleum exploitation in Norway is based on the licencing and concession system. The discretionary licencing system is controlled by the Norwegian Petroleum Directorate under the direction of the Ministry of Petroleum and Energy. The licencing framework is based upon stability, predictability and transparency (Hunter, 2010).

In 2003, the government established the Awards Predefined Areas System. The bidding process is rigorous and does not grant exploration rights to the highest bidder, but to the best company based on its experience, expertise and work plan to develop any particular field. Apart from the state’s participation in oil extraction, the state owned company Petoro manages the State Direct Financial Interest. This is a special arrangement, decided when production licences are awarded, in which the state acquires interests in a number of oil and gas fields, pipelines and onshore facilities. Petoro is not involved in operations but merely assumes an equity stake in any lease that the government deems viable. Petoro complies with all the normal obligations that any investor would take on, including paying its share of the development, operational and maintenance costs (Torres, 2015). Table 4-17 presents Norway’s extractive rights allocation regime.

Table 4-17: Allocation of the extractive rights in Norway

NORWAY: EXTRACTIVE RIGHTS ALLOCATION STRATEGY
PRE-LICENCE ASSESSMENTS: Conducted and conflict minimised by establishing existing rights?
Norway has developed geological surveys that have mapped most of the country. The Fraser Institute Annual Survey of Mining Companies 2016 reported that 50% of investors rated that the quality of geological information available would encourage investment and 33% responded that it does not deter investment. Norway ranks 39 out of a 104 jurisdictions “for the quality of their

NORWAY: EXTRACTIVE RIGHTS ALLOCATION STRATEGY
<p>geological database (includes quality and scale of maps, ease of access to information, etc.)” (Jackson & Green, 2017:7).</p> <p>The Norwegian Petroleum Directorate is responsible for mapping before an area is opened for petroleum activities. This repository of seismic data has been maintained since 1969. All seismic surveys in connection with petroleum activities on the Norwegian Continental Shelf must be authorised by a production or exploration licence. Marketable seismic data is acquired for the purpose of submitting the data for sale to a third party. These surveys are carried out by seismic companies that have been awarded exploration licences, but do not normally apply for production licences. Acquired seismic data is reported to the Norwegian Petroleum Directorate under Section 20 of the Resource Management Regulations. The data is managed in accordance with Section 85 of the Petroleum Regulations on administrative procedures and the duty of secrecy/release of data.</p>
ALLOCATION METHOD: Pre-qualification of applicants and allocation method is suitable to competitive interest.
<p>The Norwegian licencing system consists of two types of licencing rounds: numbered licencing rounds for the least explored parts of the shelf (frontier areas), and awards in predefined areas for mature parts. All areas that are open may be announced in numbered licencing rounds or through the system of awards in predefined areas.</p> <p>Since 1965, numbered licencing rounds have been used for frontier areas, where there is limited knowledge of the geology and a lack of infrastructure, and where there may be greater technical challenges than in mature areas. There is more uncertainty about whether petroleum deposits will be found in such areas, but at the same time there is greater potential for making large discoveries. The system of awards in predefined areas was introduced in 2003 for mature areas of the Continental Shelf. In these areas the geology is well known, the technical challenges are generally fewer and less difficult to deal with, and there is well developed or planned infrastructure. In mature areas, rapid exploration conducted at the right time is far more important than step-by-step exploration. The Norwegian Minerals Act was adopted in 2009. Section 43 of the act states that “in the assessment of whether an operating licence should be granted, emphasis shall be given to whether the applicant is qualified to extract the deposit”.</p>
LICENCE TRANSFERS: Subject to the same conditions on award of a licence?
<p>A participating interest in a petroleum production licence can be transferred subject to the approval of the Ministry of Petroleum and Energy and the Ministry of Finance. The parties are free to agree to transfer the interest, and can agree the terms of the transaction. The same requirements that are used when awarding licences apply in relation to that approval. In addition, the state has a pre-emption right to take over the interest, although this is generally not used.</p>
FISCAL TERMS: Included in the biddable terms?
<p>The operating oil company obtains a licence from the state, subject to certain terms and conditions, most of which are fixed by legislation and some of which are negotiated on a case by case basis. Fiscal terms are based on the rules for ordinary company taxation and are set out in the Petroleum Taxation Act (35 of 1975). Oil companies are subject to an additional special tax. In 2017 the ordinary company tax rate is 24%, and the special tax rate is 54%. In 2018 these tax rates will be adjusted to 23% and 55% respectively. This gives a marginal tax rate of 78%.</p>
LICENCE DISCLOSURE: Pre and post licence information?
<p>Pre-qualification criteria to participate in the bidding process for licences are disclosed. Detailed pre-qualification criteria are listed together with companies that have been pre-qualified on the Norwegian Petroleum Directorate website. All licences awarded and licence owners are also published.</p>

Source: Compiled by the author.

4.6.4. EI fiscal instruments

Norway derives its revenue from petroleum resources through direct participation in the sector and taxation. The objective of the petroleum tax system⁷³ is to capture the resource rent, while allowing the investor an adequate return on investment (Jansen & Bjerke, n.d). The petroleum tax system is based on the taxation of net profits with a high marginal tax rate of 78 percent. This consists of a general income tax and an additional special tax on income from petroleum production and pipeline transportation activities. In addition, certain environmental taxes, such as CO2 taxes are charged, and an area fee is charged for acreage. Initially the tax regime included a royalty payment on crude oil production, which was subsequently abolished. The high marginal tax rate must be balanced with other features of the system. The Ministry of Finance affirms that the current system is robust in withstanding price fluctuations in the crude oil and gas markets, while industry recognises that the system is well designed for the development and production of large fields and projects. Norway's EI fiscal regime is presented in Table 4-18.

Table 4-18: Norway's EI fiscal instruments

NORWAY: FISCAL INSTRUMENTS
ROYALTY
Royalty payments have been phased out. No royalty has been payable since 2005.
AREA FEE
The area fee contributes to efficient exploration. The fee is not payable for areas in production or with adequate exploration activity. All production licences are exempt from the area fee during the initial production period, which can last up to 10 years but is normally set between 4 and 6 years. The area fee usually applies from year 5 to 7 after the initial licence was awarded. The fee may be reduced or abolished in some cases. If the licensee, after the initial period, drills an exploration well, they may upon application be exempt from the area fee for the relevant field for 2 years. The annual fee for most licences increases from NOK 34 000 per square kilometre the first year the fee is payable, to NOK 68 000 per square kilometre the next year up to a maximum of NOK 137 000 per square kilometre in the subsequent years. The area fee is payable in advance for each calendar year.
PETROLEUM TAX
All petroleum related activities on the Norwegian Continental Shelf are governed by the Petroleum Tax Act, but the general income tax legislation provisions will also apply for situations where there are no specific rules in the Petroleum Tax Act. Despite a marginal tax rate of 78% from the combined taxes, there are also fairly generous allowances such as a six-year straight line depreciation (from first investment) and a separate uplift when calculating the special tax. The uplift is given as an additional depreciation of 22% (5.5% over four years), but only with respect to

⁷³ "The overall objective of Norway's petroleum policy has always been to provide a framework for the profitable production of oil and gas in the long term. It has also been considered important to ensure that as large as possible a share of the value creation accrues to the state, so that it can benefit society as a whole. This is partly obtained by the tax system" (Norwegian Petroleum, 2019).

NORWAY: FISCAL INSTRUMENTS

the 53% special tax basis. The basis for uplift is the same as for depreciation. The six-year depreciation and uplift apply only to offshore assets that use the production and pipeline transportation of petroleum produced on the Norwegian Continental Shelf. For the purpose of determining the taxable income from the sale of petroleum, the Petroleum Tax Act states that a norm price may be stipulated and used as a replacement for the actual sales price. So far the norm price is used only for oil, and not for gas and condensates. The norm price is set by a separate Norm Price Board, and there is typically one norm price for each producing field. The norm price is usually set on a daily basis. The norm price should be equivalent to the market price for similar oil traded between independent parties.

CORPORATE INCOME TAX

Tax rate	In 2017 the ordinary company tax rate is 24% and the corporate rate of income tax will be adjusted to 23% in 2018.
Ring fencing	<p>Consolidation of income and costs between fields is permitted. Thus, there is no ring fence between a taxpayer’s different fields and licences, as long as the licences are held by the same legal entity. Companies that are not in a tax position may carry forward their losses and carry forward uplift with interest.</p> <p>Tax losses cannot be carried back against an earlier year's profits. The carry forward of losses is indefinite, and a taxpayer that goes out of business with unused losses from his exploration and production activity on the Norwegian Continental Shelf will get a refund for the tax value of the unused losses. The same will apply for carry forward/ unused uplift.</p> <p>Losses can be transferred in connection with the sale of the total activity or by a merger with another “upstream” company. The tax value of the losses can be refunded when the extraction activity on the Norwegian Continental Shelf ceases. Thus, a company subject to the offshore tax regime is guaranteed the full tax refund of all costs incurred.</p>
Rehabilitation expenditure	Abandonment costs are deductible when the costs are actually incurred. Accounting provisions made in order to meet future abandonment costs are not deductible.
Capital Gains Tax	<p>There are special rules for transfer of licences which are normally done on an after tax basis, i.e. that the consideration paid will represent a non-deductible item for the buyer, and will not be regarded as taxable income for the seller. Furthermore, the buyer will take over the seller’s depreciation and uplift basis without any step-up.</p> <p>Capital gains and losses on disposals of physical assets are taxable or deductible respectively. The taxation is deferred so that gains shall be taken as income with at least 16.67% per year. Losses may be deducted with up to 16.67% per year. Similarly, there is a carry back system for uplift. The remaining tax book value of an asset which loses its value upon cessation of production from a field may be fully deducted in the year of cessation. This improves the after tax return on investment in fields which have a lifetime of less than 6 years from the date of investment.</p>

INVESTMENT INCENTIVES

An upstream company may also be refunded the tax value of exploration expenses for each tax year loss, including direct and indirect expenses related to exploration activities on the Norwegian Continental Shelf (excluding financing costs). The refund is limited to the tax loss incurred for the year. The refund is made on 22 December in the year following the tax year for which the expenses were incurred. The refund of exploration costs has opened up the opportunity for third parties to fund exploration activities. The claim on the state can also be pledged. In general, banks may typically be willing to fund 80% to 90% of the tax value of the exploration tax refund (i.e. 65% to 70% of the exploration cost basis).

NORWAY: FISCAL INSTRUMENTS
STATE PARTICIPATION
In addition to the state ownership of Statoil (currently 67%), the state owns assets via the State Direct Financial Interest. The rules for calculating the state's participation in petroleum activities is stipulated in the Law on Petroleum Activities.
PRODUCTION SHARING AGREEMENTS
Norway does not operate with production sharing agreements. Norway operates under a concessionary system. This means that a petroleum production licence gives the licences in the licence period the exclusive right to exploration, and exploration drilling and production of petroleum deposits in areas covered by the licence, including ownership of the petroleum which is produced.
VALUE-ADDED TAX (VAT)
VAT is levied at the rate of 25%. Supplies of goods and specific services to drilling companies, licence owners, owners and lessees of platforms, and foreign companies that are not liable to register for VAT in Norway are exempt from VAT, provided certain requirements are fulfilled. The repair, building and maintenance of rigs and specialized vessels for use in petroleum activities outside Norwegian territorial waters are exempt from VAT when invoiced to the end user. The exemption for the supply of services applies, regardless of whether the services are performed offshore or onshore, provided the services rendered are related to installations or equipment on these installations, for use in petroleum activities outside Norwegian territorial waters. Certain documentation requirements must be maintained to comply with the rules. Transportation between offshore facilities outside Norwegian territorial waters and onshore is also exempt from VAT. In addition, pursuant to the Norwegian export regulations, "the supply of services entirely for use outside Norwegian territorial waters" is regarded as an export and consequently exempt from VAT. The export of goods to the Norwegian Continental Shelf is also exempt from VAT, provided that the goods are exported directly by the supplier, and the supplier can prove the export.
DIVIDENDS WITHHOLDING TAX
Withholding tax is not levied on distributions from income subject to petroleum taxation, provided the recipient owns at least 25% of the distributing entity. However, any onshore income part may be subject to a prorated dividend withholding tax, depending on the tax treaty status of the recipient.
IMPORT DUTY
Import of goods into Norway's customs zone is generally subject to import VAT. The customs zone consists of the mainland and 12 nautical miles outside the mainland. Therefore goods that are provided outside the Norwegian customs zone are not subject to the import VAT.
TAXATION OF DOWNSTREAM ACTIVITIES
The Norm Price system determine the tax value of crude oil produced that reflects the market price without being affected by trading between entities on the international market. This system was adopted to avoid transfer pricing by stipulating an arms-length reference price. A separate governmental board is tasked with setting the norm price after considering such factors as price, sales data and oil market performance. For natural gas, the actual price is used for tax purposes. If the sales price is greater than the norm price, the excess amount is tax-free. Similarly, if the sales price is less than the norm price, the seller is taxed at the norm price. The norm price is published quarterly, based on actual prices.

Source: Compiled by the author.

4.6.5. Norway's Government Pension Fund Global

Norway's NRF arose as a resource revenue management strategy. From the onset of oil production in 1971, oil and gas revenues were treated as ordinary fiscal revenues. However, volatile oil price swings in the 1980s and early 1990s motivated arrangements to insulate the budget (International Monetary Fund, 2013). This prompted the establishment of the NRF in 1990, in order to smooth fluctuations in oil revenue, mitigate exchange rate pressure and preserve a developed industrial sector, while saving oil rents for future needs. However, the first inflows of investible revenue only began in 1996 when oil output reached its peak and rapid oil price increases were experienced. The NRF income represents net cash flows from government petroleum rent and investment returns generated. Funds are invested offshore to avoid currency appreciation and delink the earning and use of oil revenue, thus limiting the harmful effects of Dutch disease and reduced competitiveness of the non-resource sector. The governance structure of the NRF enables the segregation of decisions about the investment of oil income from political influence. The fund is integrated in the government budget with its only disbursement being transfer to government budget, which requires parliamentary authorisation. In 2001 a fiscal rule was established limiting the non-oil structural deficit to 4 percent, this was revised in 2017 to 3 percent (Norway, 2019). Transparent reporting practices are maintained by publishing quarterly and annual reports and detailed accounts of the funds' investments (Cameron & Stanley, 2017). The revenue management strategy of Norway's Government Pension Fund Global is presented in Table 4.19, below.

Table 4-19: Norway's Government Pension Fund Global

NORWAY'S: GOVERNMENT PENSION FUND GLOBAL
EFFECTIVE NATURAL RESOURCE FUND MANAGEMENT: Managed in a transparent, accountable and efficient manner.
Norway's NRF was established in 1990 as the Government Petroleum Fund through the Government Petroleum Fund Act, in order to stabilize the flow of oil revenue into the budget and save for future generations. The Ministry of Finance made the first capital transfer to the fund in 1996. Since then, the government's net cash flow from petroleum activities has been transferred to the NRF each year. The Government Pension Fund Global in its current form was reconstituted and renamed in 2005 through the Government Pension Fund Act 123, which clarifies objectives and management responsibilities. The mandate of the fund is established under the Government Pension Fund Act, and as dictated by law, the Ministry of Finance is in charge of the management of the fund through the Forges Bank Investment Management. Despite its name, the fund currently has no formal pension obligations. The Ministry of Finance owns the fund on behalf of all Norwegians, however it is managed by the Forges Bank Investment Management, a branch of the Central Bank. The fund is fully integrated into the government's annual budget, and parliament

NORWAY'S: GOVERNMENT PENSION FUND GLOBAL
<p>must approve all withdrawals. Control and supervisory bodies exist at all levels of fund management. Several institutions have conducted comparative reports on the transparency of NRFs. Government Pension Fund Global has an exceptional performance on the transparency scorecard. The fund received a 94% compliance rating on the Santiago Generally Accepted Principles and a 98% scoring on the Truman SWF Scoreboard. The Resource Governance Index (RGI) reported that the fund received a 100% transparency rating.</p>
INVESTMENT STRATEGY: Investment strategy meets the funds objectives.
<p>The Ministry of Finance is responsible for establishing the fund's investment rules. The investment objectives including: "Management of the Fund's capital shall be based on the goal of achieving the highest possible return...dependent upon sustainable development in economic, environmental and social terms as well as well-functioning, legitimate and effective markets." Investment allocation is diversified by asset class and geography.</p> <p>Fund assets may not be invested in Norway. The fund operates mostly on a buy-and hold basis and distributes investments very widely across companies and assets, with the result that its investment strategy, operating costs and investment outcomes resemble those of a set of very large index funds (International Monetary Fund, 2015a). A limit of 10% ownership in any single company is maintained.</p> <p>Allocation by asset class: 40% fixed income, 60% equities, less real estate. Fixed income: 70% government bonds, 30% corporate bonds. Equities: Benchmark based on the FTSE Global All Cap Index. Real Estate: Up to 5% of the fund's capital.</p> <p>Strong oversight is made on external investment managers. Selection procedures are regulated by the Forges Bank and the list of external managers is made public.</p> <p>The current market value of the fund is reported to be 8 205 billion NOK. At the end of the third quarter of 2017, the fund was invested with 65.9% in equities, 31.6% in fixed income and 2.5% in unlisted real estate.</p>
FISCAL RULE
<p>In 2001, a fiscal guideline was created that ties non-oil fiscal deficit to the investment returns on the NRF. The flexible guideline suggests that public spending should be financed using the estimated real returns from the oil fund, limited to an average of 4% a year. In 2016, Norway spent 2.8% or over 80 billion less than the guideline specifies. Also in 2014 and 2015 the withdrawals were less than the fiscal guideline allows. On average, the government has taken out 2.8% of its value in the budgets for 2014, 2015 and 2016.</p>
DEPOSITS AND WITHDRAWALS
<p>Deposits into the fund consists of gross petroleum revenues including tax revenues, operating income from the state's direct financial interest, dividends and transfers from the Petroleum Insurance Fund, minus expenses including the government's direct investments in commercial activities, operating costs related to the state's direct interest and expenses in the Petroleum Insurance Fund. Net revenues come from government sale of shares in Statoil (the national oil company) and other government equity in the sector, including returns on fund investments.</p> <p>Since 2001, a fiscal guideline was implemented, stipulating that the non-oil structural deficit cannot exceed 4%, which is the expected long-run real return on the fund's investments. This rule has been amended to 3% in 2017. Although it has no legal standing, the balanced budget rule limits withdrawals in practice. The fiscal guidelines allow temporary deviations from the rule under specific circumstances. Fund capital may only be transferred to the central government budget pursuant to a resolution by Stortinget (Norwegian Parliament).</p>

Source: Compiled by the author.

Figure 4-6: Norway's NRF changes in market value (billion NOK)



Source: Norges Bank Investment Management (2017).

Figure 4-6 above reflects the net change in market value of the fund since inception, reflecting net yearly inflows (deposits and withdrawals) and investment returns generated. Thus, it is evident that market return gains of NOK3 814 billion exceed the net inflows received from oil and gas income of NOK3 351 billion, as the dominant source of annual growth in the Government Pension Fund Global⁷⁴. Norway's successful fiscal measures have managed the volatile oil price by decoupling the budget from resource revenue dependence, by creating an alternate revenue stream from financial markets.

4.6.6. Policy lessons from Norway

Norway's impressive economic transformation since the discovery of commercially viable offshore oil and gas fields helped the country to achieve high levels of GDP per capita. Unless unexplored areas yield new petroleum discoveries, it is estimated that Norway's petroleum resource horizon would be reached in approximately 20 years (Engelsen, 2010). The licencing and tax framework is based upon stability, predictability and transparency. The implementation of good macroeconomic management of the country's resources,

⁷⁴ Norges Bank Investment Management (2017) reported that by the end of the third quarter of 2017: "the fund had received a total of 3,351 billion kroner and amassed a cumulative return of 3,814 billion kroner. The fund generated an annual return of 6.0 percent between 1 January 1998 and the end of the third quarter of 2017. After management costs and inflation, the annual return was 4.1 percent".

creating sustainable savings in a NRF and adhering to a fiscal rule has helped to improve the standard of living of Norwegians. Thus, Norway's half century of good fortune from resources can attest to its all-inclusive economic policy from development of the sector to management of its revenue.

Norway is an exemplar for transparency, good governance and sound planning practices. Since the commencement of petroleum activities, the state has played an active and integral role as regulator from participating, managing and developing petroleum resources and associated industries. Norwegian petroleum policy is focused on creating optimum resource management and translating this into long term benefits for society. The foremost lesson is that Norway successfully aligned the state interests with those of the companies developing the resources. This was achieved by taking an active investment role in the development of its non-renewable resources, as stipulated in the "Ten Oil Commandments". This approach afforded the government an understanding of the industry and assisted in tailoring policy measures to support the economic viability of the petroleum industry.

The discretionary system of allocating extractive licences is often susceptible to corrupt practices. However, the Norwegian experience may offer an exception to this statement, as the system has worked well for a number of years enabling the state to further its objectives of promoting local companies and retaining control over the development and production of the country's resources. Competitive bidding was introduced in 2003, but for mature areas of the Continental Shelf it is only achievable in instances where the geology is well known and there are fewer technical challenges. The Norwegian Petroleum Directorate maintains sophisticated geological surveys that warrant the disposition of licences on this basis, as EI companies are not willing to bid where the geology is unknown. The dual licencing system of a discretionary system in the least explored areas and competitive bids for mature areas, together with levy of escalating area fees, which promote the release of holding unproductive licences, all contribute to efficient exploration activities.

Norway's state participation in the petroleum industry can be regarded as a tax instrument. The tax system comprising a combination of a general income and RRT producing a marginal rate of tax of 78 percent may appear high, however the model has served Norway well. "It has evolved over time in response to that country's endowments and experiences"

(Lund, 2014). The approach of the state refunding the tax value (78 percent) of the exploration costs limited to each year's tax loss provides security for the uncertain operating environment of the investor. Furthermore, allowing the taxpayer to pledge the claim for the refund against the state enabled companies to finance exploration activity with security in the annual claim for refund (Jansen & Bjerke, n.d). These measures within the tax regime ensure that the country accounts for the technical operating challenges facing taxpayers. This statement corroborates the practice of economic policy supporting the economic viability of the petroleum industry.

The International Monetary Fund (2015) states that the fiscal rule cushions the economy by providing an indefinitely sustainable income source. The targeted 4 percent real rate return is based on a strategy of financial return maximisation associated with risk diversification. Good practice features of the Government Pension Fund Global are presented in many ways, and are considered by international standards⁷⁵.

By any measure the Norwegian experience of good natural resource stewardship offers several lessons. Most significant is the adaptive policy focus orientated to the different stages of development, that supports the economic viability of the petroleum sector.

4.7. CONCLUSION

This chapter presented the policies adopted in the comparative jurisdictions to avoid the resource curse. The comparative jurisdictions policies on the allocation of extractive rights, revenue generation and management policies were highlighted. Lastly, the policies lessons offered by the comparative jurisdictions were identified. Table 4-20 illustrates the differences in fiscal regimes in Botswana, Alberta, Norway and South Africa. In the next chapter, a

⁷⁵ These are:

“The fund's stated aim to support government savings and promote inter-generational transfer of resources; its function as a fiscal policy tool, which together with the fiscal guideline serves to limit government spending; its full integration into government budget; its pursuit of a highly transparent investment strategy; its exclusive investment of assets abroad ensuring risk diversification and good financial returns; and its high-return, moderate-risk investment strategy. In addition, the underlying economic rationale for the existence of this fund makes it easy to secure popular support” (OECD, 2013:77).

comparison of the fiscal regimes in the comparative jurisdictions is conducted in order to benchmark good practice policy considerations for the South African EI.

Table 4-20: Comparative jurisdictions EI fiscal regimes

	Botswana	Alberta	Norway	South Africa
Allocation of rights to develop natural resources	Open access Licence are awarded to qualified applicants with the requisite financial resources, technical competence and experience.	Competitive bidding and open access Rights are auctioned by way of sale by public tender or any other procedure determined by the minister.	Competitive bidding Licences are awarded to qualified applicants via numbered licence rounds.	Open access Licence are awarded to qualified applicants with the requisite financial resources, technical ability and work programme. BEE criteria are stipulated in The Mining Charter.
Tax package	Combination includes:	Combination includes:	Combination includes:	Combination includes:
Royalties	3% to 10%	1% to 40%	No royalty has been payable since 2005	Refined mineral resources: 0.5 + EBIT (gross sales x 12.5) x 100. Capped at 5%. Unrefined mineral resources: 0.5 + EBIT (gross sales x 9) x 100. Capped at 7%.
CIT	22% to 55%	Alberta's provincial tax rate is 12% and the federal tax rate is 15 %, which is a combined tax rate of 27%.	23%	28%
VITR	Non-diamond mining Greater of CIT of 22% or Formula 70-1500/x, where x = profitability ratio	None	None	Gold mining tax formula: $Y = 34 - (170/x)$
Ring-fencing	Loss carry-forward indefinitely, ring fencing of individual mine losses	Capital losses can be carried back three years and forward indefinitely for use in future years, unless the company has been acquired, in which case they expire.	No ring fence between a taxpayer's different fields and licences.	Loss carry-forward restricted to the taxable income derived from that mine only. Loss cannot be set-off against non-mining income.
Rehabilitation Expenditure	10% withholding tax applies to any amount paid by a mine rehabilitation fund not	Reclamation costs are not tax deductible until the reclamation year.	Deductible when incurred	Tax deduction is granted to mining companies which pay cash into a rehabilitation fund that complies with Section 37A

	Botswana	Alberta	Norway	South Africa
	expended for the rehabilitation of the mine			
CGT	Gains from the disposal of shares or interest in the capital of a company holding mineral rights over land situated in Botswana are exempt from capital gains tax but are subject to CIT at 22%	50% of the capital gain is subject to tax at CIT rate	Capital gains and losses on disposals are taxable or deductible respectively. The taxation is deferred so that gains shall be taken as income with at least 16.67% per year.	The disposal of mining, oil and gas rights is subject to the general capital gains tax rules. 80% of a capital gain realized on the disposal of an asset is taxable. In the case of a resident company, the effective tax rate is 22.4% (28% of 80%).
Investment Incentives	100% exploration costs	Federal: Canadian Exploration Expense and Flow-Through Shares. <ul style="list-style-type: none"> • 100% capital expenditure of exploration activities • 30% Pre-production development expenses on a reducing balance basis 	Refunds 78% of all directly related exploration costs, which are paid the year after the costs are occurred	100% accelerated capital expenditure allowance <ul style="list-style-type: none"> • 100% of all capital expenditure of exploration activities • 50% of all capital expenditures of post-exploration activities.
State Participation	Government has an option to acquire up to a 15% working interest participation	None	Statoil (currently 67%), the state owns assets via the State Direct Financial Interest.	The African Exploration Mining and Finance Corporation (Pty) Ltd is a wholly owned subsidiary of the Central Energy Fund (Pty) Ltd.
VAT	Taxable supplies: 12% Export sales: 0%	Alberta does not have a provincial sales tax, so only a 5% value-added tax, called the goods and services tax GST is levied at the Federal level.	Taxable supplies: 25% Exempt supplies: goods and specific services to drilling companies, licence owners, owners and lessees of platforms, and foreign companies.	Taxable supplies: 15% Exports sales: 0%
Dividend Withholding Tax	Dividends paid to residents and non-residents are subject to 7.5% withholding tax	Dividends paid to non-residents are subject to 25% withholding	Withholding tax is not levied, provided the recipient owns at least 25% of the entity	Dividends withholding tax of 20% is levied subject to the specific tax treaty. Dividends tax

	Botswana	Alberta	Norway	South Africa
		tax, unless the rate is reduced by a tax treaty.		0% of dividend that is paid by an oil and gas company
Import Duty	The importation of mining equipment subject to VAT at 12%. Entities may apply for a VAT deferral account: VAT is payable 25 days after the end of the month and input tax can be claimed.	Federal GST of 5% charged on imports, but exports are 0%. All goods imported are subject to both 5% GST and applicable customs duties.	Import of goods into Norway's customs zone is subject to import VAT. Goods provided outside the Norwegian customs zone are not subject to the import VAT.	VAT at 15% is payable on the importation of goods, except where a specific exemption applies. Special rebates exist for oil and gas rigs and related equipment used in exploration and post-exploration activities
Revenue management policies	Residual fiscal savings from budget surplus are transferred into the Pula fund. No statutory fiscal rules govern the transfers and withdrawals of funds into/out of the Pula fund.	From 2013, a fiscal surplus is deposited into the Alberta Heritage Trust Fund: <ul style="list-style-type: none"> • 5% of the first CAD 10 billion; • 25% of the next CAD 5 billion above that; and • 50% of resource revenue in excess of CAD 15 billion. 	All resource revenue from petroleum is deposited into the Government Pension Fund Global. A fiscal rule limits withdrawals from the fund to 3 percent.	All resources rents collected are deposited into the National Revenue Fund as stipulated in the Constitution. South Africa does not have a NRF.

Source: Compiled by the author.

CHAPTER 5

EXTRACTIVE INDUSTRY FISCAL REGIME LESSONS FOR SOUTH AFRICA

5.1. INTRODUCTION

The main objective of this study is to draw lessons for South Africa from jurisdictions with IE fiscal regimes that have avoided the resource curse. Therefore, this chapter seeks to draw on the accumulated experience of Botswana, Norway and Alberta, Canada in the design of their fiscal and revenue management policies within the EI environment. The comparative exercise reviews benchmarks in the selected jurisdictions to inform policy in the context of the South African extractive sector. Lessons on avoiding the resource curse; allocation of extractive rights; design of the EI fiscal regime and the necessity and management thereof of a NRF are presented in the sections that follow.

5.2. LESSONS ON AVOIDING THE RESOURCE CURSE

An efficient EI fiscal regime is one that harmonises the country and investor's interests by enabling an equitable sharing of revenue between parties. At the same time the country must manage the volatility of the revenue flows, the finite nature of resources and the risks of reducing the competitiveness of the non-resource export sectors. The generation of high rents increase governance challenges and the prevalence of corrupt activities compromise government's ability to deliver services (International Monetary Fund, 2010). For investors, extractive projects are capital-intensive with a high degree of unpredictability surrounding demand, production and price. Thus, stable fiscal policies are beneficial for both investors and government (Barma *et al.*, 2012).

Some policy lessons can be drawn from the successful experiences of Botswana, Norway and Alberta, Canada in managing their extractive sectors, as have been highlighted in the Chapter 4. These countries have implemented a combination of an adequate fiscal framework, effective management of tax revenues, stable investment policies and an all-

inclusive strategy incorporating the development of EI activities and related sectors for the benefit of their citizens.

5.2.1. Adequate fiscal framework supported by strong institutions

The building of strong institutions has been a salient feature amongst these countries offering a principal lesson in managing the resource curse. Korinek (2014:273) identifies that it is an imperative to maintain a “governance framework based on the rule of law and supporting institutions that provide an environment in which firms have incentives to invest in productive activities”. Likewise, the OECD (2019) highlight that trust in the competence of public institutions is an imperative in the deliverance of social and economic transformation. Trust is fostered when institutions are “competent and effective in delivering on their goals, they operate consistently with a set of value that reflects citizens' expectations of integrity and fairness...[a]nd align with business ethics” (OECD, 2019: 12). This explains why developed resource-producing countries that had a diversified economy and sound governance framework prior to resource extraction have successfully managed to avert the resource curse. These jurisdictions have good institutional and legal frameworks and robust public finance management systems that allow them to implement fiscal rules that control spending of resource revenues and the creation of NRF’s with separate investment oversight committees (Dabán & Héris, 2010). An anomaly is present in the case of Botswana, a developing country that managed to create institutions and governance structures parallel to the development of its natural resources. Dabán and Héris (2010) note that Botswana’s institutional framework was enabled by the existence of sound pre-colonial tribal institutions.

The OECD (2013) emphasises the importance of fiscal credibility, created by maintaining legal certainty and stability. A further inference, leading on from Botswana’s capture of 83 percent of mineral revenue and Norway’s 78 percent of petroleum revenue, is that investors value country stability significantly higher in the trade off to after tax return on investment. This supports the World Bank’s findings that it is not the South African extractive tax regime but a confluence of non-tax factors that affect a stable operating environment including labour tension and instability of electricity supply that deters investment. A current state analysis of South African institutions reveals that there appears to be a widespread collapse

of good governance⁷⁶ contributing to the country's exposure to the resource curse (Arezki, Gylfason & Sy, 2011). Ultimately, governance and institutions are built on mutual trust between parties. Policy uncertainty and failure to acknowledge the "once empowered always empowered" principle are some of the many reasons for a breakdown of trust in the South African EI.

5.2.2. Stable investment policies that provide for developmental diversification

Benefits arise from diversifying the economy which is achieved by expanding development beyond the resource sector into non-resource sectors. Norway's significant performance resulted from reorienting its traditional shipbuilding engineering skills to the export of technology on deep water drilling platforms. In Alberta, innovations introduced in the resource sector drove the expansion of the manufacturing sector (Dabán & Héris, 2010). Botswana's strategic beneficiation of diamonds arose from the leverage obtained from its partnership with De Beers, facilitating the country's internal capacity building in the global diamond industry. Along with launching a diamond cutting and processing industry as well as hosting the largest auction-based market for diamonds (Korinek, 2014). South Africa has a strategic advantage in its abundant platinum reserves. Opportunities exist to embark on platinum beneficiation which can provide additional positive benefits by increasing export earnings and employment.

5.2.3. Adoption of an all-inclusive strategy incorporating the development of EI activities and related sectors for the benefit of their citizens

Given the need for change, the Norwegian government adopts a policy framework that creates "the right incentives for enhanced value creation⁷⁷ and possibly adapt policies to

⁷⁶ The 2018 Ibrahim Index of African Governance reported a decline of -14.3 points for South Africa over the decade. "The development in South Africa is particularly worrying. Not only is it the most deteriorated country over the decade, but it also experienced constantly declining scores every year between 2008 and 2017, driven mostly by the indicators measuring Access to Records of State-owned Companies (-50.0), Anti-corruption Mechanisms (-23.4) and Absence of Corruption in the Private Sector (-23.3)" (Mo Ibrahim Foundation, 2018).

⁷⁷ "Development scenarios...[d]epend on such factors as trends in oil and gas markets – including prices – structural changes in the oil and gas sector, new technologies and the environmental challenges facing the industry. Developments also depend on a purposeful oil and gas policy to maximize value creation from the business" (Norwegian Ministry of Petroleum and Energy, 2002:7-8).

ensure that resources are not wasted” (Norwegian Ministry of Petroleum and Energy, 2002:19).

Trust is a critical component in creating stability as investors are weary of making substantial upfront investments without surety of future revenue. Trust in governance and institutions can only be built by creating policy certainty and fostering transparency. Further, the South African government (custodians of the country’s resources) needs to earn the trust of its citizens (shareholders and owners of the country’s resources) who require assurance that government will always act in their best interest (maximising shareholder value). This is achieved when the people of the country receive improved human development standards from the prudent management of resource revenue (Extractive Industries Transparency Initiative, 2015; Natural Resource Governance Institute, 2014a).

It is this inability to translate resource development into benefits for society that raise the question: does South Africa’s EI fiscal regime capture a fair share of returns? The adequacy of a tax regime alone is insufficient in ensuring a fair share of returns unless the returns are invested to provide benefits to the resource owners (Davis Tax Committee, 2018). This can only be accomplished by adopting an all-inclusive approach to policy formulation to ensure value is optimised from the sector rather than purely maximising returns from EI (Cameron & Stanley, 2017; Desai & Jarvis, 2012).

Good practice is a moving target improved by research and comparative analysis. In certain instances, policies may need to be developed from scratch. The strategy adopted for the extractive sector is based on the prevailing circumstance in a country and needs to be developed with a broad base of stakeholders to account for the key issues in the sector. Further, there is merit for a resource-intensive economy to review the fiscal regime at least every ten years, due to factors such as resource depletion and new technologies affecting resource demand. The global context is continuously evolving and EI operate within this domain. Cameron and Stanley (2017:4) state that “good-practice needs to be continually modified”. Evidence of this practice is seen in the establishment of commissions of inquiry into gold mining taxation in South Africa. Prompted by changes in the landscape for the mining industry, reviews took place approximately every ten years. These reviews ensured that the gold mining tax instruments evolved with the changing circumstances and thereby

attaining good fiscal returns and can also be attributed to the lack of the presence of a resource curse during that period.

Resource curse literature refers to Norway's successful aversion of the resource curse as the "Norwegian model". The lessons offered include: the introduction of sector legislation, taxation, transparency, the saving of resource revenue in a NRF, the establishment of a national oil company and government institutions that underlie a clear segregation of duties (Lund, 2014). In different contexts, benchmarking Norwegian policies and its institutional framework is not easy to replicate. Denning (2008) highlights that Norway's flexible approach to policy reform allowed adaptation to changes in the economic environment. Initially, support industries were developed to complement the resource sector. Thereafter an increase in the price of oil afforded the accumulation of savings in an offshore NRF.

Alberta took a similar approach at reforming their royalty legislation, adopting an outlook that sought to modernise the royalty system. This resulted in the adoption of a holistic adaptable approach that incorporates integrating industry challenges while designing a tax instrument that effectively aligns the interest of both the state and investor (Alberta Energy, 2016:1).

A further example of this is in Botswana where negotiations between government and DeBeers focused on obtaining a greater share of resource revenue by increasing government's shareholding in Debswana. This partnership provided Botswana with strategic business acumen culminating in the creation of a diamond hub allowing the country to maximise value out of its resources by understanding the limitations and potential within the EI (Korinek, 2014).

5.3. LESSONS ON THE ALLOCATION OF EXTRACTIVE RIGHTS

5.3.1. Assessing an appropriate allocation strategy: Direct negotiation vs Competitive bidding

The lack of transparency and exposure to corrupt practices are a major shortcoming of the FIFA system of direct negotiation. This arises from the fact that the criteria for awarding rights are not pre-defined and available in the public domain thus affording discretionary power to government. The process is susceptible to nepotism and corruption, which

inadvertently undermines competition and diminishes efficiency in the award of rights and potential revenues (Nakhle, 2015). Corruption can be avoided by implementing good governance measures. On the other hand, the FIFA method is an expedient method of allocating extractive rights and is appropriate in instances where information on geological potential is limited. Furthermore, the flexibility in awarding extractives rights can allow government to promote other national objectives, like acquiring an equity interest in the venture (Venables, 2016). In Botswana, rights are awarded to the best-qualified investor and the government has the option to acquire a 15 percent equity share. Government discretion can allow consideration for factors like land use, environmental consequences and the promotion of exploration in different parts of the country.

A transparent well-designed system of competitive bidding circumvents opaque and corrupt practices. The competition created in the award of extractive rights can be an effective mechanism to secure value and integrity. Competitive bidding allows “price discovery”, secures upfront collection of resource rent and terms of engagement for the life cycle of an extractive venture. Government’s information disadvantage can be eliminated during an auction by the competition created amongst potential bidders who reveal how valuable they perceive a natural resource deposit to be. The pre-qualification of applicants and the levy of a non-refundable bidding fee ensures that only financially and technically qualified investors can participate while government is required to have the necessary technical capacity and resources to evaluate such bids. Auctioning generates revenue, but is more expensive and takes a longer time to acquire data on the geological potential. Considering factors such as the time and cost to develop the country’s natural resources, the choice of method depends on the nature of the natural resource, accessibility of geoscience data assessments of the extent and quality of the reserve, and interest from investors to explore and speculate. A cost-benefit analysis can be beneficial in ascertaining the system that provides maximum benefit to the country. Ultimately, the successful implementation of competitive bidding is dependent on its design and government’s commitment to transparency. Due to geological uncertainties, a single strategy may not be suitable, in addition where a competitive bidding round has failed, the FIFA system becomes the default system. Furthermore, the issuance of a tender is mostly effective in the allocation of petroleum rights while the FIFA method may be more appropriate to allocate mining rights as hard-rock mining requires extensive exploratory work required to identify proven reserves. Thus a dual system, incorporating a

competitive bid and an open access system, may offer the most practical solution (Bello, Benkenstein, & Harvey, 2013; Nakhle, 2015). Proactive investment in geomaps is essential to support the auctioning of extractive rights and support the competitiveness of the country's natural resources.

5.3.2. Curbing speculation of oil, gas and mining rights

An issue for consideration is the holding of unproductive or the speculation in extractive rights. Investors prefer to hold licences, during a commodity market slump and wait for prices to increase or improved technology to increase recovery rates. Speculation occurs when the titleholder acquires access to an extractive right, with the intention of selling or developing the right at a later date. These issues affect the rate of development of the countries assets, impacting on the timing of resource revenue generation. Three options exist to counter this activity. The first option is to levy an escalating yearly rental fee per square kilometre thereby discouraging unproductive holdings. While rental fees can be easy to implement, are transparent, guarantees revenue, are adaptable to local conditions and guarantee security of tenure, these may not be a sufficient deterrent to speculation (Girones, Pugachevsky & Walser, 2009). Furthermore, the investor may seek to avoid rental payments by expediting the extraction process, which may result in under exploitation of marginal ore. The second option is to reduce the surface area of the exploration licence by up to as much as 50 percent in area, at the point when the licence is up for renewal. This method is easy to implement and efficient, because it guarantees that no single titleholder controls a large surface area, however it does not allow flexibility to adapt to commodity prices and the risks of security of tenure for investors. The third option is a minimum investment requirement and a minimum work requirement, in order to reduce dormant licences. The advantage is that it is easy to adapt to changes in the market, however, there are practical difficulties in implementation and require technically qualified staff to assess the value of reports, in order to validate work performed (World Bank, 2013).

In evaluating competitive bidding as a resource taxation instrument, the system of auctioning extractive rights provides a process to “discover” the going rate for rent capture. Investors make a once off payment for the extractive rights. As in Alberta, bonuses paid for leases represent a significant source of income. Auctions are an effective instrument for taxing

rents when combined with other types of rent taxes based on profitability. In this event, the conditional tax on profitability should not be set too high (Land, 2009).

Botswana's predictable legal environment and astute mineral policy that upholds respect for property rights is responsible for stimulating growth in the EI. Added to this the availability of a consolidated database of all available geological information provides critical information to investors and policymakers (Dabán & Héris, 2010; Korinek, 2014).

Alberta's fixed land rental fee secures revenue at the pre-production stage and encourages relinquishment of unproductive rights. Surface rent is only payable if the Crown⁷⁸ is the surface owner (Amoateng, 2014). Bidding for extractive rights is submitted via a web-based bidding system, the Electronic Transfer System, where licences are granted to the highest bidder. Public disclosure on the accepted offer is published on the day of the sale.

The Norwegian licencing system consists of two types of licencing rounds: numbered licencing rounds for the least explored parts of the shelf (frontier areas), and awards in predefined areas for mature parts. Norway discloses all pre-qualification criteria to participate in the licence bidding process. The licencing procedure is a model for transparent practice, disclosing all pre-qualified companies and all licences awarded.

Botswana, Alberta and Norway have good geological information. In South Africa only 36 percent of investors (discussed in table 3-10) rated that the quality of geological information available would encourage investment, indicating room for improvement. Geological data is important to the government who must ideally be able to use the information to weigh the benefits of licencing areas and establish existing ownership rights thereby maximising the developmental potential of the country's resources, which ultimately affect the timing of resource revenues to the country. The comparative jurisdictions, including South Africa, set a pre-qualification criteria. However, the level of ministerial discretion to override the set criteria varies in each country depending on the allocation system used. Botswana, adopted

⁷⁸ In Alberta, the role of the Crown functions is the centre of a constitutional construct in which the institutions of government acting under the sovereign's authority. It is thus the foundation of the executive, legislative, and judicial branches of the province's government. The Crown primarily functions as a guarantor of continuous and stable governance. This arrangement began with the granting of Royal Assent to the 1905 Alberta Act and continued an unbroken line of monarchical government extending back to the late 18th century.

the FIFA method, whereas in Alberta, leases are awarded by public tender and Norway has a dual allocation method. It is important to note that the method selected has more to do with the geology and the stage of development of the countries resources. Where no exploration data is available it is impossible to award rights on a competitive basis on an unknown value of reserves. In Norway, as well as in Botswana, substantial effort is spent on securing geological data. Generally, all jurisdictions apply a level of ministerial discretion on the transferability of licences. Botswana is the only country that negotiates fiscal terms on the issue of diamond licences. Jurisdictions utilising the competitive bid as part of the fiscal package would have to balance using lower percentages on other tax instruments that are used in the production phase. This is not the case in Norway where there is a fixed fiscal regime of 78 percent. Stability agreements are available to oil explorers in South Africa. South Africa has a mining cadastre, nonetheless information on licencing is not available in the public domain. Despite the comparative countries lack of legal obligation to disclose contract disclosure and other information, these countries practice a fair level of transparency. However, South Africa is opaque in disclosing licence holders. Transparency in the award of licences should be created in order to minimise disputes and corruption in the award of exploration and mining rights. Therefore, a dual system of open access or FIFA and competitive bidding system of allocating oil, gas and mining rights should be considered.

5.4. LESSONS ON EI FISCAL INSTRUMENTS

At the outset, EI tax policy is dependent on the unique circumstances and objectives of the country and there is no universal approach to fiscal design in the extractive sector. As put by Nakhle (2015), more important than the choice of regime, the design and collaborative effect of the different fiscal instruments including elements such as timing of tax take and payback, as well as fiscal relief offered can ultimately alter the fiscal package. The ideal EI tax system should be simple and efficient in capturing revenue while the investor should perceive the government to be a stable partner. Stability is only provided by maintaining a consistent tax regime and regulatory environment. A number of different options exist for a country to capture rent from the EI. Generally, EI companies prefer contractual systems, where reliance can be placed on the principles of contracts to maintain stability than a concessionary system of tax and royalty where government can exercise discretion in changing terms. The concept of fairness of an EI fiscal regime is subjective. The government

can increase resource revenue raising potential by reducing an investor's perceived risk which is achieved by providing security of investment and accelerating the recovery of investment payback for the investor.

5.4.1. Petroleum and gas sector

Globally, varying degrees of state participation are common in the petroleum and gas production process. Ranges of fiscal instruments generate the state's share of revenue from state participation, production sharing and concessionary systems. These instruments respond to the rate of profit sharing between the state and investors and can vary according to the degree of profitability across petroleum projects (i.e. onshore, offshore, or deep water) and gas projects, which relate to cost to extract, recoverability and duration of the project. Thus assessing a regime by comparing profit sharing, CIT and royalty rates can be ambiguous if viewed in isolation of other important rules (i.e. refunding of exploration and development costs) as these rules interact with one another and can affect the fiscal package. Both government and investor evaluate the tax regime against certain criteria. While the regime may fare well on one particular criterion this needs to be traded-off against the drawbacks in respect of another criterion. For both parties the overall assessment of a regime requires a quantitative and qualitative dimension (OECD, 2013).

5.4.2. Minerals sector

Globally, state participation in the minerals sector is less prevalent than for petroleum. A concessionary system predominates whereby the state creates an enabling regulatory and fiscal framework for EI investment. The minerals sector comprises of CIT, royalty, windfall taxes and withholding taxes on interest and dividends. Generally, royalty payments are levied on a fixed or sliding scale, based on the amount per ton of minerals produced or as a percentage of the production value. As is the case with petroleum and gas, it can be misleading to compare the rates alone in the absence of considering the rules that define the taxes and the trade-offs between the benefits and drawbacks of a particular fiscal regime (OECD, 2013).

The pace of resource development is a critical consideration to a resource-rich country as rents can only be earned on the exploitation and resultant development of the country's natural resources. A few international taxpayers often pay the bulk of revenue generated. State owned enterprises have been useful in increasing control over the pace of resource extraction by reducing the asymmetry of geological information. Further merits of state participation include the ability to generate and retain rents. In the absence of good governance, these entities can also be prone to corrupt activities. Several parameters affect the design of a fiscal regime required to balance an adequate capture of rent while preserving investment attractiveness. The EI is characterised by pervasive uncertainty from long lead times, high sunk costs and political risk. There is asymmetric information between investors and governments on geological data, expenditure and revenue. Furthermore, the technical nature of the sector adds a degree of complexity to tax administration. Due to strong tax competition amongst jurisdictions to attract investment, opportunities exist for investors to optimise profits by shopping for favourable tax treaty and ring fencing provisions. A neutral tax regime does not affect the economic decisions of the investor. Rent taxes, CIT, signature, discovery and production bonuses are neutral tax instruments. By contrast, royalties are not based on profitability and can affect the viability of an extractive venture (OECD, 2013).

The Canadian federal tax system imposes a lower rate of tax on mining compared to other industries. This is due to the use of incentives in the federal tax system. Policy review has addressed shortfalls in the distortionary and complex nature of the provincial mining tax systems. Furthermore, reform measures identified the need for improvement to the efficiency and simplicity of the tax and royalty regimes and scaling back of EI incentives (Chen & Mintz, 2013). The Alberta Royalty review process offers valuable lessons as the assessment of fair share of returns incorporated a public participatory approach to modernising the royalty system in the advancement of accountability, information sharing and transparency. The objectives of the review included “optimising returns to Alberta, boosting investments and jobs, supporting downstream value-added industries and enhancing environmental responsibility” (Alberta Energy, 2016:1). This approach to generating optimal returns identifies that the partnership between the state and investor in resource development requires a continuous review of terms. The traditional approach to tax reform, reviews the rates imposed to establish if there is a fair sharing of returns. The

all-inclusive approach adopted by Alberta sought to maximise economic returns by looking at the performance variables as opposed to the rates. A natural cause and effect of maximising performance will result in maximising economic returns generated by the royalty instrument. Real time issues, surrounding advancements in conventional technologies and environmental considerations, affect resource development. Thus, this approach is effective in harnessing maximum value from the country's resources by the enhancing the co-partnership of government and the investor in resource extraction (Onifade, 2017).

This lesson is amplified in Botswana, where resource rents have been maximised from government's joint venture with De Beers, which culminated in the creation of a global diamond hub. This was achieved by the government's contribution towards the creation of an enabling environment and stable terms for investment. Resource development was harnessed from the sharing of information that the joint venture facilitated and enabled both the investor and government to utilise their respective strengths jointly to maximise revenue generation. A further lesson is that the EI is willing to share a greater percentage of revenue in instances where the government shares in business financial risks or attempts to mitigate these risks through policy or other mechanisms. Thus, an approach to policy that seeks to maximise value from resource development will ultimately maximise resource rents.

The Norwegian approach is an exemplar to this type of policy formulation. Maximising resource development and investment have formed the cornerstone to the country's economic status as being one of the wealthiest countries in the world. Norway's approach to policy formulation has evolved over time responding to the country's unique circumstances (Lund, 2014). This is demonstrated by the country's use of state participation as an effective tax instrument, in early days and progression into a "venture capital" approach to resource development. This is evident from the country's assumption of risk in exploration costs, where EI companies can expense exploration costs (excluding finance costs) in full. EI companies do not carry forward assessed losses and can claim a cash refund of a maximum of 78 percent. The tax value of the exploration cost is limited to each year's tax loss and is repaid in the year following the year in which the loss was created. Furthermore, the tax value of any unused loss that the company may have when ceasing exploration and production activities will be refunded by the state. This passes on exploration risks to the state and frees up cash flow constraints in the EI.

5.4.3. Tax instruments for the EI

5.4.3.1. *Royalty*

Tax problem: Represents payment to the resource owner (the state) as compensation for the loss of non-renewable resources. Royalties have the advantage of being predictable, (subject to price volatility and production uncertainty) provide early revenue and simple to administer. The disadvantage is the lack of sensitivity to profit, which makes them regressive rather than progressive and “distortionary rather than neutral” and can present valuation discrepancies (Cameron & Stanley, 2017:156).

Comparative: In South Africa, the mineral royalties are levied on the “transfer” of the mineral resources. A distinction in royalty rate is chargeable for refined and unrefined mineral resources, as a measure to encourage downstream processing. Botswana levies mineral royalties on gross market value of mineral sales at the “mine gate”, while the holder of a petroleum development licence is liable to pay a royalty. On application to the Minister for Mines and Minerals, this payment may be deferred. Alberta has a range of royalties applicable to mineral royalties, conventional oil, natural gas, and oil sands based on either a flat or sliding scale. In Norway, royalties have not been levied since 2005.

Conclusion: Canada links royalties to production whereas South Africa uses a profits-based royalty. The current royalty regime provides an adequate tax instrument to account for the volatile nature of natural resource revenue.

5.4.3.2. *Mineral Rights Tax and Area Fee*

Tax problem: The cost of holding a retention licence is higher than the cost of holding a prospecting licence. Licence holders are required to conduct exploration activities within a set timeframe, or the area is released for future licencing. These provisions prevent a company from holding unproductive rights. The levy of the escalating fees provides a disincentive to companies holding unproductive rights and encourages the release of concessions that they do not intend to mine.

Comparative: Botswana imposes a tax on the unproductive holding of mineral rights. In Alberta, a freehold mineral tax is paid annually on the ownership of freehold rights. Generally, liability for this tax is passed onto the lessee of the mineral right. A mineral rights tax makes up for the loss of royalty income from the production of freehold rights. Norway levies an area fee, which promotes efficient exploration, as the fee is not payable for areas in production or with adequate exploration activity. South Africa in contrast does not levy a

tax on holding extractive rights but applies an area relinquishment provision on the renewal of an exploration right in the petroleum sector. Although not prescribed, generally a 20 percent area relinquishment applies on completion of the initial exploration period; 15 percent area relinquishment on completion of the first renewal period and not less than 15 percent relinquishment on completion of the second renewal period (South Africa, 2002). These relinquishment rules do not apply to the holder of a prospecting right or a mining right for minerals. In the mining sector, optimal exploitation is achieved via adherence to a planned work programme.

Conclusion: Levying escalating rental fees will prevent the holding of unproductive rights, which can have a positive effect on resource development.

5.4.3.3. *Variable Tax on Rent (VITR)*

Tax problem: A progressive profits tax is a neutral tax instrument and contributes to international competitiveness. However, they defer revenue allowing the investor to recover cost and are therefore a volatile source of income (Cameron & Stanley, 2017).

Comparative: A variable rate of tax is applicable to the taxation of gold mining in South Africa. The taxation of gold mining allows recoverability of rent according to range of grades of ore, where higher-grade ore attract higher rates on international market. In Botswana, a variable rate of income tax applies to non-diamond mining companies and is levied on the higher of CIT (22 percent) or the VITR. The VITR is negotiated on a case-by-case basis. A VITR does not feature in the taxation of Alberta's EI. A CIT and royalty regime govern the taxation of extractives. In Norway, the Petroleum Tax Act and general income tax legislation cumulatively provide for a tax rate of 78 percent. The petroleum tax is a RRT.

Conclusion: The Davis Committee recommends the retention of the gold formula for existing gold mines only. This recommendation has merit on the basis that the gold mining tax formula adequately accounts for issues prevalent in the gold mining industry and removal would distort investment decisions.

5.4.3.4. *Corporate Income Tax - Tax Rate*

Tax problem: The CIT rate should remain constant for resource and non-resource revenue with the exception of the application of fiscal rules specific to the EI. For the investor, CIT will be assessed in relation to the total tax package (Cameron & Stanley, 2017).

Comparative: In South Africa, the CIT is 28 percent, specific provisions applying to taxation of mining are contained in Income Tax Act. The Tenth Schedule to the Income Tax Act specifies the provision that apply to the taxation of petroleum. The CIT in Botswana is 22 percent. All non-diamond mining is subjected to a maximum VIT rate of 55 percent and a minimum of 22 percent CIT. Alberta's provincial tax rate is 12 percent and the federal tax rate is 15 percent, which is a combined tax rate of 27 percent. In 2019 Norway's CIT is 22 percent and has been reduced from 23 percent.

Conclusion: The CIT in South Africa is an adequate tax instrument. The same rate applies to all taxpayers. Specific issues regarding ring-fencing, rehabilitation expenses, CGT and investment allowances are discussed separately below.

5.4.3.5. Corporate Income Tax - Ring-fencing

Tax problem: Ring-fencing aims to consolidate losses for CIT purposes across different activities conducted by a taxpayer in a country. Generally, sector wide restrictions apply when ring-fencing losses from each venture. The rules governing ring-fencing can affect the pace of exploration and development and the timing of government revenues. Ring-fencing provisions may have a positive impact for government revenues by restricting deductions to an individual project. The investor who is unable to consolidate expenses or the incentive to spend on new exploration and development outside the producing area, might view the ring fencing negatively. A policy trade-off exists between early revenue with deferred activity or *vice versa*. The outcome in the choice of policy instrument is thus dependent on the objectives of a country (Cameron & Stanley, 2017).

Comparative: In South Africa, capital expenditure is ring-fenced against taxable income from a particular mine and cannot be offset against non-mining income. There is an unlimited carry-forward of exploration losses with regard to petroleum. Ten percent of losses in the petroleum sector are allowed to be offset against any other income, and any balance must be carried forward to the succeeding year. In Botswana, ring-fencing of individual mine losses applies with the exception of expenditure on a licence or lease which has been relinquished by the mining company. In Alberta, business losses referred to as non-capital losses may be carried back three years and carried forward 20 years. Capital losses can be carried back three years and forward indefinitely for use in future years, unless the company has been acquired, in which case they expire. In Norway, there is no ring-fence between a taxpayer's different fields and licences, as long as the licences are held by the same legal

entity. A ring-fence only applies for the petroleum offshore activities. Companies that are not in a tax position may carry forward their losses indefinitely and carry forward uplift with interest. Furthermore, a taxpayer ceasing operations will get a refund for the tax value of the unused losses. Thus, a company subject to the offshore tax regime is guaranteed the full tax refund of all costs incurred.

Conclusion: The Davis Committee recommends the prospective removal of ring fencing preventing the set-off of future capital expenditure against income from other mines and against non-mining income. This suggestion would potentially benefit the current investors in loss-making ventures, and provide the incentive to invest further.

5.4.3.6. Corporate Income Tax - Rehabilitation expenditure

Tax problem: EI are required to rehabilitated the site once operations cease. Since there is no income against which to recover rehabilitation costs once operations cease, CIT rules need to provide for a deduction. Under specific rules, it is common to require investors to establish a rehabilitation fund in advance of termination (Cameron & Stanley, 2017).

Comparative: In South Africa, a tax deduction is granted for payments into a rehabilitation fund, which complies with Section 37A of the Income Tax Act. In Botswana, a 10 percent withholding tax is applied where any amount paid by a mine rehabilitation fund is not expended for the rehabilitation of the mine. Alberta does not provide for the tax deductibility of reclamation costs until the reclamation year. Norway, adopts the same approach as Alberta where rehabilitation costs are deducted when actually incurred.

Conclusion: The current practice in South Africa is to allow a deduction for rehabilitation costs incurred in advance of closure. Tax relief is extended by granting an exemption with respect to the growth of the fund. Furthermore, section 37(10)⁷⁹ of the Income Tax Act places disclosure requirements in terms of the contributions to, withdrawals from and expenditure of rehabilitation funds. A draft revised notice was published proposing penalties to be charged for failure to disclose arrangements in terms of section 34 of the Tax

⁷⁹ “A company or trust contemplated in this section must—

- (a) *within three months after the end of any year of assessment submit a report to the Director-General of the National Treasury in respect of that year of assessment providing the Director-General of the National Treasury with information comprising—*
 - (i) *the total amount of contributions to the company or the trust;*
 - (ii) *the total amount of withdrawals from the company or the trust; and*
 - (iii) *the purposes for which any amount of those withdrawals were applied; and*
- (b) *within seven days after receiving a request from the Director-General of the National Treasury provide such information as the Director-General may require” (South Africa, 1962).*

Administration Act (28 of 2011) (Van Rensburg, 2019). These measures strengthen anti-avoidance, thereby curbing abuse of mining rehabilitation funds.

5.4.3.7. Corporate Income Tax - Capital Gains Tax

Tax problem: CGT transactions often take place as an indirect transfer involving the sale of shares in companies that hold rights, rather than a sale of the rights⁸⁰. Such transactions can give rise to cross-border ownership issues and maybe protected by a tax treaty (Cameron & Stanley, 2017).

Comparative: In South Africa, the disposal of mining, oil and gas rights are subject to the general capital gains tax rules, where 80 percent of a capital gain is taxable (effective tax rate is 22.4 percent). In Botswana, CGT is levied at 22 percent, however the disposal of mining property is exempt from CGT, but subject to CIT. Capital losses and losses are ring-fenced and not deductible against other business taxable income. The capital loss can be carried forward for one year. In Alberta, one-half of the taxable capital gain is subject to tax at CIT rate. In Norway, capital gains and losses on disposals of assets are taxable or deductible at least 16.67 percent per year. Similarly, there is a carry back system for uplift⁸¹.

Conclusion: CGT application is consistent with comparative countries. Generally, most countries tax a disposal by a non-resident company if more than 50 percent of the company's assets are located in the source country. In South Africa, if more than 80 percent⁸² of a company's assets comprise of mineral rights, a disposal of the company's shares will be deemed to be a disposal of the mineral rights itself. Similarly, a gain made by a non-resident will be taxable as South African sourced gain (Toledano, Bush & Mandelbaum, 2017).

⁸⁰ Toledano, Bush and Mandelbaum (2017:5) suggest "two methods for taxing transfers:

Model 1: Taxing the local resident asset-owning entity under a deemed disposal model.

Model 2: Taxing the non-resident seller".

⁸¹ Investment allowances are referred to as "uplift"

⁸² Paragraph 2(2) of the Eighth Schedule of the Income Tax Act stipulates, "[A]n interest in immovable property situated in the Republic includes any equity shares held by a person in a company or ownership or the right to ownership of a person in any other entity or a vested interest of a person in any assets of any trust, if:

a. 80 per cent or more of the market value of those equity shares, ownership or right to ownership or vested interest, as the case may be, at the time of disposal thereof is attributable directly or indirectly to immovable property held otherwise than as trading stock" (South Africa, 1962).

5.4.3.8. Corporate Income Tax - Investment incentives

Tax problem: Tax incentives in the form of lower tax rates, tax credits, deferrals, deductions and exemptions are often used to encourage public policy objectives. These measures are known as tax expenditure. Generally, tax incentives can provide opportunity for corruption and once provided it is difficult to sunset these concessions. In the EI these incentives provide preferential treatment on capital allowances, capital gains, reduced withholding taxes on dividends, exports, research and development and VAT. Studies have revealed that stable economic and framework environment are more effective at attracting investment than luring taxpayers with incentives (OECD, 2013). The findings of a study on the effect of various tax incentives on investment, by Saidu (2007:105) concur, leading “to the conclusion that, although it is probably true that an unattractive mining tax regime can drive away investment, it is equally true that an attractive mining tax regime will not necessarily attract and sustain investment”. Cameron and Stanley (2017:73) advocate that fiscal incentives are required “when the cost of unconventional operations is substantially higher than for conventional ones”. Contemplating, South Africa’s tired geology being a mature mining destination and depletion rates of known reserves approaching, incentivising exploration activities may be required to renew investment in the mining sector.

Comparative: Botswana, provides for the allowance of 100 percent of the mining capital expenditure made in the year in which such expenditure was incurred with unlimited carry forward of losses. In Alberta, currently has no incentives for mineral exploration but on a federal level incentives include the Canadian Exploration Expense and Flow-Through Shares. A deduction of 100 percent of eligible exploration expenses is claimable against taxable income. Pre-production development expenses are deductible at 30 percent on a reducing balance basis. In Norway, an upstream company can also be refunded the tax value of exploration expenses for each tax year loss, including direct and indirect expenses related to exploration activities (excluding financing costs). The refund is limited to the tax loss incurred for the year. A six-year straight line depreciation and uplift apply only to offshore assets that use the production and pipeline transportation of petroleum produced on the Norwegian Continental Shelf. In South the EI may deduct all expenditures and losses actually incurred. A further deduction is permitted over and above the expenditure actually incurred, including:

- 100 percent of all capital expenditures incurred in respect of exploration activities
- 50 percent of all capital expenditures incurred in respect of post-exploration activities.

Conclusion: The Davis Tax Committee recommends discontinuing the current upfront capex write-off and replace with depreciation allowance basis of (40/20/20/20), written off from the date at which such expenditure was incurred. This recommendation can provide a time lag, where investors were accustomed to a 100 percent write off upfront, the payback on investment could be extended over four years. This deviates from international practice and could distort investment decisions. This sections needs to be read in conjunction with the regard to the ring-fencing of assessed losses. The two policy suggestions when juxtaposed present an opportunity to drive investment, as an investor in a loss making venture would prefer setting off losses against a profitable venture and in that way spur interest in investment. The Canadian Exploration Expense and Flow-Through Shares should be considered as a mechanism to deduct 100 percent of eligible exploration expenses.

5.4.3.9. *Value-Added Taxation*

Tax problem: EI are export orientated and have heavy upfront costs. Companies are thus in a VAT refund position since exports are generally zero-rated and they claim input on imports. Delays in obtaining VAT refunds due to poor tax administration pose a problem to companies (Cameron & Stanley, 2017).

Comparative: In South Africa, VAT rules apply with respect to mining, oil and gas, operations. The standard rate of VAT is levied at 15 percent, with the supply of exports or crude oil subject to VAT at zero percent. In Botswana, the standard rate of VAT is levied at 12 percent, exported goods and services are zero-rated. In Alberta, a 5 percent VAT applies to supplies made in the province. Norway imposes a VAT at the rate of 25 percent. However, the supplies of goods and specific services to certain extractive activities with regard to petroleum are not liable to register for VAT. An exemption applies for the supply of services rendered on rigs and specialized vessels, exported goods and services and transportation between offshore and onshore facilities for use in petroleum operations.

Conclusion: The VAT practice is in line with competitive jurisdictions.

5.4.3.10. *Dividends Withholding Tax*

Tax problem: In addition to affording revenue raising, withholding taxes discourage profit-shifting to lower tax jurisdictions by discouraging excessive payments to non-residents. (Cameron & Stanley, 2017).

Comparative: South Africa levies dividends withholding tax at a rate of 20 percent, subject to the specific tax treaty agreement. Dividends paid out of oil and gas income is subject to withholding tax at zero percent. In Botswana, dividends distributed to residents and non-residents are subject to 7.5 percent withholding tax. In Alberta, dividends paid to non-residents are subject to 25 percent withholding tax, subject to the applicable treaty. In Norway, dividend distributions are not subject to withholding tax, provided the recipient owns at least 25 percent of the distributing entity.

Conclusion: The withholding taxes on gas and oil is consistent with Norway's policy, however the terms require review. South Africa's withholding taxes on dividends for oil and gas appear generous. However, these terms needs to be placed in context of the objective of luring investment in an environment of substantial geological and policy uncertainty while ensuring that the government retains a fair share of the resource rents.

5.4.3.11. *Import Duty*

Tax problem: Import duties are a source of early revenues, but also increase costs which in turn reduces tax revenues. As an incentive to investors, most jurisdictions exempt imports at exploration stage. Inputs during the production stage may or may not be exempt (Cameron & Stanley, 2017).

Comparative: In South Africa, VAT at the rate of 15 percent is payable on the importation of goods, except where a specific exemption applies. Special rebates exist for oil and gas exploration and post-exploration activities. In Botswana, the importation of mining equipment is subject to VAT at 12 percent. To alleviate cash flow constraints, a VAT deferral account enables VAT payments to coincide with VAT return submissions and recovery within 25 days. In Alberta, GST is charged on imports, but exports are zero-rated. All goods imported are subject to both five percent and applicable duties. The importation of goods into Norway's customs zone is generally subject to import VAT.

Conclusion: Import duty is consistent with comparative countries. Most countries have removed export duties, however South Africa levies export duties on non-renewable mineral and energy resources. The purpose of levying an export tax on unpolished diamonds in South Africa is to promote local markets and skills.

5.4.3.12. Taxation of downstream activities

Tax problem: Diversification offers an opportunity for a country to broaden the tax base, reduce dependence on volatile resource revenues, upskill local workforce and create employment. In furthering local content requirements and beneficiation, may result in the negotiation of lower CIT and royalty rates between investors and the state (Cameron & Stanley, 2017).

Comparative: As in the case of Botswana a concessionary CIT rate of 15 percent is applicable to all manufacturing companies. In Alberta, the Petrochemicals Diversification Programme will provide up to CAD 500 million in incentives through royalty credits for the construction of petrochemical processing plants. In Norway, specific legislation that addresses the pricing of petroleum for tax purposes. A “norm price” is used as a reference price to calculate the taxable income from the sale of petroleum products.

Conclusion: In South Africa, the royalty provides for reduced royalty rates for “refined mineral resources” thereby allowing a tax concession for the process of refining minerals as it aligns with the government’s objective of alleviating poverty through job creation.

5.4.4. State participation

Tax problem: Normally, motivated by non-fiscal reasons. Governance of a state owned company should be separated from all other mandates of the Ministry (in most cases the ministry of mines). Goals and objectives should be articulated for economic performance, employment creation. Transparent operations need to be fostered.

Comparative: The African Exploration Mining and Finance Corporation (Pty) Ltd and PetroSA are South Africa’s mining and oil state owned entities, respectively. Botswana, allows for the option of acquiring up to 15 percent working interest participation, carrying the right to appoint up to two directors and to receive all dividends or other distributions in respect of its working interest percentage. Alberta does not participate in the extractive industry. Norway has a 67 percent ownership of Statoil. The state further acquires further participation rights via the State Direct Financial Interest.

Conclusion: To mitigate against the prevalence of corrupt practices, policies are required to increase governance over state-owned institutions.

5.4.5. Production sharing

Tax problem: Commonly applied to oil and gas. Generally, these contracts exclude a royalty, this is due to the implicit royalty received by way of the governments share of oil profits from the production years. Difficulty in assessing CIT under this type of regime is avoided by including specific sections that detail assessable profit under a profit sharing agreement (Cameron & Stanley, 2017).

Comparative: In South Africa, production-sharing arrangements have not been entered into in the mining or oil and gas sectors. Botswana, Alberta and Norway have also not entered into any production sharing agreements.

Conclusion: Production-sharing agreements are not relevant to South Africa or the comparative jurisdictions as other fiscal instruments make up their tax package.

5.4.6. Mining charter provisions classification as a tax instrument

Tax problem: The Mining Charter 2018 requires all mining right holders to have a minimum of 30% BEE shareholding. It further stipulates that EI will attain this BEE shareholding by distributing ownership to BEE entrepreneurs, qualifying employees and host community on carried interest basis.

Following on from section 2.2 where it was discussed that regulatory provisions have the same intended consequence of a tax. Section 2.7.5.2. discussed that state participation functions like an additional profits tax and under conditions of “full carry” the investor pays all costs and compensation is paid out of the state’s share. While there is no separate legal classification for “revenues payable to the government from equity participation and no administrative framework for their collection as for normal tax” (Calder, 2014:23). The United Nations (2017:471) defines fiscal terms as “specific economic elements relating to extractive industry activities within a particular country including taxation, other payments such as bonuses and royalties, legal framework and state participation”. Calder (2014) states that the non-tax revenue from state participation generally present the same legal implications as normal taxes.

It was then submitted in section 3.8.2.1 that shareholding distributed to BEE entrepreneurs, qualifying employees and host community should be evaluated within the same parameters as a carried interest under state participation. It should be noted that compliance with the

provisions of the Mining Charter 2018 ownership requirements have associated costs that impact the indirect sharing of resource rent. It is for this reason that these provisions can be regarded as fiscally equivalent to taxation. Therefore, the regulatory provisions in Mining Charter 2018 should be considered when evaluating government's fiscal take

Comparative: In this respect South Africa's socio-political context is unique from that of Botswana, Alberta and Norway and therefore renders a comparative exercise futile. Of relevance, is the fact that these requirements place additional requirements on EI operating in South Africa. Investors have the choice of several jurisdictions when allocating investment capital. After favourable geology has been established an attractive fiscal regime is required to sustain investment in the extractive sector. It is therefore submitted that the Mining Charter 2018 provisions cannot be viewed in isolation and should be incorporated in an assessment of governments fiscal take.

Conclusion: In an assessment of fair share of benefits, the Mining Charter 2018 provisions imposes costs on South Africa's EI. I therefore conclude that when establishing the total contribution of the EI, the Mining Charter 2018 obligations should be included in governments fiscal take.

5.5. LESSONS ON THE ADOPTION OF A NATURAL RESOURCE FUND

Improper distribution and management of natural resource revenue results in poor performance of countries that are unable to benefit socially and economically from their endowment. A sound macroeconomic framework is required to deal with revenue volatility, mitigate Dutch disease effects and to ensure an equitable balance between consuming resources today and promoting intergenerational equity for the future. Further reasons to establish a NRF include reducing resource dependence through diversification and increasing the production efficiency of the economy by investing in technology transfer and networks (Allen & Caruana, 2008).

Given that resources are non-renewable, resource revenues should be invested in long-term capital, comprising human, physical and institutional, accumulation as opposed to financing current consumption. Investing in education and social welfare issues are important but should accompany spending on the tradable sector. Thus, fiscal limits and rules to control spending are important as well as creating fiscal reserves for future

generations (Natural Resource Governance Institute, 2015c). Sound revenue generation, distribution and management policies are critical in the transformation of natural resource wealth into economic development. Fiscal policy should ensure that the state receives a fair share of revenue. While revenue distribution policies control spending and revenue management policies ensure the prudent investment of resource rent to finance sustainable economic development. Fiscal rules require an accumulation of savings. A NRF, which has clearly defined objectives, an investment mandate consistent with government fiscal policy, and investment decisions that are insulated from political interference, presents itself as an optimal saving mechanism (Wilde, 2016).

NRFs should be funded out of fiscal surplus and not borrowings. They should complement fiscal policy and should be integrated into the spending and resource allocation strategies (Daniel *et al.*, 2013). Five types of NRFs can be developed. Stabilization funds protect against volatility in commodity prices. Saving funds are established to create an enduring benefit for future generations. Reserve investment corporations are developed to pursue higher return investments, negating the opportunity cost of holding reserves. Development funds are created to fund socioeconomic and infrastructure development projects. Pension reserve funds are contingency reserves to fund potential pension liabilities in the future (Al-Hassan *et al.*, 2013).

NRFs are vulnerable to government manipulation by politicians who are motivated by the incentive to spend now. Countries with weaker governing systems and poor institutional environments are prone to political influence. Fiscal policy discipline identifies the need to separate the pattern of spending from the pattern of income. During the conceptualisation and design of the NRF, the failure to acknowledge the incentives for political leaders to misappropriate funds is the principal reason attributed to the demise of NRFs in African countries (Humphreys & Sandbu, 2007).

NRFs should have clearly stated objectives. The broad investment mandate of the NRF should be consistent with its objectives and the government's fiscal policy. A well-designed structure with a clear division of responsibility between different institutions and appropriate checks and balances can limit risk and help ensure that the NRF is effectively managed. Clear division of responsibilities should be established between the setting of the NRF

objectives, investment decision and fund management to insulate exposure to political interference (Bauer & Rietveld, 2014). The political incentive to deviate from the best economic policy for the country can be managed by limiting discretionary decisions. This can be achieved through setting rules which govern the amount and composition of NRF spending. Furthermore, segregation of the authority to spend and promoting transparency allows the public to hold the government accountable for spending (Humphreys & Sandbu, 2007). Table 5-1 shows the division of responsibilities in the comparative countries NRF's.

Table 5-1: Division of responsibilities over fund management

	Botswana	Alberta, Canada	Norway
Ultimate control	Central Bank Board of Governors	The Provincial Legislature	Storting (parliament)
Manager	Central Bank Board of Governors	The President of Treasury Board and Minister of Finance	Minister of Finance
Operational manager	Bank of Botswana Investment Committee	Alberta Investment Management Corporation	Norges Bank (central bank) Executive Board
Physical location	Bank of Botswana	Department of Treasury Board and Finance	JP Morgan Chase Bank

Source: Adapted from (Bauer & Rietveld, 2014).

The New Growth Path Framework and SIMS Report have recommended the creation of an African Development Fund. Johnson (2015) reiterates the World Bank's recommendation that under the current circumstances, a NRF would be the best option to diversify the economy, creating a separate source of intergenerational income from investments. Portfolio diversification is the only alternative in light of the fact that beneficiation would fail due to the country's inability to compete with major global manufacturing countries. A NRF can mitigate against the presence of weak institutions by restricting access of funds to politicians. By reallocating resource rents into an NRF, misuse of rents is curbed thereby creating political accountability (Wills, Senbet & Simbanegavi, 2016).

Goodson (2014) supports the creation of a NRF despite low foreign exchange reserves and suggests that a NRF would reduce South African Reserve Bank losses. Two schools of thought exist. The first recommends revenue to be saved offshore on the merits that this will mitigate inflation and real exchange rate appreciation and prevent contraction of the traded

sector. The opportunity cost attached to this decision is that funds are not available for much needed domestic investment. The alternate argument is that funds will provide a greater return on investment if spent on development issues. Wills *et al.* (2016) advocate that an intergenerational NRF is better suited to a developed country while a developing country should prioritise investment in domestic infrastructure and associated maintenance. They further advised that a developing country NRF with funds invested offshore would benefit from a temporary fund until the economy can absorb domestic investment. Furthermore, development banks are most appropriate to achieve domestic investment. The recent formation of the BRICS Development Bank, now called New Development Bank, and the Development Bank of Southern Africa both aim to drive public private sector partnership to develop domestic infrastructure.

The Norwegian experience highlights Norway's NRF success, with reported assets under management of approximately a trillion dollars, has spurred interest in many resource-rich countries attempting to replicate this model. However, the case of Norway is unique and may be difficult to replicate but their approach to policy formulation can offer valuable lessons. Regrettably, Norway's lost opportunity from poor management of oil revenue for the first 20 years since discovery, motivated changes to the revenue management policies. This was followed by the implementation of strict standards for resource revenue management achieved by the adoption of the Ten Oil Commandments. Segregating the management of oil from the political process is attained by housing the management of the NRF in the Central Bank. All revenue from the state's share of oil revenue is transferred into the country's NRF, which serves as an intergenerational fund. According to Norway's fiscal rule, the NRF is a source of fiscal financing for the non-oil fiscal deficit, and insulates the economy from Dutch disease. The NRF's only outflows are fund administration costs and the fiscal transfers to the budget that finance the non-oil deficit (International Monetary Fund, 2013).

Botswana's macroeconomic stability has been achieved by adopting prudent fiscal policy. This is facilitated through constraining spending by only permitting expenditure on long-term development planning outcomes that are approved in the NDP. Political influence in the process is eradicated by reviewing projects against established priorities and set technical criteria. This enables the budget surplus from resource revenues to be invested in the

promotion of growth and human development while maintaining fiscal discipline. These fiscal rules ensure that excess spending is curbed. Limiting government interference extends to management of the NRF investments, where rules and segregation of authority promote good governance of the fund (Meija & Castel, 2012).

Alberta Heritage Savings Trust Fund was created in 1976, approximately 20 years prior to the creation of Norway's NRF. Notwithstanding, Alberta's early policy adoption of an NRF has yielded only CAD 17.1 billion assets under management as reported at 30 September 2017. In contrast to Norway's performance, though Alberta's NRF adopted good governance measures, it lacked fiscal rules. For the period 1976 to 1987 only CAD 12.049 (Alberta Heritage Savings Trust Fund Annual Report 2016-2017) was transferred into the fund. Thereafter transfers ceased until 2005. The lack of fiscal rules regarding deposits into the fund is attributable to its poor performance. This was only rectified in 2012 when the provincial assembly passed a law requiring the government to deposit a certain share of the resource rent into the NRF.

The Pula Fund is managed by the board of the Bank of Botswana. The value of Pula Fund is reported in the Bank of Botswana's financial statements. The fund's objectives and operating rules governing deposits into and withdrawals from the fund are not mandated. The fund transfers and deposits are opaque and due to poor quality of reporting, the fund is not seen to be transparent. The Alberta Heritage Savings Trust Fund on the other hand is seen to be fairly transparent, ascribing to good reporting practices. The investment mandate and strategic asset allocation of the fund is governed by the Alberta Heritage Savings Trust Fund Statement of Investment Policy and Goals. The audited annual financial statements are publicly available, disclosing transfers made and specifies the fund's asset allocation by asset class. There is a clear segregation of duties between managing the fund and investment policy. The mandate of the Government Pension Fund Global is established under the Government Pension Fund Act, and as dictated by law, the Ministry of Finance is in charge of the management of the fund through the Norges Bank Investment Management. The fund is a model for good governance and transparency, publishing all investments and performance in the public domain on their website.

The Pula Fund is invested entirely offshore. The Bank of Botswana uses a Special Drawing Right benchmark for constructing the investment portfolio. The investment composition has been 71.5 percent bonds, 25.9 percent equities, and 2.6 percent other assets over the period 2008-2012. The Alberta Heritage Savings fund adheres to the investment mandate of Consumer Price Index (CPI) plus 4.5 percent. The Government Pension Fund Global was invested with 65.9 percent in equities, 31.6 percent in fixed income and 2.5 percent in unlisted real estate at the end of the third quarter of 2017. Like Botswana, Norway's NRF is invested offshore.

Botswana implemented an expenditure rule in 2006 that prohibits government spending more than 40 percent of GDP per year. Fiscal savings are transferred to the Pula Fund as a residual from budget surpluses. No numerical rules exist governing the size of withdrawals or deposits and the fund has opted for a qualitative approach enabling flexibility, where decisions are based on prevailing fiscal conditions. In Alberta, under the Fiscal Management Act of 2013, a fiscal rule was created mandating deposits of non-renewable resource revenues. The Act further mandates that the net income of the fund will not be withdrawn after fiscal year 2017/2018 and will instead be retained in the fund using a graduated process.

Norway implemented a fiscal guideline in 2001 that ties non-oil fiscal deficit to the investment returns on the NRF. The flexible guideline suggests that public spending should be financed using the estimated real returns from the oil fund, limited to an average of 3 percent a year (Norway, 2019). The lessons indicate that Norway's performance shows that good investment performance is attainable. Botswana shows the importance of limiting spending. Although Alberta's performance has been poor, the lesson offered is that fiscal rules for deposits and withdrawals are critical to fund performance. Therefore, I propose that an NRF should be instituted in South Africa with a dual stated objective of a stabilization and savings fund.

5.6. CONCLUSION

South Africa suffers from a resource curse. Many issues contribute in tandem to the country's inability to achieve sustainable economic growth. However, reviewing South

Africa's EI tax regime, the current EI regime and proposals suggested by the Davis Committee provide an internationally competitive tax system. In the absence of a definition of fair share of resource rent, the closest ideal measure is to maintain a tax regime that is international competitive, thereby ensuring that extractive investment is not compromised. It is contended that South Africa does have the necessary fiscal instruments to enable it to capture a fair share of returns. This chapter provided a comparative analysis summarising the key issues discussed in Chapter 4. Recommendations for the reform of South Africa's EI fiscal regime are suggested in the next chapter.

CHAPTER 6

CONCLUSIONS AND RECOMMENDATIONS

6.1. INTRODUCTION

“Abundant natural resources can and should be a blessing, not a curse. We know what must be done. What is missing is the political will to make it so ...” (Stiglitz, 2004:1).

Natural resources present an opportunity for economic transformation. While an ideal EI fiscal regime does not exist, countries that have successfully avoided the resource curse offer policies to benchmark decisions on the allocation of extractive rights, revenue generation and management strategies. Sound policies are required to withstand commodity-price fluctuations, capture a fair share of resource rent for the resource owner while ensuring that the investor’s return on investment is not compromised. Resource rents need to be invested in promoting human development objectives and applied for the benefit of future generations.

The study thus set out to explore lessons for the development of a sustainable fiscal regime that supports the economic viability of the South African extractive industries. A confluence of negative factors suggests that South Africa is suffering from the resource curse due to the country’s inability to utilise its natural endowment to further developmental outcomes. The study was guided by the following research objectives:

1. Analyse the current South African EI fiscal regime in order to diagnose if South Africa suffers from the resource curse.
2. Conduct a comparative analysis of the EI fiscal regimes of jurisdictions that avoided the resource curse to identify strategies on how to avoid the resource curse.
3. Frame recommendations for South Africa based on the lessons learnt from the comparative analysis.

This chapter therefore presents: a synthesis of the research findings; theoretical and policy implications of the study; limitations of the study; contributions of the study as well as recommendations for future research.

6.2. FINDINGS OF THE STUDY

The findings of the study are discussed in relation to the individual research objectives of the study.

6.2.1. Objective 1: Analyse the current South African EI fiscal regime in order to diagnose if South Africa suffers from the resource curse

The presence of natural resources should imply wealth, growth and prosperity. However, the negative effect of resource development undermines the rationale to promote mining. The general argument made by advocates of resource curse theory, suggests that an inverse relationship exists between natural resource dependence and economic growth as well as development outcomes. Section 2.3.1 identifies countries suffering from the resource curse as exhibiting a combination of any of the following symptoms: signs of the Dutch disease, compromised democracies, conflict, inefficient spending and borrowing, limited government capture of benefits and weak institutional development. Chapter 3 provides a detailed account of the South African EI fiscal regime and investigates whether South Africa suffers from a resource curse. By exhibiting symptoms of the Dutch disease and a failure to utilise its endowment to improve economic development, South Africa presents symptoms that are indicative of the resource curse. In addition, policy uncertainty is the underlying impediment to the systemic issues linked to the underperformance of the extractive sector in South Africa. Therefore, it can be concluded that South Africa does suffer from a resource curse. It can be concluded that the first objective of the study has been met.

6.2.2. Objective 2: Conduct a comparative analysis of the EI fiscal regimes of jurisdictions that avoided the resource curse to identify strategies on how to avoid the resource curse

Countries that are reported in literature as countries that have avoided the resource curse were identified as possible comparative jurisdictions. The jurisdictions were subsequently narrowed down to identify jurisdictions that scored better than South Africa on the Resource Governance Index and were deemed to have attractive tax regimes by the EI. Chapter 4 presented the resource governance policies in the comparative jurisdictions. Useful policy

lessons were extracted from the comparative jurisdiction analysis in Chapter 5. The foremost lesson identified, is to ensure the adoption of an adequate fiscal framework to capture resource rent. Good governance is an imperative to mitigate against the resource curse. The presence of strong institutions, good legal frameworks and robust public finance management systems are policies that contribute to good governance. Furthermore, having an all-inclusive global strategy that takes into account provision for enhanced value creation through diversification away from the EI sector minimises dependence on volatile resource rents.

While designing a tax instrument, a holistic adaptable approach that integrates industry challenges effectively aligns the interest of the state and investor. Both parties benefit when fiscal trust is created. Therefore, a value based approach to policy formulation, should be the first objective before consideration of the tax design principles. In this way the “citizens value” is maximised.

Furthermore, good-practice is a moving target that requires continual modification in response to changing country contexts and technological trends that invariably drive the demand for resource inputs. Apart from the lessons learnt from comparative jurisdictions, the lessons provided from South Africa’s historic mining tax reviews also provide valuable inputs on avoiding the resource curse.

The recommendation of a NRF as a revenue management policy tool to mitigate against the Dutch disease in particular, and the resource curse in general, is an ideal policy in a developed country subject to minimal risks of political interference and corrupt activities. The prescription differs for a capital scarce developing economy, requiring significant capital and infrastructure investment. Under these circumstances capital produce a higher rate of return invested in domestic country assets than returns on offshore investments. Regardless, of the adoption of a NRF, fiscal rules constraining government spending are important to managing revenues in resource-intensive economies. It can be concluded that the second objective of the study has been met.

6.2.3. Objective 3: Frame recommendations for South Africa based on the lessons learnt from the comparative analysis

The lessons learnt and recommendations for South Africa from the comparative analysis are presented in Table 6-1. A more detailed discussion of the recommendations is presented in section 6.3.2 where policy implications of the study are presented. It can be concluded that the third objective of the study has been met.

Table 6-1: Policy lessons for South Africa

Issue	Lesson	Recommendation
Allocation of rights to develop natural resources	A single strategy may not be suitable, due to geological uncertainties. In event a competitive bidding round has failed, the FIFA system becomes the default system. Norway has a dual system, incorporating a competitive bid and an open access system.	The implementation of a dual allocation system; granting rights on a FIFA basis for “unknown” resources and issue a competitive bid for advanced resources that have returned to the state as a result of expiration, revocation or relinquishment.
Unqualified participants lacking the requisite financial and technological expertise.	The use of pre-qualification criteria and non-refundable bidding fees can eliminate unqualified participants. Licences should be awarded to investors that submit the most appropriate bid (practice adopted in Norway) and not necessarily the most optimistic bid (practice adopted in Alberta).	Transparency can be fostered in the FIFA system by defining clear award criteria, engaging external oversight bodies and publishing the results of an award.
Holding of unproductive licences.	Norway levies an area fee, which promotes efficient exploration, as the fee is not payable for areas in production or with adequate exploration activity.	An escalating lease fee creates a disincentive to hold unproductive extractive rights.
Corruption in awarding contracts	Open contracting promotes the publication of contracts awarded. A fully transparent system is adopted in Alberta and Norway.	Proactive disclosure of information can be achieved by making the South African extractive rights application a fully transparent online process.
Does the fiscal regime capture a “fair share” of returns?	A fiscal regime that is internationally competitive, stable, transparent and administered effectively can produce a “fair” return.	The royalty regime adequately accounts for a share of revenue and provides for downstream processing by levying a reduced royalty rate for refined mineral resources. The gold mining taxation formula has produced adequate returns from the sector. The corporate tax regime is stable. The South African EI is stable and internationally competitive.
Revenue management policies	A case for a NRF, functioning as a revenue management tool to mitigate against Dutch disease and the “resource curse” exists. The	It is therefore recommended that all non-renewable resource rent from oil and gas should be invested in an NRF

Issue	Lesson	Recommendation
	Norwegian and Batswana NRF model offer examples of good practices for an intergenerational fund.	to create intergenerational from a depleting resource. The NRF should have the dual objective of a stabilization and savings fund. The stabilization objective of the fund act as an income smoothing policy tool, reducing the impact of commodity price volatility and currency appreciation. The savings objective is tool to promote intergenerational equity, avoid excessive and non-sustainable government spending of natural resource tax revenue.
“Shareholder value principle”	South Africa’s successful mining trajectory can be attributed to policy formulation based on enhancing value creation. Botswana with its joint-venture with De Beers and Alberta with its Royalty Review modernisation project have adopted an approach of enhancing value in their extractives sector. Norway likewise, reoriented its traditional shipbuilding engineering skills to the export of technology on deep water drilling platforms.	The principle of “citizen value” optimisation can ensure an all-inclusive approach to policy design formulation. Adopting this decision-making framework could create more opportunities to design and implement coherent interventions using a range of policy levers to support the overall EI business environment.
Frequency of EI tax reviews	The global context is continuously evolving and EI operate within this domain. Therefore, policy development is a continuous process. The commissions of inquiry into gold mining taxation reviews took place approximately every ten years.	There is merit in a resource-intensive economy reviewing the fiscal regime every ten years, due to factors such as resource depletion and new technologies affecting resource demand.
Promoting good governance	Norway adheres to the EITI global standard that promotes transparent and accountable management of oil, gas and mineral resources.	South Africa can benefit from joining forums such as the EITI. Enhancing transparency will mitigate against the risk of illicit financial flows.
Compliance costs of the Mining Charter 2018	The Mining Charter 2018 provisions place additional financial requirements on EI to provide carried ownership interests.	These Mining Charter 2018 ownership requirements should be included in the calculation of governments fiscal take.
Incentivising exploration expenses	South Africa’s mature mining status and depletion of know reserves warrants investment stimulus via exploration incentives.	The Canadian Exploration Expense and Flow-Through Shares should be considered as a mechanism to deduct 100 percent of eligible exploration expenses.

Source: Compiled by the author.

6.3. POLICY IMPLICATIONS OF THE STUDY

In addition to the research objectives stated in section 6.2 the study also aimed to address the following research questions:

1. Does the current extractive rights regime maximise resource rent?
2. Does South Africa have the necessary fiscal instruments to enable it to capture a fair share of returns?
3. Can a natural resource fund offer a revenue management strategy?

The findings indicate that the answers to these questions culminate to the policy implications for this study and presented in the subsequent sub-sections.

6.3.1. Question 1: Does South Africa's extractive licencing regime maximise resource rent?

A precursor to the rights allocation system resides in a clearly defined governance framework administering the allocation of prospecting and mining rights. Vague provisions, broad ministerial discretion and a departure from international benchmark principles have added to the conundrum of regulatory policy uncertainty, stifling investment in the South African extractive sector. Driving economic performance in the sector starts with giving the regulatory regime a major overhaul, providing for the protection of security of tenure by implementing a predictable, competitive and stable mining regulatory framework.

Accelerating capital costs and low commodity prices has resulted in a decline in investor interest to pursue exploration projects. The future of South Africa's mature mining sector is dependent on new discoveries. It is proposed that South Africa implement a dual allocation system; granting rights on a FIFA basis for "unknown" resources and issue a competitive bid for advanced resources that have returned to the state as a result of expiration, revocation or relinquishment. Transparency can be fostered in the FIFA system by defining clear award criteria, engaging external oversight bodies and publishing the results of an award. The use of pre-qualification criteria and non-refundable bidding fees in an auction can eliminate unqualified participants lacking the requisite financial and technological expertise from participating. Furthermore, an escalating lease fee creates a disincentive to hold unproductive extractive rights. It is advisable that licences be awarded to investors that

submit the most appropriate bid (i.e., the practice adopted in Norway) and not necessarily the most optimistic bid (i.e., the practice adopted in Alberta). This recommendation could conflict with the Mining Charter 2018 proposal that stipulates a 51 percent black shareholding for a prospecting right. A skilled committee is required to appraise competing bids against the geological risk, the type of opportunity, and the relinquishment rules.

Good practice identifies the adoption of a transparent system with publicly available criteria fosters equal application of the law in the award of extractive rights. Legal requirements must be consistent and fair applied, and social and environmental protection should be considered. Improving transparency in the EI is in the best interests of all parties, companies, government and citizens. The globally recognised standard of “open contracting” promotes the publication of government contracts from the award of a contract through to implementation, monitoring and evaluation. Proactive disclosure of information can be achieved by making the South African extractive rights application a fully transparent online process as adopted in Alberta and Norway. This will limit opportunities for corruption, and increase transparency and good governance.

6.3.2. Question 2: Does South Africa have the necessary EI fiscal instruments to enable it to capture a fair share of returns?

In promoting a fair share of fiscal returns, South Africa should consider adopting fiscal regime reform targeted at maximisation performance of the extractive sector. The rationale for this approach is that fiscal policy design is determined by the objectives of the country. The comparative countries have taken the said approach. Rather than seeking to improve a country’s revenue raising objective by increasing tax rates, these countries take an active investor role by improving the environment for business effectiveness and efficiency, and thereby promoting resource development. This methodology ensures that realising maximum potential out of a country’s resources will translate into receiving a fair share of returns. In this way, the country’s objectives are realised as well as investor business risks mitigated, improving performance and ensuring that resources are brought to the global market.

Government and the investor have a joint benefit in bringing the commodity to the market place. Companies compete for market share, in the same way that countries compete with each other to offer lucrative EI investment terms. An important consideration is the depletion of resources (resource horizon). The other concern is the future demand for resource inputs is driven by future technological advancements. This can be illustrated by reviewing global demand for platinum. South Africa holds approximately 90 percent of the world's platinum reserves. However, even though the resource has a lengthy resource horizon, electric cars could severely affect the demand for platinum. Platinum's main use is in the vehicle manufacturing market. It is used to manufacture catalytic converters that are installed in vehicles to reduce fuel emissions (Zientek, Causey, Parks & Miller, 2014). Hypothetically, if this statement holds true, this would imply that the demand for platinum could be replaced by the demand for lithium (key resource input required for batteries). This sort of evolutionary approach is required in a day and age where tax competition between jurisdictions is evident and technological advancements could result in obsolescence of critical resource inputs. Adopting a business-planning model to tax policy design based on the resource horizon, technological changes affecting demand for resource inputs, years of reserves in addition to rate of development will ensure that the longevity of resource exploitation is conducted in an efficient manner while revenues are maximised. Thus, it is proposed that in the interests of maintaining fiscal trust and stability it may be more appropriate to maintain the current tax regime and adopt a collaborative approach to modernising the current regime than to impose additional RRTs on an ailing EI.

Weijermars (2015) points out that taxation can "either incentivize, attract and stimulate or des-incentivize, repel and deter resource development" (Weijermars, 2015:385). In the interests of providing a competitive tax regime the Mining Charter 2018 provisions should be regard as the fiscally equivalent to taxation and should therefore be included when evaluating government's fiscal take. Granted that investors, after assessing jurisdictions with equal geology, consider factors such as the fiscal regime. In this regard, the Mining Charter 2018 provisions place additional financial requirements on EI to provide carried ownership interests. These requirements should be included in governments fiscal take and an exemption should be considered against EI income in order to ensure that South Africa offers a fiscal regime that is competitive when compared to other jurisdictions with equal geology. Furthermore, exploration incentives are required to stimulate investment.

6.3.2.1. Mining Sector

South Africa does not levy a tax on holding extractive rights. The holding of unproductive mineral rights is addressed, by adherence to a planned work programme. Charging escalating rental fees can offer an opportunity to counter the holding of unproductive rights, ensuring efficient exploration is conducted and can provide a source of income. The royalty regime adequately accounts for a share of revenue as the royalty is based on gross sales and allows for sharing in windfall revenues. Further, the royalty provides for downstream processing by levying a reduced royalty rate for refined mineral resources. The gold mining taxation formula has produced adequate returns from the sector. The formula accounts for the variances in the grade of the ore and allows for an increased share of revenue as the price of gold increases. The corporate tax regime is stable. The ring-fencing provisions ensure that losses are not offset against non-mining income and the 100 percent deduction of capital expenses are in line with international practice. Definitions are required for the terms "mining" and "mining operations" in the Income Tax Act, furthermore clarity is required for the definition "unrefined mineral resources" in the MPRRA. The EI CGT provisions are sound and ensure uniformity with non-mining income. The South African approach to deducting contributions to rehabilitation funds departs from international practice of providing for the deduction of rehabilitation costs when incurred, however this ensures that funds are available for rehabilitation, whereas under the comparative country regime mines could shut down without complying with reclamation provisions. The import duty provisions and dividends withholding tax provision are consistent with the comparative countries.

6.3.2.2. Petroleum and Gas Sector

The holding of unproductive petroleum rights is addressed by applying an area relinquishment provision on the renewal of an exploration right. Levying escalating rental fees can offer an opportunity to counter the holding of unproductive rights, ensuring efficient exploration is conducted and can provide a source of income. Generally, the use of fiscal stabilization contracts in the petroleum sector should be avoided. However, in the case of South Africa, a nascent oil and gas sector may warrant investor surety and stability over fiscal terms. Issues arise under the context of transfer of licences and the effect of perpetuity with regard to fiscal stability. The oil and gas tax regime appears to be relatively lenient. This is due to the lack of geological potential of offshore petroleum. Under these circumstances, it appears that the fiscal terms are acceptable as the objective is to encourage exploration

for petroleum, required to supply the country's energy needs. Under these circumstances, the current CIT and royalty regime would provide adequate sharing of resource rent. The import duty provisions and dividends withholding tax provision are consistent with the comparative countries. The carrying over of unlimited losses is in line with international practice, and the additional provision that allows 10 percent of losses to offset against any other income provides further tax relief. The deduction available for contributions to rehabilitation funds is appropriate under the current circumstances. Clarity with regards to state participation should be afforded to the investor, as state participation is accounted in the assessment of total tax burden and could possibly affect the decision to invest.

South Africa can benefit from joining forums such as the EITI (refer to section 4.6.2). This global initiative provides a template for a multi-level oversight in the EI. Maintaining transparency standards should be prescriptive rather than encouraging proactive disclosure. Enhancing transparency should also mitigate against the risk of illicit financial flows.

6.3.3. Question 3: Can a natural resource fund offer a revenue management strategy for South Africa?

A case for a NRF, functioning as a revenue management tool to mitigate against Dutch disease and the resource curse, exists. Norway's and Botswana's NRF offer examples of good practices for an intergenerational fund. Once resource revenues enter the single South African National Revenue Fund account they are no longer distinguishable from any other revenues that flow into this fund. Thus, creating intergenerational equity from a depleting resource is difficult to measure once all government revenue is combined. Optimising value from the extractive sector commences with ring-fencing resource rents in a NRF as the relative performance of the investment can substantiate whether benefits are received from South Africa's natural endowment.

Appropriate timing is the first consideration when establishing an NRF, as NRF's are typically funded from excess foreign exchange reserves. The present economic environment is not conducive to establishing a NRF. The sectors contribution to government revenue has dwindled considerably, reporting a drastic reduction in contribution to 2.5 percent in 2014 (International Monetary Fund, 2015b). A study conducted by Wait *et al.*

(2014) identifies that the exploitation of the oil and gas sector will not yield significant tax revenue (refer to section 3.7.2). It is therefore recommended that all non-renewable resource rent from oil and gas should be invested in a NRF. The macro-economic basis of this suggestion is to create intergenerational equity and transform non-renewable assets into diversified financial assets for future generations. Considering, the anticipated minimal revenue to be generated, an argument exists to save these rents and invest them in an NRF rather than consuming the revenue.

Good fund governance can prevent corrupt activities. A well-developed management structure is required underpinned by strong internal controls, supervision, accountability and transparency. It is recommended that South Africa establish a fund through legislation. The day-to-day management operations can reside within a separate entity within the central bank. This structure can minimise mismanagement by separating the operational management of the NRF from political decisions and assist in creating specialist expertise. The NRF should have clear fund objectives. Deposit, withdrawal and investment rules should be legislated to limit the discretionary powers of the fund manager. External investment managers can provide technical capacity to manage strategic asset allocations. An independent oversight committee should review investment strategies and approve withdrawals from the NRF. This committee can limit the degree of discretion afforded to fund managers. Transparent reporting practices can be fostered by publicising fund performance which can create pressure to adhere to good governance standards. Clear policy objectives need to be developed to underpin the fiscal restrictions governing deposits, withdrawal and spending.

6.4. LIMITATIONS OF THE STUDY

The study has offered a qualitative perspective on establishing a fair share of returns, and was conducted by establishing a decision-chain framework to designing fiscal regimes for the EI. To narrowly define the scope of the study, the following limitations need to be considered. The following limitations of the study need to be taken into account.

- The study did not analyse quantitative mechanisms in terms of the actual net return on investment to the investor and the state.

- The analysis of the tax regime excludes the effects of international tax considerations applicable to the EI.
- The analysis of the previous tax committee reports was limited to issues related to the EI.
- The study did not analyse the geological setting and socio-political history in relation to the tax regime of the comparative countries.

6.5. SIGNIFICANCE AND CONTRIBUTION OF THIS STUDY

I contend that it is government's role to create "citizen value", in the same way that a manager of a company is tasked to create "shareholder value". The lessons that are offered from the comparative jurisdictions as well as South Africa's commissions of inquiry into gold mining taxation share the common theme that "value creation" is a precursor to maximizing fair share of returns from the sector.

South Africa's mining trajectory can be attributed to policy formulation based on enhancing value creation. The adoption of this strategy in Norway is not unique. Both, Alberta and Botswana have enacted different mechanism but essentially followed the same approach of enhancing value in their extractives sector. Botswana from its joint-venture with De Beers and Alberta in its Royalty Review modernisation project.

I advocate for the adoption of the "shareholder value principle" as a precursor to the traditional tax doctrines. The shareholder value principle is not so much a new taxation principle, but rather, a method to ensure that maximum value is attained before an equitable sharing of benefits can be achieved. I attempt, however, to extend the range and applicability of this corporate governance principle to the realm of EI taxation.

I infer that by taking a value based approach to policy formulation, the objective of profit maximisation of the sector is given a higher priority, with equity and fair share in the tax regime then following as a subordinate principle. Addressing policy measures to address prevailing issues increasing efficiency of the industry. The state has a dual role when it comes to extractive investments. The first role is that of a "company" that has a joint-venture with the investor to bring its assets to market and within this role that a resource-rich country

should first adopt the objective: “shareholder value”. Then as its subordinate role as “administrator” adopt the principles of equity, efficiency and neutrality in the design of the EI fiscal regime.

The contribution I seek to make to resource curse literature is the adaptation of the “citizen value” approach to policy formulation and reform. I conclude, that governments’ plans for resource-led development if framed in the context of creating “citizens value” will allow South Africa to harness the opportunity in its resource wealth and transform human development. Rather than being held hostage by the resource curse, adopting reform measures aimed at enhanced value creation, in combination with appropriate policies, institutions and good governance, can contribute to long-term growth and development. Therefore, I conclude that South Africa can learn from the approach adopted in the previous commissions of inquiry into gold mining taxation. Furthermore, there is merit in a resource-intensive economy to review the fiscal regime every ten years, due to factors such as resource depletion and new technologies affecting resource demand.

A further contribution noted is that of the use of a NRF as a revenue management prescription available to mitigate against the resource curse and Dutch disease in developed countries. Capital scarce developing countries can secure better returns on investments in the domestic economy than generating returns in offshore capital markets

6.6. RECOMMENDATIONS FOR FUTURE RESEARCH

Two areas of research can be expounded on in the future:

1. Firstly, South Africa can benefit from an empirical estimate of the investor’s and state’s return on investment, thereby determining if there is fair sharing of benefits. Furthermore, the mining Charter 2018 regulations should be included in the estimate of government’s fiscal take.
2. Secondly, a detailed investigation into the broader EI international tax implications in relation to the fair share of benefits between the investor and state.

6.7. CONCLUDING REMARKS

South Africa holds abundant resources, has a developed industrial sector, robust financial systems, yet its EI are shrinking. The migration of mining investment has shifted to jurisdictions that are perceived to have more stable EI policy and institutional environments. Several issues raise concerns about the presence of a resource curse and the inadequacy of the fiscal regime to capture a fair share of resource rent.

This study's recommendations for improving the existing EI fiscal regime in South Africa are as follows:

1. The current tax regime for EI under the current economic environment is adequate to capture a fair share of fiscal returns. The Davis Committee recommendations that aligns the CIT regime for the resource sector with other non-resource sectors are supported. The decision to amend the current upfront capex write-off and replace with depreciation allowance basis of (40/20/20/20), could distort investment decisions. This proposal deviates from the international norm where EI are allowed an upfront capex write-off. While, the proposed prospective removal of ring fences preventing the set-off of future capex expenditure against income from other mines and against non-mining income, is a trade-off that will stimulate investment. Therefore, these recommendations are supported as they will drive new investment.
2. The dual licencing system of a discretionary system in the least explored areas and competitive bids for mature areas, together with levy of escalating area fees, which promote the release of holding unproductive licences, all contribute to efficient exploration activities.
3. The establishment of a NRF with the dual objective of a stabilization and savings fund. The stabilization objective of the fund act as an income smoothing policy tool, reducing the impact of commodity price volatility and currency appreciation. The savings objective is a tool to promote intergenerational equity, avoid excessive and non-sustainable government spending of natural resource tax revenue. A disciplined approach to fiscal management is required and political interference and discretion needs to be limited.
4. The principle of "citizen value" optimisation can ensure an all-inclusive approach to policy design formulation. Adopting this decision-making framework could create more opportunities to design and implement coherent interventions using a range of policy

levers to support the overall EI business environment. Further, there is merit in a resource-intensive economy reviewing the fiscal regime every ten years, due to factors such as resource depletion and new technologies affecting resource demand. The global context is continuously evolving and EI operate within this domain, thus as suggested by Cameron and Stanley (2017:4), “‘good practice’ is continually modified and improved by research and comparative analysis, to test fresh approaches in a country’s unique context”. Evidence of this practice can be seen in the commissions of inquiry into gold mining taxation. Reviews took place approximately every ten years, prompted by changes in the mining industry. It was these reviews that ensured that the gold mining tax instrument evolved with changing circumstances and is attributable to the good fiscal returns achieved and the lack of the presence of a resource curse during that period.

5. The Mining Charter 2018 ownership requirements can be regard as fiscally equivalent to taxation and should be included in government’s assessment of fiscal take from the sector.
6. The Canadian Exploration Expense and Flow-Through Shares offer a mechanism to stimulate exploration interest by providing a 100 percent deduction of eligible exploration expenses.
7. South Africa can benefit from joining forums such as the EITI. Enhancing transparency will mitigate against the risk of illicit financial flows.

LIST OF REFERENCES

- Aarsnes, F. & Lundstøl, O. 2013. *The case for windfall taxes - a guide to optimal resource taxation*. Norway: Publish What You Pay. [Online] Available from: https://www.publishwhatyoupay.no/sites/all/files/Download%20-%20English_4.pdf [Accessed: 2014-05-15].
- Addison, T. & Roe, A. 2018. *Extractive industries: the management of resources as a driver of sustainable development*. Oxford, United Kingdom: Oxford University Press. [Online] Available from: <https://www.oopen.org/download?type=document&docid=1001608> [Accessed: 2019-10-26].
- Adeleke, O. & Humby, T.L. 2016. *Corporate non-disclosure in South Africa: plugging leakages to enhance government's capacity to monitor and enforce compliance in the mining industry*. Cape Town: Open Society Foundation. [Online] Available from: https://www.academia.edu/31250165/CORPORATE_NON-DISCLOSURE_IN_SOUTH_AFRICA_PLUGGING_LEAKAGES_TO_ENHANCE_GOVERNMENTS_CAPACITY_TO_MONITOR_AND_ENFORCE_COMPLIANCE_IN_THE_MINING_INDUSTRY [Accessed: 2017-02-07].
- African Markets. 2018. *Johannesburg Stock Exchange (JSE) - listed companies*. [Online] Available from: <https://www.african-markets.com/en/stock-markets/jse/listed-companies> [Accessed: 2018-10-20].
- African National Congress. 1955. *Freedom Charter*. [Online] Available from: <http://www.anc.org.za/show.php?id=72> [Accessed: 2015-04-30].
- African National Congress. 2012. *Maximising the developmental impact of the people's mineral assets: state intervention in the mineral sector (SIMS Report)*. [Online] Available from: <http://www.anc.org.za/docs/rep/2012/simssummaryz.pdf> [Accessed: 2015-02-22].

- African Natural Resources Center. 2016. *Chile's fiscal policy implementation and mining revenue: a case study*. Côte d'Ivoire: African Development Bank Group. [Online] Available from: https://www.afdb.org/fileadmin/uploads/afdb/Documents/Publications/anrc/CHILE_CASESTUDY_ENG__HR_PAGES.pdf [Accessed: 2016-12-13].
- Ahsan, S.M. & Tsigaris, P. 2003. Choice of tax base revisited: cash flow vs. prepayment approaches to consumption taxation. In: Alheim, M., Wenzel, H. & Wiegard, W. (eds.). *Steuerpolitik—Von der Theorie zur Praxis: Festschrift fuer Manfred Rose [Tax Policy- Theory and Practice]*. Berlin, Heidelberg: Springer-Verlag. [Online] Available from: <https://ssrn.com/abstract=429944> [Accessed: 2018-12-09].
- Alba, E.M. 2009. Extractive Industries Value Chain: A Comprehensive Integrated Approach to Developing Extractive Industries. Extractive industries and development series no. 3. Africa working paper series no. 125. World Bank, Washington, DC. [Online] Available from: <http://hdl.handle.net/10986/18400> [Accessed: 2016-11-04].
- Alberta, 2000a. Alberta Corporate Tax Act, Revised Statutes of Alberta 2000, Chapter A-15.
- Alberta, 2000b. Alberta Heritage Savings Trust Fund Act, Revised Statutes of Alberta 2000, Chapter A-23.
- Alberta, 2000c. Freehold Mineral Rights Tax Act, Revised Statutes of Alberta 2000, Chapter F-26.
- Alberta, 2000d. Mines and Mineral Act, Revised Statutes of Alberta 2000, Chapter M-17.
- Alberta. 2013. Fiscal Management Act, Statutes of Alberta 2013.
- Alberta Energy. 2007. *Alberta royalty review: freehold mineral tax*. [Online] Available from: <http://www.assembly.ab.ca/lao/library/egovdocs/2007/aleo/159244.pdf> [Accessed: 2017-11-01].

- Alberta Energy. 2016. *Alberta at a crossroads: royalty review advisory panel report*. [Online] Available from: <https://open.alberta.ca/dataset/01b3af57-350c-43ec-8c73-d70fe74523cb/resource/94fca310-354d-4604-bccb-d897c2f68b91/download/2016-royalty-framework-report.pdf> [Accessed: 2017-11-07].
- Alberta Energy. 2017. *Resource revenues collected*. [Online] Available from: http://www.energy.alberta.ca/About_Us/2564.asp [Accessed: 2017-11-10].
- Alexeev, M. & Conrad, R. 2009. The elusive curse of oil. *The Review of Economics & Statistics*, 91(3):586-598. [Online] Available from: <http://dx.doi.org/10.2139/ssrn.806224> [Accessed: 2018-09-06].
- Alhashel, B. 2015. Sovereign wealth funds: A literature review. *Journal of Economics and Business*, 78:1-13. [Online] Available from: <http://dx.doi.org/10.1016/j.jeconbus.2014.10.001> [Accessed: 2016-01-13].
- Al-Hassan, A., Papaioannou, M., Skancke, M. & Chih Sung, C. 2013. *Sovereign wealth funds: aspects of governance structures and investment management WP/13/231*. Monetary and Capital Markets Department. Washington: International Monetary Fund. [Online] Available from: <https://www.imf.org/external/pubs/ft/wp/2013/wp13231.pdf> [Accessed: 2014-05-21].
- Allen, M. & Caruana, J. 2008. *Sovereign wealth funds - a work agenda*. Washington: International Monetary Fund. [Online] Available from: <https://www.imf.org/external/np/pp/eng/2008/022908.pdf> [Accessed: 2014-05-22].
- Alley, C. & Bentley, D. 2005. A remodelling of Adam Smith's tax design principles. *Australian Tax Forum*, 20:579-624. [Online] Available from: <http://hdl.handle.net/20.500.11937/12109> [Accessed: 2018-08-22].
- Altman, O.L. 1958. A note on gold production and additions to international gold reserves. *Staff Papers -International Monetary Fund*, 6(2):258-288. [Online] Available from:

<https://www.jstor.org/stable/pdf/3866053.pdf?refreqid=excelsior%3Ae7a7760ffa59deaf0e467fa972231517> [Accessed: 2016-12-02]

American Institute of CPAs. 2017. *Guiding principles of good tax policy: a framework for evaluating tax proposals*. New York: American Institute of Certified Public Accountants, Inc. [Online] Available from: <https://www.aicpa.org/ADVOCACY/TAX/downloadabledocuments/tax-policy-concept-statement-no-1-global.pdf> [Accessed: 2018-08-22].

Amoateng, S.F. 2014. *Fiscal regimes and managing oil revenue for economic development – a comparative study of legal regimes in Ghana, Alberta and Norway*. Unpublished master thesis. Alberta: University of Alberta. [Online] Available from: <https://doi.org/10.7939/R3P844297> [Accessed: 2016-12-16].

Andrews-Speed, P. & Rogers, C. 1999. Mining taxation issues for the future. *Resource Policy*, 25:221-227. [Online] Available from: [https://doi.org/10.1016/S0301-4207\(99\)00029-X](https://doi.org/10.1016/S0301-4207(99)00029-X) [Accessed: 2014-05-12].

Ang, A. 2010. *The four benchmarks of sovereign wealth funds*. New York: Columbia Business School and NBER. [Online] Available from: <https://www0.gsb.columbia.edu/faculty/aang/papers/The%20Four%20Benchmarks%20of%20Sovereign%20Wealth%20Funds.pdf> [Accessed: 2014-05-22].

Antin, D. 2013. *The South African mining sector: an industry at crossroads*. Johannesburg: Hanns Seidel Foundation. [Online] Available from: https://southafrica.hss.de/fileadmin/user_upload/Projects_HSS/South_Africa/17091_1_Migration/Mining_Report_Final_Dec_2013.pdf [Accessed: 2016-04-03].

Arezki, R. & van der Ploeg, F. 2010. Trade policies, institutions and the natural resource curse. *Applied Economics Letters*, 17:1443–1451. [Online] Available from: <https://doi.org/10.1080/13504850903035881> [Accessed: 2018-07-20].

- Arezki, R., Gylfason, T. & Sy, A. 2011. *Beyond the curse: policies to harness the power of natural resources*. Washington: International Monetary Fund. [Online] Available from: https://notendur.hi.is/gylfason/Beyond_the_Curse_Arezki_Gylfason_Sy.pdf [Accessed: 2016-11-13].
- Asprey Tax Committee. 1975. *Commonwealth taxation review committee*. Australia: Taxation Review Committee. [Online] Available from: <http://adc.library.usyd.edu.au/data-2/p00087.pdf> [Accessed: 2018-08-13].
- Atkinson, G. & Hamilton, K. 2003. Savings, growth and the resource curse hypothesis, 31(11):1793–1807. [Online] Available from: <http://dx.doi.org/10.1016/j.worlddev.2003.05.001> [Accessed: 2017-02-26].
- Auty, R.M. 1993. *Sustaining development in mineral economies: the resource curse thesis*. London: Routledge. [Online] Available from: https://doi.org/10.1007/978-1-349-13460-1_4 [Accessed: 2018-09-06].
- Auty, R.M. 2005. Natural resource rent-cycling outcomes in Botswana, Indonesia and Venezuela. *International Social Science Journal*, 57(1):33-44. [Online] Available from: <https://doi.org/10.1111/j.1468-2451.2009.00704.x> [Accessed: 2018-09-11].
- Avendano, R. & Santiso, J. 2009. *Are sovereign wealth funds' investments politically biased? A comparison with mutual funds*. Paris: OECD Development Centre. [Online] Available from: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1525545 [Accessed: 2015-11-09].
- Aytac, S.E., Mousseau, M. & Orsunc, O.F. 2016. Why some countries are immune from the resource curse: the role of economic norms. *Democratization*, 23(1):71-92. [Online] Available from: <https://doi.org/10.1080/13510347.2014.964216> [Accessed: 2018-07-20].

- Badeeb, R.A., Lean, H.H. & Clark, J. 2017. The evolution of the natural resource curse thesis: A critical literature survey. *Resource Policy*, 51:123-134. [Online] Available from: <http://dx.doi.org/10.1016/j.resourpol.2016.10.015> [Accessed: 2018-08-22].
- Badenhorst, P. 2014. Security of mineral tenure in South Africa: carrot or stick? *Journal of Energy & Natural Resources Law*, 32(1):5-40. [Online] Available from: <https://ssrn.com/abstract=2654047> [Accessed: 2016-01-13].
- Baker, H.K., & Anderson, R. (eds.). 2010. *Corporate governance: a synthesis of theory, research and practice* (Vol. 8). New Jersey: John Wiley & Sons Inc.
- Balin, B.J. 2008. *Sovereign wealth funds: a critical analysis*. The Johns Hopkins University School of Advanced International Studies (SAIS). [Online] Available from: <http://dx.doi.org/10.2139/ssrn.1477725> [Accessed: 2014-05-21].
- Ballard, K., Cline, R., Neubig, T. & Phillips, A. 2012. Mining taxation and global investment: evaluating trade-offs between “fair share” of resource rents and mining development. In: *Proceedings Annual Conference on Taxation and Minutes of the Annual Meeting of the National Tax Association*, 105:55-63. [Online] Available from: <https://www.ntanet.org/wp-content/uploads/proceedings/2012/007-ballard-mining-taxation-global-2012-nta-proceedings.pdf> [Accessed: 2014-04-18].
- Bank of Botswana. n.d. *Botswana’s management of the Pula Fund observance of the santiago principles*. [Online] Available from: [http://www.bankofbotswana.bw/assets/uploaded/BOTSWANA%20PULA%20FUND%20-%20SANTIAGO%20PRINCIPLES%20\(2\).pdf](http://www.bankofbotswana.bw/assets/uploaded/BOTSWANA%20PULA%20FUND%20-%20SANTIAGO%20PRINCIPLES%20(2).pdf) [Accessed: 2017-10-30].
- Barma, N., Kaiser, K., Minh Le, T. & Viñuela, L. 2012. *Rent to riches? the political economy of natural resource-led development*. Washington: World Bank. [Online] Available from: <https://www.imf.org/external/np/seminars/eng/2013/fiscalpolicy/pdf/rajaram.pdf> [Accessed: 2014-06-04].

- Bauer, A. 2014a. *Fiscal rules for natural resource funds: how to develop and operationalize an appropriate rule*. New York: Natural Resource Governance Institute. [Online] Available from: <http://ccsi.columbia.edu/files/2015/05/Fiscal-Rules-for-Natural-Resource-Funds-How-to-Develop-and-Operationalize-an-Appropriate-Rule.pdf> [Accessed: 2017-03-12].
- Bauer, A. 2014b. *Managing the public trust: how to make natural resource funds work for citizens*. New York: Natural Resource Governance Institute. [Online] Available from: https://resourcegovernance.org/sites/default/files/NRF_Complete_Report_EN.pdf [Accessed: 2016-03-19].
- Bauer, A. 2015. *Why sovereign wealth funds should not invest at home*. [Online] Available from: <https://blog-pfm.imf.org/pfmblog/2015/04/why-sovereign-wealth-funds-should-not-invest-at-home-.html> [Accessed: 2018-03-09].
- Bauer, A. & Rietveld, M. 2014. *Institutional structure of natural resource funds*. New York: Vale Columbia Centre on Sustainable International Investment and Revenue Watch Institute. [Online] Available from: <http://ccsi.columbia.edu/files/2015/05/Institutional-Structure-of-Natural-Resource-Funds.pdf> [Accessed: 2016-03-28].
- Baunsgaard, T. 2001. *A primer on mineral taxation WP/01/139*. Washington: International Monetary Fund. [Online] Available from: <https://www.imf.org/external/pubs/ft/wp/2001/wp01139.pdf> [Accessed: 2014-07-24].
- Baxter, R. 2017. *South African mining: restoring the dream*. [Online] Available from: <http://www.notourcharter.co.za/component/jdownloads/send/30-publication/105-south-african-mining-restoring-the-dream> [Accessed: 2018-05-05].
- Bell, J.A. 2001. The influence on the South African economy of the gold mining industry 1925-2000. *South African Journal of Economic History*, 16(1-2):29-46. [Online] Available from: <https://doi.org/10.1080/10113430109511132> [Accessed: 2015-06-03].

- Bello, O., Benkenstein, A. & Harvey, R. 2013. *Assessing competitive resource tenders as an option for mining rights allocation in South Africa Occasional Paper 159*. Johannesburg: South African Institute of International Affairs. [Online] Available from: <https://saiia.org.za/research/assessing-competitive-resource-tenders-as-an-option-for-mining-rights-allocation-in-south-africa/> [Accessed: 2014-12-12].
- Berle, A.A. 1932. For whom corporate managers are trustees: a note. *Harvard Law Review*, 45(8):1365-1372. [Online] Available from: <https://www.jstor.org/stable/1331920> [Accessed: 2018-12-06].
- Bird, R.M. 2001. User charges in local government finance. *The Challenge of Urban Government*, 171-182. [Online] Available from: <http://www1.worldbank.org/publicsector/decentralization/June2003Seminar/Bird2.pdf> [Accessed: 2019-08-25].
- BMI Research. 2015. *South Africa Mining Report Q1 2016*. London: Business Monitor International. [Online] Available from: <https://search-proquest-com.uplib.idm.oclc.org/abicomplete/docview/1754683190/fulltextPDF/8E463F20DB224B4EPQ/2?accountid=14717> [Accessed: 2016-03-30].
- BMI Research. 2016a. *Botswana Mining Report Q1 2017*. London: Business Monitor International. [Online] Available from: <https://search-proquest-com.uplib.idm.oclc.org/abicomplete/docview/1958794115/C1ACE186E5C14B74PQ/1?accountid=14717> [Accessed: 2016-12-08].
- BMI Research. 2016b. *Canada Mining Report Q1 2017*. London: Business Monitor International. [Online] Available from: <https://search-proquest-com.uplib.idm.oclc.org/abicomplete/docview/1958791746/AF27E2BB05A6435FPQ/1?accountid=14717> [Accessed: 2017-04-13].
- BMI Research. 2017. *Norway Oil & Gas Report Q2 2017*. London: Business Monitor International. [Online] Available from: [https://search-proquest-](https://search-proquest-com.uplib.idm.oclc.org/abicomplete/docview/1958791746/AF27E2BB05A6435FPQ/1?accountid=14717)

com.uplib.idm.oclc.org/abicomplete/docview/1988143888/6D1FE70F3EB4494APQ/4?accountid=14717 [Accessed: 2017-04-13].

Boadway, R.W. & Wildasin, D.E. 1984. *Public sector economics*. Boston: Little, Brown and Company.

Boadway, R. & Flatters, F. 1993. *The taxation of natural resources: principles and policy issues*. Washington: World Bank. [Online] Available from: http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/1993/10/01/000009265_3961005112849/Rendered/PDF/multi0page.pdf [Accessed: 2018-09-10].

Botswana. 1969. The Precious and Semi-Precious Stones (Protection) Act, No. 3 of 1969.

Botswana. 1981. Petroleum (Exploration and Production) Act, No. 12 of 1981 (Cap 67:01).

Botswana. 1999. Mines and Minerals Act, No. 17 of 1999 (Cap 66:01).

Botswana. 2006a. Income Tax Act, No. 18 of 2006 (cap 52:01).

Botswana. 2006b. Value Added Tax Act, No. of 2006 (Cap 50:03).

Bowen, G.A. 2009. Document analysis as a qualitative research method. *Qualitative Research Journal*, 9(2):27-40. [Online] Available from: <https://doi.org/10.3316/QRJ0902027> [Accessed: 2018-08-15].

BP. 2015. *BP statistical review of world energy*. [Online] Available from: https://www.bp.com/content/dam/bp-country/es_es/spain/documents/downloads/PDF/bp-statistical-review-of-world-energy-2015-full-report.pdf [Accessed: 2017-03-29].

Braun, V. & Clarke, V. 2012. Thematic analysis. In: Cooper, H., Camic, P.M. Long, D.L., Panter, A.T., Rindskopf, D. & Sher, K.J. (eds.). *APA handbook of research methods*

in psychology. Washington: American Psychological Association. [Online] Available from: <http://dx.doi.org/10.1037/13620-004> [Accessed: 2018-08-15].

Brunnschweiler, C.N. 2008. Cursing the blessings? natural resource abundance, institutions, and economic growth. *World Development*, 36(3):399-419. [Online] Available from: <https://doi.org/10.1016/j.worlddev.2007.03.004> [Accessed: 2017-02-26].

Brunnschweiler, C.N. & Bulte, E.H. 2008. The resource curse revisited and revised: a tale of paradoxes and red herrings. *Journal of Environmental Economics and Management*, 55(3):248–264. [Online] Available from: <https://doi.org/10.1016/j.jeem.2007.08.004> [Accessed: 2017-02-26].

Brunori, D. 2016. *State tax policy: a primer*. New York: Rowman & Littlefield.

Buijze, R. 2016. The categorisation of tax jurisdictions in comparative tax law research. *Erasmus Law Review*, 9:189-198. [Online] Available from: <https://doi.org/10.5553/ELR.000071> [Accessed: 2018-08-12].

Buckley, P.J., Pass, C.L & Prescott, K. 1988. Measures of international competitiveness: A critical survey. *Journal of Marketing Management*, 4(2):175-200. [Online] Available from: <https://doi.org/10.1080/0267257X.1988.9964068> [Accessed: 2019-07-25].

Burns, L. 2014. Income taxation through the life cycle of an extractive industries project. *Asia-Pacific Tax Bulletin*, 20(6):401-412. [Online] Available from: https://www.ibfd.org/IBFD-Products/Journal-Articles/Asia-Pacific-Tax-Bulletin/collections/aptb/html/aptb_2014_06_int_1.html [Accessed: 2015-04-11].

Calder, J. 2014. *Administering fiscal regimes for extractive Industries: a handbook*. Washington: International Monetary Fund. [Online] Available from: <http://dx.doi.org/10.5089/9781475575170.071> [Accessed: 2015-06-15].

- Caldwell, S. 2016. *Is Alaska getting its fair share from mining?* [Online] Available from: <https://www.adn.com/economy/article/alaska-getting-its-fair-share-mining/2013/06/17/> [Accessed: 2018-04-09].
- Callinicos, L. 1980. *Gold and workers 1886–1924: a people's history of South Africa*. Johannesburg: Ravan Press (Pty) Ltd.
- Cameron, P.D. & Stanley, M.C. 2017. *Oil, gas and mining: a source book for understanding the extractive industry*. Washington: World Bank. [Online] Available from: <http://hdl.handle.net/10986/26130> [Accessed: 2017-06-13].
- Campbell, S. 2012. Encyclopedia of case study research. In: Mills, A.J., Durepos, G., & Wiebe, E. (eds.). *Comparative Case Study* (pp. 175-176). London: SAGE Publications, Inc.
- Canada, Alberta. n.d. *About the industry oil and gas*. [Online] Available from: <http://www.albertacanada.com/business/industries/og-about-the-industry.aspx> [Accessed: 2017-10-12].
- Canada's Oil and Natural Gas Producers. 2017. *Canada's oil sands economic contribution*. [Online] Available from: <http://www.canadasoilsands.ca/en/explore-topics/economic-contribution> [Accessed: 2017-02-20].
- Cape Town Diamond Museum. n.d. *About diamonds*. [Online] Available from: <http://www.capetowndiamondmuseum.org/about-diamonds/famous-diamonds/> [Accessed: 2016-09-01].
- Carter, K.L. 1966. *Report of the Royal Commission on Taxation: the use of the tax system to achieve economic and social objectives*. [Online] Available from: http://publications.gc.ca/collections/collection_2014/bcp-pco/Z1-1962-1-2-1-eng.pdf [Accessed: 2018-12-13].

- Cawood, F.T. 2000. Determining the optimal rent for south african mineral resources. Unpublished doctoral thesis. Johannesburg: University of Witwatersrand. [Online] Available from: http://wiredspace.wits.ac.za/bitstream/handle/10539/9632/cawood_ft_pgs1-30.pdf?sequence=1 [Accessed: 2014-11-07].
- Cawood, F.T. 2004. The Mineral and Petroleum Resources Development Act of 2002: a paradigm shift in mineral policy in South Africa. *The South African Institute of Mining and Metallurgy*, 104(1):53-64. [Online] Available from: <https://journals.co.za/docserver/fulltext/saimm/104/1/2833.pdf?expires=1563306754&id=id&acname=guest&checksum=C2A5A79A06C1AE6A892EE52FCC523D38> [Accessed: 2015-05-21].
- Cawood, F.T. 2010. The South African Mineral and Petroleum Resources Royalty Act- background and fundamental principles. *Resource Policy*, 35(3):199-209. [Online] Available from: <https://doi.org/10.1016/j.resourpol.2010.03.003> [Accessed: 2015-01-14].
- Cawood, F.T. 2011. Threats to the South African minerals sector- an independent view on the investment environment for mining. *The Journal of the Southern African Institute of Mining and Metallurgy*, 111(7):469-474. [Online] Available from: http://www.scielo.org.za/scielo.php?script=sci_arttext&pid=S2225-62532011000700006 [Accessed: 2014-12-21].
- Cawood, F.T. & Macfarlane, A.S. 2003. The Mineral and Petroleum Royalty Bill - Report to National Treasury. *The Journal of The South African Institute of Mining and Metallurgy*, 103(4):213-232. [Online] Available from: <http://www.saimm.co.za/Journal/v103n04p213.pdf> [Accessed: 2015-01-23].
- Cawood, F.T. & Minnitt, R.C. 1998. A historical perspective on the economics of the ownership of mineral rights ownership. *The Journal of The South African Institute of Mining and Metallurgy*, 98(7):369-376. [Online] Available from: <https://journals.co.za/docserver/fulltext/saimm/98/7/2496.pdf?expires=1563306756>

[&id=id&accname=guest&checksum=FC87DD8439D085A84BD668CB93A43BB2](#)

[Accessed: 2014-12-21].

Central Energy Fund Group of Companies (SOC) Ltd. n.d. *African Exploration Mining and Finance Corporation (SOC) Ltd.* [Online] Available from: <http://www.cefgroup.co.za/aemfc/> [Accessed: 2016-06-30].

Central Statistics Office of Botswana. 2015. *Statistics Botswana Data Portal.* [Online] Available from: <http://botswana.opendataforafrica.org/SEDOB2015/socio-economic-data-of-botswana-2015?region=1000000-botswana&indicator=1006090-pula-fund> [Accessed: 2016-12-05].

Chamber of Mines of South Africa. 1994. *The South African mining industry in the 1980s.* South Africa: South African Journal of Economic History Special Issue 29. [Online] Available from: <https://doi.org/10.1080/20780389.1994.10417231> [Accessed: 2015-01-03].

Chambers, D., Dimson, E. & Ilmanen, A. 2012. The Norway Model. *The Journal of Portfolio Management*, 38(2):67-81. [Online] Available from: <http://veritycapitalmanagement.com/images/The%20Norway%20Model.PDF> [Accessed: 2015-03-08].

Chen, D. & Mintz, J. 2013. Repairing Canada's mining tax system to be less distorting. *SPP Research Papers*, 6(18):1-25. [Online] Available from: <https://www.policyschool.ca/wp-content/uploads/2016/03/mining-tax-chen-mintz.pdf> [Accessed: 2016-12-19].

Cheptea, C., Mordonu, A. & Shirono, K. 2013. *Norway: Selected Issues.* Washington: International Monetary Fund. [Online] Available from: <https://www.imf.org/external/pubs/ft/scr/2013/cr13273.pdf> [Accessed: 2016-12-19].

- Cloete, S.A. & van Rensburg, W.C. 1984. South African gold mining an example of a resource rent tax. *Resource Policy*, 10(4):263-268. [Online] Available from: [https://doi.org/10.1016/0301-4207\(84\)90004-7](https://doi.org/10.1016/0301-4207(84)90004-7) [Accessed: 2015-05-21].
- Cooley, T.M. 1868. *A treatise on the constitutional limitations which rest upon the legislative power of the states of the American union*. Boston: Little, Brown & Co. [Online] Available from: <https://repository.law.umich.edu/cgi/viewcontent.cgi?article=1009&context=books> [Accessed: 2018-04-13].
- Conrad, R.F., Hool, B. & Nekipelovc, D. 2015. The Role of Royalties in Resource Extraction Contracts. [Online] Available from: <http://ssrn.com/abstract=2668253> [Accessed: 2019-08-14].
- Corbett, A.F. 1936. *Union of South Africa Commission of Inquiry into Mining Taxation Departmental Committee*. Cape Town: SA State Library.
- Corden, W.M. & Neary, J.P. 1982. Booming Sector and de-industrialisation in a small open economy. *The Economic Journal*, 92(368), 825-848. [Online] Available from: <https://core.ac.uk/download/pdf/52943901.pdf> [Accessed: 2018-06-14].
- Cordes, J.A. 1995. An introduction to the taxation of mineral rents. In: Otto, J.M. (ed.). *Taxation of mineral enterprises*. London: Graham & Trotman Limited.
- Corrigan, C. 2014. Breaking the resource curse: transparency in the natural resource sector and the extractive industries transparency initiative. *Resources Policy*, 40:17-30. [Online] Available from: <https://doi.org/10.1016/j.resourpol.2013.10.003> [Accessed: 2017-02-05].
- Corruption Watch. 2017. *Mining for Sustainable Development Research Report*. Johannesburg: Transparency International. [Online] Available from: <https://www.corruptionwatch.org.za/wp-content/uploads/2017/10/Mining-for-Sustainable-Development-report-South-Africa-2017.pdf> [Accessed: 2018-12-05].

- Cottarelli, C. 2012. *Fiscal regimes for the extractive industries: design and implementation*. Washington: International Monetary Fund. [Online] Available from: <https://www.imf.org/external/np/pp/eng/2012/081512.pdf> [Accessed: 2014-07-16].
- Cramton, P. 2010. How best to auction natural resources. In: Daniel, P., Keen, M. & McPherson, C. *The taxation of petroleum and minerals: principles, problems and practice*. London and New York: Routledge.
- Creamer, M. 2012. *Gold has rewarded state, shareholders equally over 60 years, data shows*. [Online] Available from: http://www.miningweekly.com/article/a_id:26993//page:1/a_id:26993//page:5/a_id:26993//page:8/a_id:26993//page:11/a_id:269937 [Accessed: 2014-12-15].
- Creamer, T. 2017. *Study highlights 'worrying' low-investment trend among large JSE-listed firms*. [Online] Available from: <http://engineeringnews.co.za/article/study-highlights-worrying-low-investment-trend-by-large-jse-firms-2017-08-01> [Accessed: 2018-12-15]
- Curry, R. L. 1987. Botswana's macroeconomic management of its mineral-based growth. *American Journal of Economics and Sociology*, 46(4):473-488. [Online] Available from: <https://www.jstor.org/stable/3486663> [Accessed: 2016-03-14].
- Curtis, M. 2009. *Mining and taxation in South Africa: costs and benefits*. [Online] Available from: <http://curtisresearch.org/wp-content/uploads/SAfrica.MiningTax.Feb09.Curtis.pdf> [Accessed: 2015-02-15].
- Curtis, M. 2015. *Improving South Africa's mining revenues and transparency: the need for government action*. Johannesburg: Economic Justice Network of FOCCISA. [Online] Available from: https://www.oxfamamerica.org/static/media/files/Improving_South_Africas_mining_revenues_and_transparency.pdf [Accessed: 2016-01-09].

- Dabán, T. & Héris, J.L. 2010. *A public financial management framework for resources-producing countries*. Washington: International Monetary Fund. [Online] Available from: <https://www.imf.org/external/pubs/ft/wp/2010/wp1072.pdf> [Accessed: 2016-12-20].
- Daniel, P. 1994. The taxation of mineral rent under South Africa's mining tax reforms. *IDS Bulletin*, 25(1):37-42. [Online] Available from: <https://doi.org/10.1111/j.1759-5436.1994.mp25001007.x> [Accessed: 2015-12-13].
- Daniel, P., Goldsworthy, B., Maliszewski, W., Puyo, D.M. & Watson, A. 2006. *Evaluating Fiscal Regimes for Resource Projects: An Example from Oil Development*. [Online] Available from: <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.628.4501&rep=rep1&type=pdf> [Accessed: 2019-08-20].
- Daniel, P., Grote, M., Harris, P. & Shah, A. 2015. *South Africa fiscal regimes for mining and petroleum: opportunities and challenges*. Washington: International Monetary Fund. [Online] Available from: <https://www.imf.org/en/Publications/CR/Issues/2016/12/31/South-Africa-Technical-Assistance-Report-Fiscal-Regimes-for-Mining-and-Petroleum-43244> [Accessed: 2016-12-20].
- Daniel, P., Gupta, S., Mattina, T. & Segura-Ubier, A. 2013. Extracting resource revenue. *Finance & Development*, 50(3):19-22. [Online] Available from: <https://www.imf.org/external/pubs/ft/fandd/2013/09/daniel.htm> [Accessed: 2015-09-15].
- Daniel, P., Keen, M. & McPherson, C. (eds.). 2010. *The taxation of petroleum and minerals: principles, problems and practice*. London and New York: Routledge.
- Daniel, P., Keen, M., Świstak, A. & Thuronyi, V. (eds.). 2017. *International taxation and the extractive industries*. New York: Routledge.

- Daniel, P. & Shah, A. 2016. *South Africa: technical assistance report- petroleum sector fiscal regime reform- additional analysis for the Davis Tax Committee*. Washington: International Monetary Fund. [Online] Available from: <https://www.imf.org/external/pubs/ft/scr/2016/cr16259.pdf> [Accessed: 2017-11-15].
- Das, U.S., Lu, Y., Mulder, C. & Sy, A. 2009. *Setting up a sovereign wealth fund: some policy and operational considerations WP/09/179*. Washington DC: International Monetary Fund. [Online] Available from: <https://www.imf.org/external/pubs/ft/wp/2009/wp09179.pdf> [Accessed: 2014-05-22].
- Davenport, J. 2013. *Digging deep: a history of mining in South Africa*. Johannesburg: Johnathan Ball Publishers (Pty) Ltd.
- Davis Tax Committee. 2014. *First Interim Report on Mining for the Minister of Finance*. [Online] Available from: [http://www.taxcom.org.za/docs/20151201%20DTC%20First%20Interim%20Report%20on%20Mining%20\(hard-rock\).pdf](http://www.taxcom.org.za/docs/20151201%20DTC%20First%20Interim%20Report%20on%20Mining%20(hard-rock).pdf) [Accessed: 2015-12-17].
- Davis Tax Committee. 2016a. *Report on Oil And Gas: For the Minister of Finance*. [Online] Available from: <http://www.taxcom.org.za/docs/20171113%20Oil%20and%20Gas%20Report%20on%20website.pdf> [Accessed: 2016-10-01].
- Davis Tax Committee. 2016b. *Second and Final Report on Hard-Rock Mining*. [Online] Available from: <http://www.taxcom.org.za/docs/20171113%20Second%20and%20final%20hard-rock%20mining%20report%20on%20website.pdf> [Accessed: 2017-11-22].
- Davis Tax Committee. 2018. *Closing Report on the work done by The Davis Tax Committee*. [Online] Available from: [http://www.taxcom.org.za/docs/20180329%20DTC%20Closing%20Report\(2\).pdf](http://www.taxcom.org.za/docs/20180329%20DTC%20Closing%20Report(2).pdf) [Accessed: 2018-04-20].

- Davis, G.A. & Tilton, J.E. 2005. The resource curse. *Natural Resources Forum*, 29(3):233-242. [Online] Available from: <https://lawweb.colorado.edu/profiles/syllabi/banks/Davis%20%20Tilton%20-%20The%20resource%20curse.pdf> [Accessed: 2017-02-26].
- Deitzer , B.A., Karl , A.S. & Michael, J.J. 1979. *Contemporary management concepts*. Ohio: Grid Publishing Inc.
- Deloitte. 2015. *Global Economic Outlook 4th Quarter 2015*. United Kingdom: Deloitte Development LLC. [Online] Available from: <https://www2.deloitte.com/content/dam/Deloitte/nl/Documents/finance/deloitte-nl-finance-global-economic-outlook-q4-2015.pdf> [Accessed: 2018-12-02].
- Deloitte. 2016. *Oil and gas taxation in South Africa*. Cape Town: Deloitte Touche Tohmatsu Limited. [Online] Available from: <https://www2.deloitte.com/content/dam/Deloitte/global/Documents/Energy-and-Resources/gx-er-south-africa-oil-gas-taxguide.pdf> [Accessed: 2017-07-12].
- Denning, F. 2008. *A comprehensive resource development strategy: Norway's path to inclusive development*. New York: Natural Resources Charter. [Online] Available from: <https://resourcegovernance.org/sites/default/files/documents/norways-path-to-inclusive-and-sustainable-development.pdf> [Accessed: 2017-08-15].
- Denzin, N. & Lincoln, Y. (eds.). 2018. *The sage handbook of qualitative research* (5 ed.). Los Angeles: Sage.
- Department of Energy. n.d. *Petroleum Oil and Gas Corporation of the Republic of South* [Online] Available from: http://www.petrosa.co.za/discover_petroSA/Pages/Historic-Milestones-PetroSA.aspx [Accessed: 2016-07-01].
- Department of Energy. n.d. *Petroleum Sources*. [Online] Available from: http://www.energy.gov.za/files/esources/petroleum/petroleum_petrosa.html [Accessed: 2016-06-30].

- Department of Mineral Resources. 2009. *Mining Charter Impact Assessment Report*. Pretoria: Republic of South Africa. [Online] Available from: https://www.gov.za/sites/default/files/gcis_document/201409/miningcharterimpact.pdf [Accessed: 2016-02-27].
- Department of Mineral Resources. 2011. *A beneficiation strategy for the mineral industry of South Africa*. Pretoria: Republic of South Africa. [Online] Available from: <http://www.eisourcebook.org/cms/South%20Africa%20Mineral%20Beneficiation%20Strategy.pdf> [Accessed: 2014-11-03].
- Desai, D. & Jarvis, M. 2012. Governance and accountability in extractive industries: theory and practice. *Journal of Energy & Natural Resources Law*, 30(2):101-128. [Online] Available from: <https://doi.org/10.1080/02646811.2012.11435288> [Accessed: 2016-10-08].
- Dessler, G. 1980. *Organization theory: integrating structure and behavior*. New Jersey: Prentice-Hall Inc.
- Devlin, D. 2015. Current tax issues in extractive industries. *Policy Dialogue on Natural Resource-Based Development*. OECD Tax and Development Programme. [Online] Available from: https://www.oecd.org/dev/Session%208%20-%20Current%20Tax%20issues%20in%20Extractives_OECD-CTPA.pdf [Accessed: 2016-06-24].
- Dine, J. & Koutsias, M. 2013. *The nature of corporate governance: the significance of national cultural identity*. Massachusetts: Edward Elgar Publishing Limited. [Online] Available from: <https://core.ac.uk/download/pdf/16388018.pdf> [Accessed: 2018-12-13].
- Dodd, M. 1932. For whom are corporate managers trustees? *Havard Law Review*, 45(7):1145:1163. [Online] Available from: <https://www.jstor.org/stable/1331697> [Accessed: 2018-12-18].

- Dolenc, P., Stubelj, I. & Laporsek, S. 2012. What is the objective of a firm? Overview of theoretical perspectives. In S. Bojnec, S. Brada, J.C. & Kuboniwa, M., *Overcoming the Crisis: Economic and Financial Developments in Asia and Europe*. Koper: University of Primorska Press. [Online] Available from: <http://www.hippocampus.si/ISBN/978-961-6832-32-8/papers/dolenc.pdf> [Accessed: 2018-12-16].
- Dunning, J.H. 1988. The Eclectic Paradigm of International Production: A Restatement and Some Possible Extensions. *Journal of International Business Studies*, 19(1):1-31. [Online] Available from: <http://www.jstor.org/stable/154984> [Accessed: 2019-07-27].
- Du Plessis, J.J., Hargovan, A. & Bagaric, M. 2011. *Principles of contemporary corporate governance* (2nd ed.). New York: Cambridge University Press.
- EISourcebook. 2010. *Good practice note granting mineral rights*. [Online] Available from: http://www.eisourcebook.org/cms/files/uow_granting_mineral_rights%3B_a_good_practice_note.pdf [Accessed: 2019-08-23].
- Elbra, A.D. 2013. The forgotten resource curse: South Africa's poor experience with mineral extraction. *Resources Policy*, 38(4):549–557. [Online] Available from: <http://dx.doi.org/10.1016/j.resourpol.2013.09.004> [Accessed: 2017-02-05].
- Enders, M.S. 2011. Discover, innovation and learning in the mining business-new ways forward for an old industry. *SEG Newsletter*, 86:16.
- Engelsen, N.J. 2010. *Oil Resources in Norwegian Seas*. [Online] Available from: <http://large.stanford.edu/courses/2010/ph240/engelsen1/> [Accessed: 2019-10-01].
- ENSAfrica. 2016. *What you need to know about the draft reviewed Mining Charter*. [Online] Available from: <https://www.ensafrika.com/news/what-you-need-to-know-about-the-draft-reviewed-Mining-Charter?Id=2176&STitle=mining%20Newsflash%20> [Accessed: 2016-06-15].

Ericsson, M. & Farooki, M. 2012. *Taxation in the mining sector- selected case studies*. Stockholm: Raw Materials Group.

Ericsson, M., Löf, F. & Petrilli Massey, E. 2011. Overview of state ownership in the global minerals industry: Long Term Trends and Future. *Extractive Industries for Development Series No. 20*. The World Bank Oil, Gas, and Mining Unit & Raw Materials Group. [Online] Available from: <https://siteresources.worldbank.org/INTOGMC/Resources/GlobalMiningIndustry-Overview.pdf> [Accessed: 2016-04-13].

Evans, C., Hasseldine, J., Lymer, A., Ricketts, R. & Sandford, C. 2017. *Comparative taxation: why tax systems differ*. United Kingdom: Fiscal Publications.

Extractive Industries Transparency Initiative. 2015. *Norway: Revenue from oil fund now exceeds revenue from oil*. [Online] Available from: <https://eiti.org/node/4417> [Accessed: 2016-09-17].

Federal Ministry for Economic Cooperation and Development. 2016. *Linkages in the Southern African mining sector: domestic procurement challenges and context working paper*. Germany: Bundesanstalt für Geowissenschaften und Rohstoffe. [Online] Available from: https://www.bgr.bund.de/DE/Themen/Zusammenarbeit/TechnZusammenarbeit/Downloads/Southern-African-mining-sector-linkages.pdf?__blob=publicationFile&v=2 [Accessed: 2017-02-09].

Figge, F. & Hahn, T. 2008. Limits of shareholder value to achieving global sustainability. In: Wankel, C. & Stoner, J.A. (eds.), *Innovative approaches to global sustainability*. New York: Palgrave Macmillan. [Online] Available from: https://doi.org/10.1057/9780230616646_4 [Accessed: 2018-12-18].

Fiscal Commission Working Group. 2013. *Principles for a modern and efficient tax system in an independent scotland*. Edinburgh: The Scottish Government. [Online] Available from: <https://www2.gov.scot/Publications/2013/10/4839/6> [Accessed: 2018-12-10].

Foo, N., Bloch, H. & Salim, R. 2017. Assessing the timing of mining investment under tax policy uncertainty: the case of the Asia-Pacific region. *Mineral Economics*, 30(2):117-139. [Online] Available from: <https://doi.org/10.1007/s13563-017-0106-y> [Accessed: 2018-05-11].

Foreign Investment Advisory Service. 2006. *Sector study of the effective tax burden of South Africa*. Washington: International Finance Corporation and World Bank.[Online] Available from: <http://documents.worldbank.org/curated/en/426631468165266422/pdf/588250WP0South10BOX353820B01PUBLIC1.pdf> [Accessed: 2015-03-27]

Forstater, M. 2018. *Tax and development: new frontiers of research and action*. CGD Policy Paper. Washington, DC: Center for Global Development. [Online] Available from: <https://www.cgdev.org/sites/default/files/tax-and-development-new-frontiers-research-and-action.pdf> [Accessed: 2018-12-22].

Frankel, J.A. 2012. *The natural resource curse: a survey of diagnoses and some prescriptions*. HKS Faculty Research Working Paper Series RWP12-014. [Online] Available from: <http://web.hks.harvard.edu/publications/citation.aspx?PubId=8331> [Accessed: 2018-05-10].

Frankovic, J. 2004. The case for “reverse depreciation” of reclamation costs. *Canadian Tax Journal*, 52(1):1-58. [Online] Available from: <https://ssrn.com/abstract=580023> [Accessed: 2017-04-28].

Frydenberg, J. 2015. *Address to the Minerals Council of Australia Biennial Tax Conference*. [Online] Available from: <http://jaf.ministers.treasury.gov.au/speech/004-2015/> [Accessed: 2015-05-24].

FTI Consulting Inc. 2017. The outlook for the South African mining sector. Cape Town: Mining Indaba Conference 2017. [Online] Available from: https://www.fticonsulting.com/~/_media/Files/emea--files/insights/articles/mining-indaba-conference-2017.pdf [Accessed: 2018-01-27].

Gamage, D. 2015. The case for taxing (all of) labor income, consumption, capital income, and wealth. *Tax Law Review*, 68:355-441. [Online] Available from: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2465522 [Accessed: 2018-12-28].

Garbarino, C. 2007. *An evolutionary approach to comparative taxation: theory, methods and agenda for research*. Milan: Bocconi Legal Studies Research Paper Series. [Online] Available from: <https://ssrn.com/abstract=1116686> [Accessed: 2018-04-17].

Garnaut, R. & Clunies Ross, A. 1983. *Taxation of mineral rents*. Oxford: Clarendon Press. [Online] Available from: <https://EconPapers.repec.org/RePEc:oxp:obooks:9780198284543> [Accessed; 2014-12-05].

Gelb, A. 2014. Should Canada worry about a resource curse? *The School of Public Policy Research Papers*, 7(2):1-26. [Online] Available from: <https://www.policyschool.ca/wp-content/uploads/2016/03/resource-curse-gelb.pdf> [Accessed: 2017-02-26].

Gelb, A.H. 1988. *Oil windfalls: blessing or curse?* New York: World Bank Oxford University Press. [Online] Available from: <http://documents.worldbank.org/curated/en/536401468771314677/Oil-windfalls-Blessing-or-curse> [Accessed: 2016-05-29].

Geological Survey of Norway and the Directorate of Mining. 2014. *Mineral resource in Norway 2013- Production Data and Annual Report*. Trondheim: Norges Geologiske Undersøkelse. [Online] Available from: https://www.ngu.no/upload/publikasjoner/rapporter/2014/Mineral%20Resources2013_screen.pdf?fileId=560 [Accessed: 2017-02-20].

George, C.S. 1968. *The history of management thought*. New Jersey: Prentice-Hall Inc.

- Ghana. 2018. President akufu-addo launches Ghana's maiden oil & gas licensing round. [Online] Available from: <http://ghana.gov.gh/index.php/news/5064-president-akufu-addo-launches-ghana-s-maiden-oil-gas-licensing-round-2> [Accessed: 2019-01-07].
- Ghura, D. & Pattillo, C. 2012. *Macroeconomic policy frameworks for resource-rich developing countries*. Washington: International Monetary Fund. [Online] Available from: <https://www.imf.org/external/np/pp/eng/2012/082412.pdf> [Accessed: 2018-08-29].
- Girones, E.O., Pugachevsky, A. & Walser, G. 2009. *Mineral rights cadastre: promoting transparent access to mineral resource*. Washington: World Bank. [Online] Available from: <http://hdl.handle.net/10986/18399> [Accessed: 2016-01-15].
- Gisler, B., Ustvedt, T. & Briseid, M. 2012. *Building the domestic revenue base: natural resource taxation and tax morale in Mozambique, Tanzania and Zambia*. [Online] Available from: <https://norad.no/globalassets/import-2162015-80434-am/www.norad.no-ny/filarkiv/5.-oks-2012---/final-report-from-the-regional-tax-workshop-in-lusaka-in-april-2012.pdf> [Accessed: 2015-04-07].
- Global Witness. 2012. A citizens' checklist preventing corruption in the award of oil, gas and mining licenses. Available from: <https://site-media.globalwitness.org/archive/files/a%20citizens%20checklist%20en%20jan%202012.pdf> [Accessed: 2019-08-15].
- Goergen, M. 1998. *Corporate governance and financial performance*. Massachusetts: Edward Elgar Publishing Limited.
- Goldsmith, S. 2002. *The Alaska Permanent Fund dividend: an experiment in wealth distribution*. Alaska: University of Alaska. [Online] Available from: <https://www.ilo.org/public/english/protection/ses/download/docs/gold.pdf> [Accessed: 2016-11-17].

- Goodson, S.M. 2014. *Inside the South African Reserve Bank: it's origins and secrets exposed*. London: Black House Publishing Ltd.
- Gordon , S. 2015. *Putting oil revenues into a savings fund isn't always a great idea*. [Online] Available from: <http://nationalpost.com/opinion/stephen-gordon-putting-oil-revenues-into-a-savings-fund-isnt-always-a-great-idea> [Accessed: 2017-11-05].
- Green, K.P., Wilson, A. & Cervantes, M. 2014. *Fraser Institute Annual Survey of Mining Companies 2013*. Canada: The Fraser Institute. [Online] Available from <https://www.fraserinstitute.org/sites/default/files/mining-survey-2013.pdf> [Accessed: 2016-12-11].
- Guvunen, F., Kambourov, G. & Kuruscu, B. 2017. Use it or lose it: efficiency gains from wealth taxation. *Unpublished manuscript*, 1-51. [Online] Available from: https://www.cemfi.es/ftp/pdf/papers/Seminar/GKKOC-2017_FG_v58.pdf [Accessed: 2018-12-27].
- Gylfason, T. 2001. Natural resources, education, and economic development. *European Economic Review*, 45(4-6):847-859. [Online] Available from: [https://doi.org/10.1016/S0014-2921\(01\)00127-1](https://doi.org/10.1016/S0014-2921(01)00127-1) [Accessed: 2018-09-06].
- Haddow, K. 2014. Should mineral rights for hard-rock minerals be awarded by tender? *Journal of Energy & Natural Resources Law*, 32(3):335-346. [Online] Available from: <https://doi.org/10.1080/02646811.2014.11435365> [Accessed: 2016-01-13].
- Haig, R. 1921. The concept of income-economic and legal aspects. *The Federal Income Tax*, 1(7). [Online] Available from: <https://archive.org/details/cu31924020062935/page/n11> [Accessed: 2018-12-16].
- Hartwick, J.M. 1977. Intergenerational equity and the investing of rents from exhaustible resources. *The American Economic Review*, 67(5):972-974. [Online] Available from: <https://www.jstor.org/stable/pdf/1828079.pdf> [Accessed: 2016-03-04].

- Harvey, R. 2014. *Nationalism with Chinese characteristics: how does it affect the competitiveness of South Africa's Mining Industry?* South Africa: Governance of Africa's Resources Programme. [Online] Available from: <https://saiia.org.za/research/nationalism-with-chinese-characteristics-how-does-it-affect-the-competitiveness-of-south-africas-mining-industry/> [Accessed: 2015-06-18].
- Harvey, R. 2015a. *Mineral rights, rents and resources in south africa's development narrative.* Johannesburg: South African Institute of International Affairs. [Online] Available from: https://www.academia.edu/20031793/Mineral_rights_rents_and_resources_in_South_Africas_development_narrative?auto=download [Accessed: 2017-05-12].
- Harvey, R. 2015b. *What role for natural resources in Botswana's quest for economic diversification?* Cape Town: South African Institute of International Affairs. [Online] Available from: <https://saiia.org.za/research/what-role-for-natural-resources-in-botswanas-quest-for-economic-diversification/> [Accessed: 2017-08-07].
- Havro, G. & Santiso, J. 2008. *To benefit from plenty: Lessons from Chile and Norway Policy Brief No. 37.* France: OECD Development Centre. [Online] Available from: <https://www.oecd.org/dev/41281577.pdf> [Accessed: 2016-12-19].
- Heij, G. 2012. Theoretical Framework for Applied Research on Tax Policies. In: Oats, L. (ed.) *Taxation: A Fieldwork Research Handbook*, New York: Routledge. [Online] Available from: <http://0-search.ebscohost.com.oasis.unisa.ac.za/login.aspx?direct=true&db=nlebk&AN=451214&site=eds-live&scope=site> [Accessed: 2019-07-24].
- Heller, P.R.P. 2018. Doubling Down: National oil companies as instruments of risk and reward. In: Addison, T. & A. Roe, A. (eds.) *Extractive Industries* (pp. 298-317). United Kingdom: Oxford University Press. [Online] Available from: <https://www.oapen.org/download?type=document&docid=1001608> [Accessed: 2018-10-26].

- Henry, K. 2010. *Australia's future tax system*. [Online] Available from: http://taxreview.treasury.gov.au/content/FinalReport.aspx?doc=html/Publications/Papers/Final_Report_Part_2/chapter_c1.htm [Accessed: 2018-12-11].
- Herrick, B. & Kindleberger, C.P. 1983. *Economic development*. 4th ed. New York: McGraw-Hill.
- Hesse-Biber, S.N. 2017. *The Practice of Qualitative Research: Engaging students in the research process*. 3rd ed. London: Sage.
- Heyns, J.V. 1994. South African tax policy in the 1980s. *South African Journal of Economic History: The South African economy in the 1980s*, (29):165-183. [Online] Available from: <https://hdl.handle.net/10520/EJC95723> [Accessed: 2015-01-03].
- Hill, T. & Westbrook, R. 1997. SWOT analysis: it's time for a product recall. *Long range planning*, 30(1):46-52. [Online] Available from: [https://doi.org/10.1016/S0024-6301\(96\)00095-7](https://doi.org/10.1016/S0024-6301(96)00095-7) [Accessed: 2019-08-22].
- HM Revenue and Customs. 1999. *Electronic commerce: the UK's taxation agenda*. [Online] Available from: <http://www.iwar.org.uk/e-commerce/resources/ecom.pdf> [Accessed: 2018-12-09].
- Hoepfl, M.C. 1997. Choosing qualitative research: A primer for technology education researchers. *Journal of Technology Education*, 9(1):47-63. [Online] Available from: <http://scholar.lib.vt.edu/ejournals/JTE/v9n1/pdf/hoepfl.pdf> [Accessed: 2019-07-24].
- Holden, S. 2013. Avoiding the resource curse the case of Norway. *Energy Policy*, 63:870-876. [Online] Available from: <https://doi.org/10.1016/j.enpol.2013.09.010> [Accessed: 2015-04-18].
- Holloway, J.E. 1946. *Union of South Africa Commission of Inquiry into Gold Mining Taxation*. Cape Town: SA State Library.

- Hotelling, H. 1931. The economics of exhaustible resources. *Journal of Political Economy*, 39(2):137-175. [Online] Available from: <https://doi.org/10.1086/254195> [Accessed: 2016-05-27].
- Hughes, T. 2012. *South Africa: a driver of change: increasing transparency and accountability in the extractive industries*. New York: Revenue Watch Institute. [Online] Available from: https://resourcegovernance.org/sites/default/files/SouthAfrica_TAI.pdf [Accessed: 20].
- Humphreys, M. & Sandbu, M.E. 2007. The political economy of natural resource funds. In Humphreys, M., Sachs, J.D. & Stiglitz, J.E. (eds.). *Escaping the resource curse*. New York: Columbia University Press. [Online] Available from: <https://pdfs.semanticscholar.org/75bc/f94c384f65519f8568fd4512c8764538ee49.pdf> [Accessed: 2018-10-15].
- Humphreys, M., Sachs, J.D. & Stiglitz, J.E. 2007. *Escaping the resource curse*. New York: Columbia University Press.
- Hunter, T. 2010. The offshore petroleum regulatory frameworks of Australia and Norway. *Oil, Gas & Energy Law Intelligence*, 8(4):38. [Online] Available from: <https://www.ogel.org/article.asp?key=3056> [Accessed: 2015-01-22].
- International Council on Mining and Metals. 2009. *Minerals Taxation Regimes: A review of issues and challenges in their design and application*. London: ICMM. [Online] Available from: <https://www.icmm.com/website/publications/pdfs/social-and-economic-development/minerals-taxation-regimes> [Accessed: 2015-03-11].
- International Council on Mining and Metals. 2014. *The Role of Mining in National Economies Report*. London: ICMM. [Online] Available from: <https://www.icmm.com/website/publications/pdfs/social-and-economic-development/minerals-taxation-regimes> [Accessed: 2016-07-19].

- International Finance Corporation. 2011. *Sectoral licensing studies: mining sector*. Washington: World Bank. [Online] Available from: <https://openknowledge.worldbank.org/handle/10986/27787> [Accessed: 2018-11-22].
- International Monetary Fund. 2010. *A multi-donor trust fund for IMF capacity building technical assistance in managing natural resource wealth*. Washington: International Monetary Fund. [Online] Available from: <https://www.imf.org/en/Capacity-Development/trust-fund/MNRW-TTF> [Accessed: 2017-01-17].
- International Monetary Fund. 2012. *Macroeconomic policy frameworks for resource-rich developing countries: background paper 1*. Washington: International Monetary Fund. [Online] Available from: <https://www.imf.org/external/np/pp/eng/2012/082412a.pdf> [Accessed: 2016-12-16].
- International Monetary Fund. 2013. *Norway: IMF Country Report No. 13/273*. Washington: International Monetary Fund. [Online] Available from: <https://www.imf.org/en/Publications/CR/Issues/2016/12/31/Norway-Selected-Issues-40918> [Accessed: 2017-01-29].
- International Monetary Fund. 2015a. *Norway: IMF Country Report No. 15/250*. Washington: International Monetary Fund. [Online] Available from: <http://large.stanford.edu/courses/2015/ph240/urban2/docs/cr15250.pdf> [Accessed: 2017-01-20].
- International Monetary Fund. 2015b. *South Africa: Technical Assistance Report - Fiscal regimes for Mining and Petroleum: Opportunities and Challenges Country Report No. 15/244*. Washington: International Monetary Fund. [Online] Available from: <https://www.imf.org/en/Publications/CR/Issues/2016/12/31/South-Africa-Technical-Assistance-Report-Fiscal-Regimes-for-Mining-and-Petroleum-43244> [Accessed: 2016-12-20].

- International Monetary Fund. 2016. *Norway: IMF Country Report No. 16/215*. Washington: International Monetary Fund. [Online] Available from: <https://www.imf.org/external/pubs/ft/scr/2016/cr16215.pdf> [Accessed: 2017-02-03].
- Jackson, T. & Green, K.P. 2015. *Fraser Institute Annual Survey of Mining Companies 2014*. Canada: Fraser Institute. [Online] Available from: <https://www.fraserinstitute.org/sites/default/files/survey-of-mining-companies-2014.pdf> [Accessed: 2015-06-17].
- Jackson, T. & Green, K.P. 2016. *Fraser Institute Annual Survey of Mining Companies 2015*. Canada: Fraser Institute. [Online] Available from: <https://www.fraserinstitute.org/sites/default/files/survey-of-mining-companies-2015.pdf> [Accessed: 2016-04-21].
- Jackson, T. & Green, K.P. 2017. *Fraser Institute Annual Survey of Mining Companies 2016*. Canada: Fraser Institute. [Online] Available from: <https://www.fraserinstitute.org/sites/default/files/survey-of-mining-companies-2016.pdf> [Accessed: 2017-03-26].
- James, S. & Nobes, C. 2000. *The economics of taxation: principles, policy, and practice* (7 ed.). New Jersey: Prentice Hall.
- James, 2019. *Auctions an efficient way to generate cash, reduce costs*. [Online] Available from: <https://www.miningweekly.com/print-version/auctions-an-efficient-way-to-generate-cash-reduce-costs-2019-03-01> [Accessed: 2019-07-29].
- Jansen, J.B. & Bjerke, J.M. n.d. *Norwegian petroleum taxation: an introduction*. Oslo: BA-HR. [Online] Available from: <https://docplayer.net/27352491-Norwegian-petroleum-taxation-an-introduction.html> [Accessed: 2017-01-09].
- Jeffery, A. 2016. Back to the drawing board on mining law. *@Liberty*, 5(28), 1-29. [Online] Available from: <https://irr.org.za/reports/atLiberty/files/liberty-issue-28-back-to-the-drawing-board-on.pdf/view> [Accessed: 2017-10-03].

- Jensen, M.C. 2002. Value maximization, stakeholder theory, and the corporate objective function. *Business Ethics Quarterly*, 12(2):235-256. [Online] Available from: <https://www.jstor.org/stable/3857812> [Accessed: 2018-12-28].
- Johnson, R.W. 2015. *How long will South Africa survive? The looming crisis*. London: C. Hurst & Co. Publishers Ltd.
- Jourdan, P. 2014. The optimisation of the developmental impact of South Africa's mineral assets for building a democratic developmental state. *Mineral Economics*, 26(3):107-126. [Online] Available from: <https://doi.org/10.1007/s13563-013-0037-1> [Accessed: 2016-11-08].
- Kar, D. & Spanjers, J. 2015. *Illicit Financial Flows from Developing Countries: 2004-2013*. Washington: Global Financial Integrity. [Online] Available from: https://www.gfintegrity.org/wp-content/uploads/2015/12/IFF-Update_2015-Final-1.pdf [Accessed: 2017-03-17].
- Katz. 1998. *Interim Report of the Commission of Inquiry into Certain Aspects of the Tax Structure of South Africa*. Pretoria: Government Printers. [Online] Available from: <http://www.treasury.gov.za/publications/other/katz/3.pdf> [Accessed: 2014-11-09].
- Keasey, K., Thompson, S. & Wright, M. 1999. *Corporate Governance: The international library of critical writings in economics 106*. Massachusetts: Elgar Edward Publishing Inc.
- Keay, A. 2007. Tackling the Issue of the Objective: An Analysis of the United States Corporate Enlightened Shareholder Value Approach. *Sydney Law Review*, 29(577), 577-612. [Online] Available from: https://www.researchgate.net/publication/265108593_Tackling_the_Issue_of_the_Corporate_Objective_An_Analysis_of_the_United_Kingdom's_'Enlightened_Shareholder_Value_Approach' [Accessed: 2018-12-20].

- Keay, A.R. 2011. *The corporate objective*. Massachusetts: Edward Elgar Publishing. [Online] Available from: https://books.google.co.za/books?hl=en&lr=&id=aKhSabZZGb8C&oi=fnd&pg=PR1&dq=Keay,+A.R.+2011.+The+corporate+objective.&ots=N_euR9paWm&sig=JTmZbG46RZxmhouCgsqu71QhgT0#v=onepage&q=Keay%2C%20A.R.%202011.%20The%20corporate%20objective.&f=false [Accessed: 2018-12-19].
- Keeton, G. & White, G. 2011. Is the nationalisation of the South African mining industry a good idea? In: *Biennial Conference of the Economic Society of South Africa*. Grahamstown, Department of Economics and Economic History, Rhodes University. [Online] Available from: www.essa2011.org.za/fullpaper/essa2011_2253.pdf [Accessed: 2018-03-11].
- Kernot, C. 1999. *Valuing mining companies: a guide to the assessment and evaluation of assets, performance and prospects*. England: Elsevier. [Online] Available from: <https://doi.org/10.1016/C2013-0-17682-9> [Accessed: 2014-12-01].
- Kiewiet, C. 1941. *A history of South Africa: social and economic*. Oxford: Oxford University Press.
- Kings, S. 2018. *Gas prospectors to explore three provinces*. [Online] Available from: <https://mg.co.za/article/2018-11-23-00-gas-prospectors-to-explore-three-provinces> [Accessed: 2018-11-29].
- Kneebone, R. & Gres, M. 2013. A recovery program for Alberta: a 10-year plan to end the addiction to resource revenues. *SPP Research Papers*, 6(11):1-12. [Online] Available from: <https://journalhosting.ucalgary.ca/index.php/sppp/article/view/42422/30314> [Accessed: 2016-10-15].
- Korinek, J. 2014. Mineral resources policies for growth and development: good practice examples. In *Export restrictions in raw materials trade: facts, fallacies and better practices* (pp. 225-278). Paris: Organisation for Economic Co-operation and

Development. [Online] Available from: <https://doi.org/10.1787/5jzb6v86kz32-en>
[Accessed: 2016-09-11].

KPMG. 2014. Income tax treatment of mines. Gauteng: South Africa.

Krautkraemer, J.A. 1998. Non-renewable resource scarcity. *Journal of Economic Literature*. 36(4):2065-2107. [Online] Available from: <https://www.jstor.org/stable/2565047>
[Accessed: 2015-06-04].

Krige, D.G. 1969. Some Implications of the new assistance formula for South African gold mines. *Journal of the South African Institute of Mining and Metallurgy*, (68)10:408-434. [Online] Available from: <https://www.saimm.co.za/Journal/v069n07p340.pdf>
[Accessed: 2015-04-12].

Krige, D.G. 1979. An analysis of potential benefits of realistic adjustments to the mining tax structure. *Journal of the South African Institute of Mining and Metallurgy*, 79(12):355-360. [Online] Available from: https://hdl.handle.net/10520/AJA0038223X_924
[Accessed: 2015-04-12].

Kunzel, P., Lu, Y., Petrova, I. & Pi, J. 2011. *Investment objectives of sovereign wealth funds—a shifting paradigm WP/11/19*. Washington: International Monetary Fund. [Online] Available from: <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.190.5115&rep=rep1&type=pdf> [Accessed: 2015-02-04].

Kuypers, S., Figari, F. & Verbist, G. 2018. An assessment of wealth taxes in a joint income-wealth perspective. In: *35th IARIW General Conference*, (pp. 20-25). Copenhagen, Denmark. [Online] Available from: <http://www.iariw.org/copenhagen/kuypers.pdf>
[Accessed: 2019-01-02].

Lahn, G. & Stevens, P. 2018. The curse of the one-size-all fix. In: Addison, T. & A. Roe, A. (eds.) *Extractive Industries* (pp. 93-113). United Kingdom: Oxford University Press. [Online] Available from:

<https://www.oapen.org/download?type=document&docid=1001608> [Accessed: 2018-10-26].

Lambrechts, K., Darimani, A. & Kabemba, C. 2009. Breaking the curse: how transparent taxation and fair taxes can turn Africa's mineral wealth into development. *Open Society Institute of Southern Africa*, Johannesburg. [Online] Available from: <https://www.christianaid.org.uk/sites/default/files/2017-08/breaking-curse-how-transparent-taxation-fair-taxes-can-turn-africas-mineral-wealth-development-march-2009.pdf> [Accessed: 2014-12-13].

Land, B. 2009. Capturing a fair share of fiscal benefits in the extractive industry. *Transnational Corporations*, 18(1):157-174. [Online] Available from: https://unctad.org/en/Docs/diaeii20097a7_en.pdf [Accessed: 2014-12-01].

Lange, G.M. & Wright, M. 2004. Sustainable development in mineral economies: the example of Botswana. *Environment and Development Economics*, 9(4):485-505. [Online] Available from: <https://doi.org/10.1017/S1355770X04001469> [Accessed: 2015-03-12].

Lederman, D. & Maloney, W. 2007. *Natural resources neither curse nor destiny*. Washington: Stanford University Press and World Bank. [Online] Available from: <http://documents.worldbank.org/curated/en/521331468045070417/Natural-resources-neither-curse-nor-destiny> [Accessed: 2014-10-16].

Ledger, J. & Nicol, M. 1992. South Africa's gold mining crisis: challenges for restructuring. *Transformation*, 20:17-35. [Online] Available from: <http://pdfproc.lib.msu.edu/?file=/DMC/African%20Journals/pdfs/transformation/tran020/tran020003.pdf> [Accessed: 2015-02-18].

Leite, C. & Weidmann, J. 1999. 'Does Mother Nature Corrupt? Natural Resources, Corruption and Economic Growth'. *International Monetary Fund, IMF, Washington, DC, (Working Paper WP/99/8)*. [Online] Available from: https://books.google.co.za/books?hl=en&lr=&id=xDSVZPf_zT8C&oi=fnd&pg=PA19

85&dq=%E2%80%98Does+Mother+Nature+Corrupt%3F+Natural+Resources,+Corruption+and+Economic+Growth%E2%80%99&ots=8pxsbE_WSW&sig=oAoKUHYO A1PQVfhvHwLtV2QIm0U&redir_esc=y#v=onepage&q=%E2%80%98Does%20Mother%20Nature%20Corrupt%3F%20Natural%20Resources%2C%20Corruption%20and%20Economic%20Growth%E2%80%99&f=false [Accessed: 2018-10-05].

Leon, P. 2010. *SA's mining industry in decline: An analysis*. [Online] Available from: <https://www.politicsweb.co.za/documents/sas-mining-industry-in-decline-an-analysis> [Accessed: 2019-08-03].

Leon, P. 2012. Whither the South African mining industry. *Journal of Energy and Natural Resource Law*, 30(1):5-27. [Online] Available from: <https://doi.org/10.1080/02646811.2012.11435281> [Accessed: 2016-03-29].

Leon, P. 2013. SA's mineral regulatory regime vs international best practice for mineral regulation in developing countries. *Commonwealth Law Conference*. Cape Town: Politics Web. [Online] Available from: <https://www.politicsweb.co.za/news-and-analysis/sas-mineral-regulatory-regime-vs-international-bes> [Accessed: 2014-12-12].

Leon, P. 2018. *Flawed mining bill must be replaced by a more investor-friendly version*. [Online] Available from: <https://www.businesslive.co.za/bd/opinion/2018-06-14-flawed-mining-bill-must-be-replaced-by-a-more-investor-friendly-version/> [Accessed: 2018-06-23].

Leon, P. 2019. *Mining Charter III: Certainty, but at a cost*. [Online] Available from: <https://www.biznews.com/briefs/2019/03/12/mining-charter-peter-leon> [Accessed: 2019-03-20]

Levy, P.I. 1999. *Sanctions of South Africa: What did they do? Discussion Paper No. 796*. Connecticut: Yale University. [Online] Available from: http://www.econ.yale.edu/growth_pdf/cdp796.pdf [Accessed: 2015-10-08].

- Lewin, M. 2011. Botswana's Success: good governance, good policies, and good luck. In Chuhan-Pole, P. & Angwafo, M. *Yes, Africa can: success stories from a dynamic continent* (pp. 81-90). Washington: World Bank Publications. [Online] Available from: http://siteresources.worldbank.org/AFRICAEXT/Resources/Botswana_success.pdf [Accessed: 2015-04-11].
- Lewis, C. & Alton, T. 2015. *How can South Africa's tax system meet revenue raising challenges?* Paris: OECD Publishing. [Online] Available from: <https://doi.org/10.1787/18151973> [Accessed: 2016-01-18].
- Lincoln, Y.S. & Guba, E.G. 1985. *Naturalistic enquiry*. Beverley Hills, CA: Sage.
- López, S.V. 2005. Competitive advantage and strategy formulation: The key role of dynamic capabilities. *Management Decision*, 43(5):661-669. [Online] Available from: <https://doi.org/10.1108/00251740510597699> [Accessed: 2019-07-28].
- Lund, D. 2014. State participation and taxation in Norwegian petroleum: Lessons for other? *Energy Strategy Reviews*, 3:49-54. [Online] Available from: <https://doi.org/10.1016/j.esr.2014.02.001> [Accessed: 2016-08-22].
- Lundgren, C.J., Thomas, M.A. & York, R.C. 2013. *Boom, bust, or prosperity? Managing Sub-Saharan Africa's natural resource wealth*. Washington: International Monetary Fund. [Online] Available from: <https://www.imf.org/external/pubs/ft/dp/2013/dp1302.pdf> [Accessed: 2017-04-15].
- Lymer, A. & Oats, L. 2018. *Taxation: policy and practice* (25 ed.). Birmingham: Fiscal Publications.
- Mandelbaum, J., Swartz S.A. & Hauert, J. 2016. Periodic review in natural resource contracts. *Journal of Sustainable Development Law & Policy*, 7(1):116-136 [Online] Available from: <http://dx.doi.org/10.4314/jSDLp.v6i2.6> [Accessed: 2019-09-24].

- Mangioni, V. & McKerchar, M. 2013. Strengthening the validity and reliability of the focus group as a method in tax research. *eJournal of Tax Research*, 11(2): 176-190. [Online] Available from: https://heinonline.org/HOL/Page?handle=hein.journals/ejotaxrs11&div=16&g_sent=1&casa_token=&collection=journals [Accessed: 2019-07-24].
- Mangondo, K. 2006. *The economics of gold mining taxation*. University of South Africa. Unpublished masters thesis. Pretoria: South Africa. [Online] Available from: <http://uir.unisa.ac.za/bitstream/handle/10500/2265/dissertation.pdf?sequence=1&isAllowed=y> [Accessed: 2014-09-17].
- Mansell, S. 2013. Shareholder theory and kant's 'duty of beneficence'. *Journal of Business Ethics*, 117(3):583-599. [Online] Available from: <https://doi.org/10.1007/s10551-012-1542-9> [Accessed: 2018-12-24].
- Manzano, O. & Rigobon, R. 2001. *Resource curse or debt overhang?* National Bureau of Economic Research Working Paper 8390. [Online] Available from: <https://www.nber.org/papers/w8390> [Accessed: 2018-09-06].
- Marais, G. 1988. *Report of The Technical Committee on Mining Taxation*. Pretoria: Government Printers.
- Margo, C.S. 1987. *Report on the Committee of Inquiry into the Tax Structure of South Africa*. Pretoria: Government Printers.
- Matsen, E. & Torvik, R. 2005. Optimal Dutch Disease. *Journal of Development Economics*, 78(2):494–515. [Online] Available from: <https://doi.org/10.1016/j.jdeveco.2004.09.003> [Accessed: 2017-02-28].
- Matshediso, I.B. 2005. A review of mineral development and investment policies of Botswana. *Resources Policy*, 30(3):203–207. [Online] Available from: <https://doi.org/10.1016/j.resourpol.2005.08.006> [Accessed: 2014-12-27].

- Mcfarlane, A.S. 2002. A code for the valuation of mineral properties and projects in South Africa. *South African Institute of Mining and Metallurgy Journal*, 102(1):37-48. [Online] Available from: <https://www.saimm.co.za/Journal/v102n01p037.pdf> [Accessed: 2014-06-03].
- McKerchar, M. 2008. Philosophical paradigms, inquiry strategies and knowledge claims: applying the principles of research design and conduct to taxation. *eJournal of Tax Research*, 6(1):5-22. [Online] Available from: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1464141 [Accessed: 2015-05-07].
- McKenzie, R. & Pons-Vignon, N. 2012. *Volatile Capital Flows and a Route to Financial Crisis in South Africa*. [Online] Available from: http://www.augurproject.eu/IMG/pdf/WP2_Volatile_Capital_Flows_and_a_Route_to_Financial_Crisis_in_South_Africa_LH2.pdf [Accessed: 2016-02-12].
- McMahon, F. & Cervantes, M. 2012. *Fraser Institute Annual Survey of Mining Companies 2011*. Canada: The Fraser Institute. [Online] Available from: <https://www.fraserinstitute.org/sites/default/files/mining-survey-2011-2012-rev.pdf> [Accessed: 2014-07-26].
- McPherson, C. 2010. State participation in the natural resource sectors: Evolution, issues and outlook. In: Daniel, P., Keen, M. & McPherson, C. *The taxation of petroleum and minerals: principles, problems and practice*. London and New York: Routledge.
- Meija, P.X. & Castel, V. 2012. *Could oil shine like diamonds? How Botswana avoided the resource curse and its implications for a New Libya*. Abidjan: African Development Bank. [Online] Available from: <https://www.afdb.org/en/news-and-events/could-oil-shine-like-diamonds-how-botswana-avoided-the-resource-curse-and-its-implications-for-a-new-libya-9979> [Accessed: 2014-06-06].
- Merriam, S.B. 1998. *Qualitative Research and case study applications in education: revised and expanded from case study research in education*. San Francisco: Jossey-Bass Publishers.

- Millar, A.E. & Rietveld, M. n.d. *Natural resources: a blessing or a curse?* [Online] Available from: <https://www.aehnetwork.org/textbook/natural-resources-a-blessing-or-a-curse/> [Accessed: 2017-07-13]
- Minerals Council of South Africa. 2018a. *Mining Charter*. [Online] Available from: <http://www.notourcharter.co.za/component/jdownloads/send/32-2018/161-minerals-council-notes-dmr-charter-2018> [Accessed: 2018-07-05].
- Minerals Council of South Africa. 2018b. *Making Mining Matter*. [Online] Available from: <https://www.mineralscouncil.org.za/industry-news/publications/newsletters> [Accessed: 2019-08-05].
- Mining Weekly. 2017. *Promulgation of Mining Charter to dent South Africa's risk, reward score*. [Online] Available from: <http://www.miningweekly.com/article/promulgation-of-mining-charter-to-dent-south-africas-risk-reward-score-bmi-2017-03-29> [Accessed: 2017-05-15].
- Ministry of Petroleum and Energy and the Norwegian Petroleum Directorate. 2018. [Online] Available from: <https://www.norskpetroleum.no/en/economy/petroleum-tax/> [Accessed: 2018-09-11].
- Mintz, J.M. 1991. The role of wealth taxation in the overall tax system. *Canadian Public Policy/Analyse de Politiques*, 248-263. [Online] Available from: <https://www.jstor.org/stable/3551635> [Accessed: 2018-12-20].
- Mintz, J. & Chen, D. 2012. Capturing economic rents from resources through royalties and taxes. *The School of Public Policy SPP Research Paper*, 12(30):1-45. [Online] Available from: <http://www.eisourcebook.org/cms/Canada,%20Capturing%20Economic%20Rents%20from%20Resources%20through%20Royalties%20&%20Taxes.pdf> [Accessed: 2018-05-11].

- Mirrlees, J. & Adam, S. 2011. *Tax by design: The Mirrlees review*. London: Oxford University Press. [Online] Available from: <https://www.ifs.org.uk/docs/taxbydesign.pdf> [Accessed: 2018-12-17].
- Mitchell, P. 2009. *Taxation and investment issues in mining*. Oslo: Extractive Industries Transparency Initiative. [Online] Available from: <https://eiti.org/sites/default/files/documents/MINING%20Compressed.pdf#page=28> [Accessed: 2014-05-18].
- Mo Ibrahim Foundation. 2018. *2018 Ibrahim Index of African Governance*. [Online] Available from: http://s.mo.ibrahim.foundation/u/2018/11/27173840/2018-Index-Report.pdf?_ga=2.91277018.1989544098.1548941645-1329949972.1548941645 [Accessed: 2019-03-24].
- Moncur, G. & Jones, S. 2010. The South African mining industry in the 1970s. *South African Journal of Economic History*, 114-142. [Online] Available from: <https://doi.org/10.1080/10113439909511113> [Accessed: 2015-06-03].
- Moolman, A.M. & van der Zwan, P. 2016. An evaluation of income tax incentives available to the South African oil and gas industry. *International Business & Economics Research Journal*, 15(5):227-240. [Online] Available from: https://repository.nwu.ac.za/bitstream/handle/10394/23793/2016An_Evaluation_Of_Income.pdf?sequence=1&isAllowed=y [Accessed: 2018-06-29].
- Mopila, K. 2014. *Ending the resource curse: African countries can turn their natural resources from a bane into a boon*. [Online] Available from: <http://gga.org/stories/editions/aif-20-can-africa-make-it/ending-the-resource-curse> [Accessed: 2015-05-24].
- Mostert, M. 2014. *The 'thing' called 'mineral right': re-examining the nature, content and scope of a rather confounding concept in South Africa Law*. Stuttgart: Recht in Africa / Law in Africa / Droit en Afrique - Zeitschrift der Gesellschaft für afrikanisches Recht. [Online] Available from:

https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2524953 [Accessed: 2016-05-17].

Mtambo, O.K. & Dludla N. 2019. *Business counts cost as Eskom battles power shortages*. [Online] available from: <https://www.businesslive.co.za/bd/economy/2019-03-18-business-counts-cost-as-eskom-battles-power--shortages/> [2019-03-20].

Muli, K.M.M. & Steyn, T. 2015. Exploring individual taxpayers' perceptions of tax complexity: a pilot study. In: Evans, C., Krever, R. & Mellor, P. (eds.). *Tax simplification*. Netherlands: Kluwer Law International. pp.197-210.

Musgrave, R.A. & Musgrave, P.B. 1989. *Public finance in theory and practice*. 5th ed. Toronto: McGraw-Hill. [Online] Available from: [http://desmarais-tremblay.com/Resources/Musgrave%20Richard%20A.%20and%20Musgrave%20Peggy%20B.%201989%20\(1973\)%20Public%20Finance%20in%20Theory%20and%20Practice_5th%20ed.pdf](http://desmarais-tremblay.com/Resources/Musgrave%20Richard%20A.%20and%20Musgrave%20Peggy%20B.%201989%20(1973)%20Public%20Finance%20in%20Theory%20and%20Practice_5th%20ed.pdf) [Accessed: 2018-12-20].

Naito, K., Myoi, H., Otto, J., Smith, D. & Kamitani, M. 1998. Mineral projects in Asian countries: Geology, regulation, fiscal regimes and the environment. *Resources Policy*, 24(2):87-93. [Online] Available from: [https://doi.org/10.1016/S0301-4207\(98\)00012-9](https://doi.org/10.1016/S0301-4207(98)00012-9) [Accessed: 2019-07-20].

Nakhle, C. 2008. *Petroleum taxation sharing the oil wealth: a study of petroleum taxation yesterday, today and tomorrow*. London and New York: Routledge Taylor & Francis Group. [Online] Available from: <https://doi.org/10.4324/9780203927892> [Accessed: 2016-10-03].

Nakhle, C. 2015. *Licensing and upstream petroleum fiscal regimes: Assessing Lebanon's choices*. Lebanon: The Lebanese Center for Policy Studies. [Online] Available from: http://www.lcps-lebanon.org/publications/1436792630-edt_lcps_carol_n_policy_paper_2015_high_res.pdf [Accessed: 2017-03-05].

- National Treasury. 2013. *The Davis Tax Committee*. [Online] Available from: <http://www.taxcom.org.za/termsreference.html> [Accessed: 2015-06-08].
- National Treasury. 2014. *Tax Statistics*. Pretoria: National Treasury and SARS. [Online] Available from: <http://www.treasury.gov.za/publications/tax%20statistics/2014/TStats%202014%20WEB.pdf> [Accessed: 2016-11-28].
- Nattrass, N. 1995. The Crisis in South African Gold Mining. *World Development*, 25(5):857-868. [Online] Available from: [https://doi.org/10.1016/0305-750X\(95\)00007-Y](https://doi.org/10.1016/0305-750X(95)00007-Y) [Accessed: 2014-05-08].
- Natural Resource Governance Institute. 2010. 2010 Natural Resource Charter [Online] Available from: https://resourcegovernance.org/sites/default/files/NRC_Eng_2011.pdf [Accessed: 2016-04-11]
- Natural Resource Governance Institute. 2013a. *Natural Resource Funds: Alberta Heritage Savings Trust Fund and Contingency Account*. [Online] Available from: https://resourcegovernance.org/sites/default/files/NRF_Alberta_September2013.pdf [Accessed: 2017-06-05].
- Natural Resource Governance Institute. 2013b. *Natural Resource Funds: Botswana*. [Online] Available from: https://resourcegovernance.org/sites/default/files/NRF_Botswana_July2013.pdf [Accessed: 2017-06-05].
- Natural Resource Governance Institute. 2013c. *Natural Resource Funds: Norway Government Pension Fund Global*. [Online] Available from: https://resourcegovernance.org/sites/default/files/NRF_Norway_July2013.pdf [Accessed: 2017-06-05].

Natural Resource Governance Institute. 2013d. *2013 Resource Governance Index*. [Online] Available from: https://resourcegovernance.org/sites/default/files/rgi_2013-webreport.pdf [Accessed: 2015-06-30].

Natural Resource Governance Institute. 2014a. *Natural Resource Charter: 2nd Edition*. [Online] Available from: <http://resourcegovernance.org/approach/natural-resource-charter> [Accessed: 2016-07-05].

Natural Resource Governance Institute. 2014b. *Natural Resource Fund Governance: The Essentials*. [Online] Available from: https://resourcegovernance.org/sites/default/files/NRF_Overview_EN.pdf [Accessed: 2017-10-18].

Natural Resource Governance Institute. 2015a. *Fiscal regime design - What revenues the government will be entitled to collect*. [Online] Available from: https://resourcegovernance.org/sites/default/files/nrgi_Fiscal-Regime-Design.pdf [Accessed: 2017-06-15].

Natural Resource Governance Institute. 2015b. *Getting a good deal from oil, gas and mining*. [Online] Available from: https://resourcegovernance.org/sites/default/files/nrgi_FiscalRegime_20150311.pdf [Accessed: 2017-05-02].

Natural Resource Governance Institute. 2015c. *Revenue management and distribution*. [Online] Available from: https://resourcegovernance.org/sites/default/files/documents/nrgi_primer_revenue-management.pdf [Accessed: 2016-09-09].

Natural Resource Governance Institute. 2015d. *The resource curse: the political and economic challenges of natural resource wealth*. [Online] Available from: https://resourcegovernance.org/sites/default/files/nrgi_Resource-Curse.pdf [Accessed: 2018-04-19].

Natural Resource Governance Institute. 2016. *Natural Resource Charter Benchmarking Framework*. [Online] Available from: <https://resourcegovernance.org/analysis-tools/tools/natural-resource-charter-benchmarking-framework> [Accessed: 2016-10-15].

Natural Resource Governance Institute. 2017. *2017 Resource Governance Index*. [Online] Available from: <http://www.resourcegovernanceindex.org/> [Accessed: 2017-06-30].

Natural Resources Canada. 2016. *Minerals and Metals Fact Book 2016*. Canada: Minister of Natural Resources. [Online] Available from: https://www.nrcan.gc.ca/sites/www.nrcan.gc.ca/files/mineralsmetals/pdf/mms-smm/Minerals%20and%20Metals_factbook_En.pdf [Accessed: 2017-11-28].

Norges Bank Investment Management. 2017. *Investment returns, capital inflows and exchange rates affect the fund's market value*. [Online] Available from: <https://www.nbim.no/en/the-fund/market-value/> [Accessed: 2017-11-10].

Norway. 1996. The Petroleum Act, No. 72 of 1996.

Norway. 1975. Petroleum Taxation Act, No. 35 of 1975.

Norway. 2009. Minerals Act, No. 101 of 2009.

Norway. 2019. *The Norwegian Fiscal Policy Framework*. [Online] Available from: <https://www.regjeringen.no/en/topics/the-economy/economic-policy/economic-policy/id418083/> [Accessed: 2019-03-23].

Norway Exports. n.d. *Oil and gas*. [Online] Available from: <http://www.norwayexports.no/sectors/publications/oil-gas-by-norway-exports/> [Accessed: 2017-11-05].

Norwegian Ministry of Petroleum and Energy. 2002. Oil and Gas Activities Report No. 38 to the Storting (2001–2002). [Online] Available from:

https://www.regjeringen.no/contentassets/6e28af195e184f97940858665c2cebaa/sr_eportno38.pdf [Accessed: 2019-03-25].

Norwegian Petroleum. 2019. *The petroleum tax system*. [Online] Available from: <https://www.norskpetroleum.no/en/economy/petroleum-tax/> [Accessed: 2019-03-25].

NWU School of Business and Governance. 2016. *Policy uncertainty index: fourth quarter 2015*. Johannesburg: North-West University. [Online] Available from: <https://skoolvirekonomie.files.wordpress.com/2016/02/pui-report-january-2016.pdf> [Accessed: 2016-10-25].

Nzenzema, N.C., Zinyama, T. & Nhema, A.G. 2015. An investigation into the efficacy of diamond beneficiation as a fiscal resource mobilisation strategy: the case of Zimbabwe. *American International Journal of Contemporary Research*, 5(5), 218-239. [Online] Available from: http://www.aijcrnet.com/journals/Vol_5_No_5_October_2015/27.pdf [Accessed: 2017-03-17].

Oats, L. 2012. *Taxation: A Fieldwork Research Handbook*. New York: Routledge. [Online] Available from: <http://0-search.ebscohost.com.oasis.unisa.ac.za/login.aspx?direct=true&db=nlebk&AN=451214&site=eds-live&scope=site> [Accessed: 2019-07-24].

Oberholzer, L. & Davidson J. 2017. *Oil & Gas in South Africa* [Online] Available from: <https://www.lexology.com/library/detail.aspx?g=b69e2b9b-74c8-4d13-b4af-fae577b075f2> [Accessed: 2019-07-30].

OECD. 1996. *Definition of taxes*. [Online] Available from: <http://www1.oecd.org/daf/mai/pdf/eg2/eg2963e.pdf> [Accessed: 2018-12-11].

OECD. 2001. *Taxation and electronic commerce: implementing the Ottawa taxation framework conditions*. Paris: Organisation for Economic Co-operation and

Development. [Online] Available from:
<http://www.oecd.org/tax/administration/20499630.pdf> [Accessed: 2015-11-18].

OECD. 2011. *Challenges in designing competitive tax systems: what is a competitive tax system?* Paris: Organisation for Economic Co-operation and Development. [Online] Available from: <https://www.oecd.org/ctp/48193714.pdf> [Accessed: 2018-12-07].

OECD. 2013. *Policy dialogue on natural resource based development*. France: Organization for Economic Cooperation and Development. [Online] Available from: http://www.oecd.org/development/development-philanthropy/EN_Brochure_PDDonNaturalResources-EN_web.pdf [Accessed: 2014-06-22].

OECD, 2014. *Addressing the Tax Challenges of the Digital Economy: Fundamental principles of taxation*. [Online] Available from: <https://www.oecd-ilibrary.org/docserver/9789264218789-5-en.pdf?expires=1567938917&id=id&accname=guest&checksum=B3D7266461B2D0C8CFB9254A2ED677B> [Accessed: 2019-08-02].

OECD. 2015. *Addressing base erosion and profit shifting: Remarks to INTOSAI Working Group on Extractive Industries*. [Online] Available from: <https://slideplayer.com/slide/7572467/> [Accessed: 2017-05-05].

OECD. 2017. *Revenue Statistics: 1965-2016*. Paris: OECD Publishing. [Online] Available from: <http://dx.doi.org/10.1787/10.1787/9789264283183-en> [Accessed: 2018-02-02].

OECD. 2019. *OECD Business and Finance Outlook 2019: Strengthening Trust in Business*. [Online] Available from: <https://doi.org/10.1787/af784794-en> [Accessed: 2019-09-10].

Ojah, K. 2016. *What South Africa needs to do to step away from the downgrade precipice*. [Online] Available from: <https://theconversation.com/what-south-africa-needs-to-do-to-step-away-from-the-downgrade-precipice-61335> [Accessed: 2016-09-17].

- Omarjee, L. 2017. *More than 50% of SA's population is living in poverty*. [Online] Available from: <https://www.fin24.com/Economy/more-than-50-of-sas-population-is-living-in-poverty-20170822> [Accessed: 2018-02-12].
- Onifade, T.T. 2017. Alberta, Canada, royalty review and its lessons for resource economies. *Journal of Energy & Natural Resources Law*, 35(2):171–196. [Online] Available from: <https://doi.org/10.1080/02646811.2017.1298698> [Accessed: 2018-07-12].
- Ostensson, O., Parsons, B. & Dodd, S. 2014. *Comparative study of the mining tax regime for mineral exploration in Khazakstan*. United Kingdom: Joint Economic Research Programme. [Online] Available from: <http://documents.worldbank.org/curated/en/803881468044358168/pdf/944820WP0P1477630Box385442B00PUBLIC00ACS.pdf> [Accessed: 2016-12-08].
- O'Sullivan, M. 2001. *Contests for corporate control: Corporate governance and economic performance in the United States and Germany*. Oxford: Oxford University Press.
- Otto, J.M. 1998. Global changes in mining laws, agreements and tax systems. *Resources policy*, 24(2):79-86. [Online] Available from: [https://doi.org/10.1016/S0301-4207\(98\)00011-7](https://doi.org/10.1016/S0301-4207(98)00011-7) [Accessed: 2019-09-15].
- Otto , O., Andrews, C., Cawood, F., Doggett, M., Guj, P., Stermole, F., Stermole, J. & Tilton, J. 2006. *Mining Royalties: A Global Study of their impact on Investors, Government and Civil Soceity*. Washington: World Bank. [Online] Available from: http://documents.worldbank.org/curated/en/103171468161636902/pdf/372580Minin_g0r101OFFICIAL0USE0ONLY1.pdf [Accessed: 2014-06-26].
- Otto, J. 2018. The Taxation of Extractive Industries. In: Addison, T. & A. Roe, A. (eds.) *Extractive Industries* (pp. 275-297). United Kingdom: Oxford University Press. [Online] Available from: <https://www.oopen.org/download?type=document&docid=1001608> [Accessed: 2018-10-26].

- Overseas Development Institute. 2006. *Meeting the Challenge of the 'Resource Curse'. International Experiences in Managing the Risks and Realizing the Opportunities of Non Renewable Natural Resource Revenues*. London: Prepared for the Bureau for Resources and Strategic Partnerships – United Nations Development Programme. [Online] Available from: <https://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/839.pdf> [Accessed: 2014-11-13].
- Pak, S.J. 2012. *Lost billions transfer pricing in the extractive industry*. Norway: Publish What You Pay. [Online] Available from: https://www.publishwhatyoupay.no/sites/all/files/1008a-PWYP_TransferPricing_ENG_DOWNLOAD.pdf [Accessed: 2015-06-20].
- Parlee, B.L. 2015. Avoiding the resource curse: indigenous communities and Canada's oil sands. *World Development*, 74:425-436. [Online] Available from: <https://doi.org/10.1016/j.worlddev.2015.03.004> [Accessed: 2017-02-26].
- Petroleum Agency SA. (n.d). *South African agency for the promotion of petroleum exploration and exploitation*. [Online] Available from: <http://www.petroleumagencyrsa.com/index.php/home-14/shale-gas> [Accessed: 2016-06-30].
- Phadermrod, B., Crowder, R.M. & Wills, G.B. 2019. Importance-performance analysis based SWOT analysis. *International Journal of Information Management*, 44:194-203. [Online] Available from: <https://doi.org/10.1016/j.ijinfomgt.2016.03.009> [Accessed: 2019-08-22].
- Phillip, G. 2013. A gold industry in decline. *Gold Mining Journal*, 1(114):9.
- Porter, M.E. 1980. *Competitive strategy*. New York: The Free Press.
- PricewaterhouseCoopers. 2010. *Total tax contribution: a study of the economic contribution mining companies make to public finances*. United Kingdom: PricewaterhouseCoopers International Limited. [Online] Available from:

<https://www.pwc.com/gh/en/pdf/total-tax-contribution-by-mining-companies.pdf>

[Accessed: 2016-07-24].

PricewaterhouseCoopers. 2015a. *SA Mine: 7th Edition*. South Africa: PricewaterhouseCoopers. [Online] Available from: <https://www.pwc.co.za/en/assets/pdf/sa-mine-2015.pdf> [Accessed: 2016-05-15].

PricewaterhouseCoopers. 2015b. *The taxonomy of Sovereign Investment Funds*. [Online] Available from: <https://www.pwc.com/gx/en/sovereign-wealth-investment-funds/publications/assets/pwc-the-taxonomy-of-sovereign-investment-funds.pdf> [Accessed: 2018-12-20].

Prospectors & Developers Association of Canada. 2015. *Financial incentives for mineral exploration and prospecting in Canada*. [Online] Available from: [http://www.pdac.ca/docs/default-source/public-affairs/compilation-of-financial-incentives-for-mineral-exploration-in-canada-v8-dec-13-2013---for-publication-online-\(2\).pdf](http://www.pdac.ca/docs/default-source/public-affairs/compilation-of-financial-incentives-for-mineral-exploration-in-canada-v8-dec-13-2013---for-publication-online-(2).pdf) [Accessed: 2017-02-20].

Queen, P.E. 2015. Enlightened shareholder maximization: is this strategy achievable? *Journal of Business Ethics*, 127(3):683–694. [Online] Available from: <https://doi.org/10.1007/s10551-014-2070-6> [Accessed: 2018-12-20].

Ramfol, R. 2016a. *The bearer of the 'right to mine': mineral tenure in South Africa*. African Tax Research Network Working Paper Series.

Ramfol, R. 2016b. South Africa's gold mining tax regime. In: Hattingh, J., Roeleveld, J., West, C. (eds.). *Income Tax in South Africa: The First 100 Years (1914 - 2014)*. Claremont, Cape Town: Juta.

Ramfol, R. 2017. *The taxation of extractives in the context of contemporary international fiscal regimes: lessons for South Africa*. Paper presented at the The Political Economy of Resource Taxation and Tax Reform In Africa, Bergen, 22 August 2017.

- Ramfol, R. 2018. 'Saving for a rainy day': a proposed South African natural resource fund. Paper presented at the Macroeconomic Policies for Inclusive Growth in Southern Countries, Berlin, 15 November 2018.
- Rappaport, A. 1987. Linking competitive strategy and shareholder value analysis, *Journal of Business Strategy*, 7(4):58-67. [Online] Available from: <https://doi.org/10.1108/eb039176> [Accessed: 2018-12-20].
- Rapp, M.S., Schellong, D., Schmidt, M. & Wolff, M. 2011. Considering the shareholder perspective: value-based management systems and stock market performance. *Review of Managerial Science*, 5(2-3):171–194. [Online] Available from: <https://doi.org/10.1007/s11846-010-0056-z> [Accessed: 2018-12-15].
- Rattsø, J. & Stokke, H.E. 2005. Ramsey Model of Barriers to Growth and Skill-Based Income Distribution in South Africa. *Department of Economics, Norwegian University of Science and Technology Working Paper no. 11/04*, 1-28. [Online] Available from: https://ntnuopen.ntnu.no/ntnu-xmlui/bitstream/handle/11250/267115/126077_FULLTEXT01.pdf?sequence=1&isAllowed=y [Accessed: 2018-08-31].
- Reisen, H. 2008. *How to spend it: Commodity and non-commodity sovereign wealth funds*. Germany: Deutsche Bank Research Working Paper Series Research Note 28. [Online] Available from: <https://www.oecd-ilibrary.org/docserver/228474683637.pdf?expires=1563449371&id=id&accname=guest&checksum=EF4ABEEE64133F7918233982C7EFBF41> [Accessed: 2015-01-16].
- Resource Governance Index. 2013. *A Measure of Transparency and Accountability in the Oil, Gas, and Mining Sector*. New York: Revenue Watch. [Online] Available from: https://eiti.org/sites/default/files/migrated_files/RGI%2520report.pdf [Accessed: 2015-02-15].

- Reuters. 2016. *South Africa to start shale gas exploration in next year*. [Online] Available from: <http://www.reuters.com/article/us-safrica-shalegas-idUSKCN0WA26F> [Accessed: 2016-06-30].
- Ricardo, D. 1817. *On the principles of political economy and taxation*. London: John Murray. [Online] Available from: <https://socialsciences.mcmaster.ca/econ/ugcm/3ll3/ricardo/Principles.pdf> [Accessed: 2018-09-09].
- Ritchie, G. 2018. *Mantashe releases Mining Charter of compromises*. [Online] Available from: <https://mg.co.za/article/2018-09-27-mantashe-releases-mining-charter-of-compromises> [Accessed: 2018-11-07]
- Rodriguez, M.R. & Suslick, S.B. 2008. An overview of Brazilian petroleum exploration lease auctions. *Revista Terrae*, 3(1):1-15. [Online] Available from: <https://www.ige.unicamp.br/terrae/V6/PDF-N6/T-a1i.pdf> [Accessed: 2015-08-23].
- Rossouw, M. & Baxter, R. 2011. Subject concepts and issue outline. *The Journal of The Southern African Institute of Mining and Metallurgy*, 111(7):511-516. [Online] Available from: <https://www.saimm.co.za/Journal/v111n07p511.pdf> [Accessed: 2014-05-15].
- Ryan, C. 2015. *Corporate cash mountain reaches record levels*. [Online] Available from: <http://www.moneyweb.co.za/news/markets/corporate-cash-mountain-reaches-record-levels/> [Accessed: 2016-06-15].
- S&P Global Market Intelligence. 2017. *Worldwide Mining Exploration Trends 2017*. New York: S&P Global. [Online] Available from: https://mineralsmakelife.org/wp-content/uploads/2017/04/Worldwide_Mining_Exploration_Trends_2017.pdf [Accessed: 2018-03-18].
- Sachs, J.D. & Warner, A.M. 1995. *Natural resource abundance and economic growth Working Paper No. 5398*. National Bureau of Economic Research. [Online] Available from: <https://www.nber.org/papers/w5398> [Accessed: 2018-08-23].

- Saidu, B. 2007. How Taxes, Royalties, and Fiscal Regime Stability Affect Mining Investment: A Comparison of Niger and Indonesia. *The Journal of Structured Finance*, 13 (3):105-111. [Online] Available from: <https://doi.org/10.3905/jsf.2007.698661> [Accessed: 2019-07-20].
- Santiso, J. 2014. *Sovereign wealth funds 2014*. Spain: ESADE Business School. [Online] Available from: https://sites.tufts.edu/sovereignet/files/2017/08/Esade-SWF2014_ENG.pdf [Accessed: 2014-07-15].
- Santiso, J. & Capape, J. 2011. *Sovereign funds are helping strike a new world economic balance*. Spain: ESADE Geo Centre for Global Economy and Geopolitics. [Online] Available from: <https://ssrn.com/abstract=1877224> or <http://dx.doi.org/10.2139/ssrn.1877224> [Accessed: 2014-07-13].
- Sarma, S.D. & Chaudhury, S. 2009. Socio-Economic Implications of Nanotechnology Applications: A Case of Copper and Copper Dependent Countries. *Nanotechnology Law & Business*, 6, 278-310. [Online] Available from: <http://www.nanolabweb.com/index.cfm/action/main.default.viewArticle/articleID/292/CFID/3843948/CFTOKEN/94277499/index.html> [Accessed: 2017-01-27].
- Sarraf, M. & Jiwanji, M. 2001. *Beating the Resource Curse: The Case of Botswana*. Washington: World Bank. [Online] Available from: <https://openknowledge.worldbank.org/bitstream/handle/10986/18304/multi0page.pdf?sequence=1&isAllowed=y> [Accessed: 2015-09-27].
- Scott, J. 2011. Documents, Types of. In: Lewis-Beck, M.S, Bryman A. & Liao, T.F. *The SAGE Encyclopedia of Social Science Research Methods*. [Online] Available from: <https://dx.doi.org/10.4135/9781412950589> [Accessed: 2019-07-24].
- Sebudubudu, D. 2011. *Wealth sharing for conflict prevention and economic growth: Botswana case study of natural resource utilization for peace and development*. Washington: World Bank. [Online] Available from:

<http://documents.worldbank.org/curated/en/377081468201248331/pdf/868140WP0World00Box385183B00PUBLIC0.pdf> [Accessed: 2017-04-02].

Secombe, A. 2018. *Mining Charter guidelines released*. [Online] Available from: <https://www.businesslive.co.za/bd/national/2018-12-20-mining-charter-guidelines-released/> [Accessed: 2018-12-27].

Segal, N. & Malherbe, S. 2000. *A perspective on the South African Mining industry in the 21st century*. Cape Town: University of Cape Town Graduate School of Business and Genesis Analytics. [Online] Available from: <http://pmg-assets.s3-website-eu-west-1.amazonaws.com/docs/segal.pdf> [Accessed: 2016-02-06].

Shantyaei, S. 2017. *Diamonds aren't forever: Botswana seeks to diversify its economy*. [Online] Available from: <https://www.france24.com/en/20171216-botswana-diamonds-industry-economy-sustainable-tourism-wildlife-safaris> [Accessed: 2019-10-01].

Sharife, K. & Bracking, S. 2016. Diamond pricing and valuation in South Africa's extractive political economy. *Review of African Political Economy*, 43(150):556–575. [Online] Available from: <https://doi.org/10.1080/03056244.2016.1177504> [Accessed: 2017-09-10].

Shilling, J.W. 1950. Outline of gold mining taxation laws governing the mining of gold. *South African Law Journal*, 67, 149-160.

Shin, T. 2013. The shareholder value principle: the governance and control of corporations in the United States. *Sociology Compass*, 7(10):829–840. [Online] Available from: <https://doi.org/10.1111/soc4.12076> [Accessed: 2018-12-22].

Shukla, G.P. 2007. *Mining taxation and legal framework*. United States: Duke University Center for International Development. [Online] Available from: <https://slideplayer.com/slide/3991975/> [Accessed: 2014-05-29].

- Sidney, M.S. 2007. Policy formulation: design and tools. In: Fischer, F., Miller, G.J & Sidney, M.S. (eds). *Handbook of public policy analysis: theory, politics and methods* (pp. 79-88). Taylor & Francis. [Online] Available from: https://www.researchgate.net/profile/Martin_Lodge/publication/40838379_Comparative_Public_Policy/links/53fb5daf0cf22f21c2f312db/Comparative-Public-Policy.pdf#page=106 [Accessed: 2019-03-20].
- Simons, H. 1938. *Personal Income taxation: the definition of income as a problem of fiscal policy*. Chicago: University of Chicago Press.
- Siu, E.D., Picciotto, S., Mintz J. & Sawyerr, A. 2015. Unitary Taxation in the Extractive Industry Sector. *International Centre for Tax and Development*. [Online] Available from: https://opendocs.ids.ac.uk/opendocs/bitstream/handle/123456789/11188/ICTD_WP35.pdf [Accessed: 2018-04-07].
- Smith, A. [1776]. 2003. *The wealth of nations*. New York, NY: Modern Library. [Online] Available from: https://www.ibiblio.org/ml/libri/s/SmithA_WealthNations_p.pdf [Accessed: 2018-10-24].
- Smith. P.J. 1991. The Politics of Plenty: Investing Natural Resource Revenues in Alberta and Alaska. *Canadian Public Policy*, 17(2):139-154. [Online] Available from: <https://www.jstor.org/stable/3551025> [Accessed: 2017-06-19].
- SNL Metals & Mining. 2016. *World Exploration Trends Report*. United States: SNL Financial LC. [Online] Available from: <http://pages.marketintelligence.spglobal.com/rs/spglobal/images/World-Exploration-Trends-WET-Report-2016-English-SNL-Metals-Mining.pdf> [Accessed: 2017-05-02].
- Solomon, M. 2012. *The rise of resource nationalism: resurgence of state control in an era of free markets*. South Africa: The Southern African Institute of Mining and Metallurgy. [Online] Available from:

<http://www.saimm.co.za/Conferences/ResourceNationalism/ResourceNationalism-20120601.pdf> [Accessed: 2014-12-22].

South Africa. 1898. Precious Minerals Act, No. 31 of 1898.

South Africa. 1899. Mines and Collieries Act, No. 43 of 1899.

South Africa. 1907. Mineral Law Amendment Act, No. 16 of 1907.

South Africa. 1908. Precious and Base Metals Act, No. 35 of 1908.

South Africa. 1909. Union of South Africa Act of 1909.

South Africa. 1912. Land Settlement Act, No. 12 of 1912.

South Africa. 1917. Land Settlement Amendment Act, No. 23 of 1917.

South Africa. 1918. Mining Leases and Mineral Law Amendment Act, No. 30 of 1918.

South Africa. 1926. Reserved Minerals Development Act, No. 55 of 1926.

South Africa. 1934. Mineral Law Amendment Act, No. 36 of 1934.

South Africa. 1936. Orange Free State Metals Mining Act, No. 13 of 1936.

South Africa. 1942. Base Minerals Development Act, No. 39 of 1942.

South Africa. 1942. Natural Oil Act, No. 46 of 1942.

South Africa. 1948. Atomic Energy Act, No. 35 of 1948.

South Africa. 1962. Income Tax Act, No. 58 of 1962.

South Africa. 1991a. Mineral Act, No. 50 of 1991.

South Africa. 1991b. Value-Added Tax Act, No. 89 of 1991.

South Africa. 1996. The Constitution of the Republic of South Africa Act, No.108 of 1996.

South Africa. 2000a. Mineral Development Draft Bill in 2000.

South Africa. 2000b. Promotion of Access to Information Act, No. 2 of 2000.

South Africa. 2002. Mineral and Petroleum Resources Development Act, No. 28 of 2002.

South Africa. 2003. Mining Titles Registration Amendment Act, No. 24 of 2003.

South Africa. 2008. Mineral and Petroleum Resources Royalty Act, No. 28 of 2008.

South Africa. 2011. New Growth Path Framework. [Online] Available from: <http://pmg-assets.s3-website-eu-west-1.amazonaws.com/docs/101123new-growth-path.pdf>
[Accessed: 2015-10-23].

South Africa. 2012. National Development Plan 2030. [Online] Available from: https://www.gov.za/sites/default/files/gcis_document/201409/ndp-2030-our-future-make-it-workr.pdf [Accessed: 2016-01-19].

South Africa. 2013. Mineral and Petroleum Resources Development Amendment Bill Act of 2013. [Online] Available from: http://pmg-assets.s3-website-eu-west-1.amazonaws.com/b_15D-2013.pdf [Accessed: 2016-12-05].

South Africa. 2018. Broad-Based Socio Economic Empowerment Charter for the Mining and Minerals Industry, 2018. [Online] Available from: https://www.gov.za/sites/default/files/gcis_document/201809/41934gon1002.pdf
[Accessed: 2018-10-05]

South African Oil and Gas Alliance. n.d. *Upstream oil & gas in South Africa*. [Online] Available from: <http://www.saoga.org.za/oil-gas-hubs/upstream-oil-gas-south-africa> [Accessed: 2016-04-30].

Stanley, M. & Mikhaylova, E. 2011. *Mineral resource tenders and mining infrastructure projects guiding principles*. Washington: World Bank. [Online] Available from: <http://documents.worldbank.org/curated/en/420541468149681572/pdf/655030NWP00PUB0570B0MiningSectorWEB.pdf> [Accessed: 2016-12-09].

Statista. 2018. *Largest sovereign wealth funds worldwide as of August 2018, by assets under management (in billion U.S. dollars)*. [Online] Available from: <https://www.statista.com/statistics/276617/sovereign-wealth-funds-worldwide-based-on-assets-under-management/> [Accessed: 2018-11-15].

Statistics South Africa. 2015. *The decreasing importance of gold mining in South Africa*. [Online] Available from: <http://www.statssa.gov.za/?p=4252> [Accessed: 2015-06-08].

Statistics South Africa. 2017a. *Mining: a brief history*. [Online] Available from: <http://www.statssa.gov.za/?p=9720> [Accessed: 2018-01-09].

Statistics South Africa. 2017b. *National accounts: environmental economic accounts compendium*. Pretoria: Government Printers. [Online] Available from: <http://www.statssa.gov.za/publications/Report-04-05-20/Report-04-05-20March2017.pdf> [Accessed: 2018-03-12]

Stedman, A. & Green, K.P. 2018. *Fraser Institute Annual Survey of Mining Companies 2017*. Canada: Fraser Institute 2018. [Online] Available from: <https://www.fraserinstitute.org/sites/default/files/survey-of-mining-companies-2017.pdf> [Accessed: 2018-08-04].

Steigum, E. 2013. *Sovereign wealth funds for macroeconomic purposes*. Oslo: Swedish Fiscal Policy Council. [Online] Available from:

<https://pdfs.semanticscholar.org/7e52/8c2cc74d82d37acaa00b2b78673350faeaaf.pdf> [Accessed: 2014-11-16].

Stelios, A. 2012. Enlightened shareholder value: is it the new modus operandi for modern companies? In: Boubaker, S., Nguyen, B.D. & Nguyen, D.K. (eds.), *Corporate Governance: Recent Developments and New Trends* (pp. 415-432). Berlin, Heidelberg: Springer-Verlag. [Online] Available from: https://www.researchgate.net/publication/286341508_Enlightened_Shareholder_Value_Is_It_the_New_Modus_Operandi_for_Modern_Companies [Accessed: 2018-12-20].

Stevens, P. & Dietsche, E. 2008. Resource curse: An analysis of causes, experiences and possible ways forward. *Energy Policy*, 36(1):56-65. [Online] Available from: <https://doi.org/10.1016/j.enpol.2007.10.003> [Accessed: 2018-02-19].

Stevens, P., Kooroshy, J., Lahn, G. & Lee, B. 2013. *Conflict and Coexistence in the Extractive Industries*. London: The Royal Institute of International Affairs. [Online] Available from: https://www.chathamhouse.org/sites/default/files/public/Research/Energy,%20Environment%20and%20Development/chr_coc1113.pdf [Accessed: 2018-02-06].

Stiglitz, J. 2004. *We can now cure Dutch disease*. [Online] Available from: <https://www.theguardian.com/business/2004/aug/18/comment.oilandpetrol> [Accessed: 2017-11-15].

Stokke, H.E. 2008. Resource boom, productivity growth and real exchange rate dynamics- A dynamic general equilibrium analysis of South Africa. *Economic Modelling*, 25(1):148-160. [Online] Available from: <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.519.3511&rep=rep1&type=pdf> [Accessed: 2018-08-31].

Stott, J. 2008. Preservation of exploitation? a study of the development of the mining rights legislation on the witwatersrand goldfields from 1886 to 2008. Unpublished masters

thesis. Johannesburg: Rhodes University. [Online] Available from: <https://core.ac.uk/download/pdf/145055337.pdf> [Accessed: 2015-03-26].

Sunnevåg, K.J. 2002. Auctions combined with ex post taxation—expected revenue when three parties want a piece of the cake. *Resources Policy*, 28(1-2):49-59. [Online] Available from: [https://doi.org/10.1016/S0301-4207\(03\)00005-9](https://doi.org/10.1016/S0301-4207(03)00005-9) [Accessed: 2018-03-26].

Swart, W. & Du Plessis, C. 2016. Extractive Industry: The South African experience in protecting the tax base. *Assessing the Value of Extractives: Do we know what is leaving African countries? Symposium conducted at the ATAF Special Meeting On Taxation Of The Extractive Industry*. Johannesburg: South African Revenue Services.

Thompson, A. A., Strickland, A. J. & Gamble, J. E. 2007. *Crafting and Executing Strategy- Concepts and Cases*, 15th ed. USA: McGrawHill/Irwin.

Thuronyi, V. 1996. *Tax Law Design and Drafting* (Vol. 1). Washington: International Monetary Fund. [Online] Available from: <https://www.imf.org/en/Publications/Books/Issues/2016/12/30/Tax-Law-Design-and-Drafting-Volume-1-1550> [Accessed: 2018-12-13].

Thuronyi, V. 1998. *Tax Law Design and Drafting* (Vol. 2). Washington: International Monetary Fund. [Online] Available from: <https://www.imf.org/en/Publications/Books/Issues/2016/12/30/Tax-Law-Design-and-Drafting-Volume-2-2651> [Accessed: 2018-12-13].

Thuronyi, V. 1999. Studying comparative tax law. In: Lindencrona, G., Sven-Olof Lodin, S.O. & Wilnan, B. (eds.) *International Studies in Taxation: Law and Economics*. London, UK: Kluwer Law International, 333-340. [Online] Available from: <https://www.uni-heidelberg.de/institute/fak2/mussgnug/historyoftaxdocuments/schrifttum/aufsaeetze/AUFS00029.pdf> [Accessed: 2018-12-13].

- Thuronyi, V. 2003. *Comparative Tax Law*. The Hague: Kluwer Law International.
- Toledano, P., Bush, J. and Mandelbaum, J. 2017. Designing a legal regime to capture capital gains tax on indirect transfers of mineral and petroleum rights: a practical guide. [Online] Available from: <http://ccsi.columbia.edu/files/2017/10/Designing-a-legal-regime-to-capture-capital-gains-tax-CCSI-ISLP-Oct-2017.pdf> [Accessed: 2018-18-02].
- Tordo, S., Johnston, D. & Johnston, D. 2009. *Petroleum exploration and production rights: allocation strategies and design issues*. Washington: World Bank. [Online] Available from: <https://openknowledge.worldbank.org/bitstream/handle/10986/5954/518400PUB0REPL101Official0use0Only1.pdf?sequence=1> [Accessed: 2015-03-17].
- Tordo, S. 2011. *National oil companies and value creation*. The World Bank. [Online] Available from: <https://siteresources.worldbank.org/INTOGMC/Resources/9780821388310.pdf> [Accessed: 2016-04-13].
- Torres, C.S. 2015. Norway's oil and gas sector: how did the country avoid the resource curse? *revista tempo do mundo*, 1(1):95-109. [Online] Available from: http://repositorio.ipea.gov.br/bitstream/11058/6297/1/TdM_v1_n1_Norway.pdf [Accessed: 2017-03-05].
- Torvik, R. 2009. Why do some resource-abundant countries succeed while others do not? *Oxford Review of Economic Policy*, 25(2), 241-256. [Online] Available from: <http://www.iig.ox.ac.uk/output/articles/OxREP/iiG-OxREP-Torvik.pdf> [Accessed: 2018-08-17].
- Trading Economics. 2016. *South Africa foreign exchange reserves* . [Online] Available from: <http://www.tradingeconomics.com/south-africa/foreign-exchange-reserves> [Accessed: 2016-10-03].

- Triki, T. & Faye, I. 2011. *Africa's quest for development: Can sovereign wealth funds help? Tunisia: African Development Bank Group Working Paper Series.* [Online] Available from:
<https://www.afdb.org/fileadmin/uploads/afdb/Documents/Publications/WPS%20No%20142%20Africas%20Quest%20for%20Development%20%20Can%20Sovereign%20Wealth%20Funds%20help%20AS.pdf> [Accessed: 2014-09-22].
- Truman, E.M. 2010. *Sovereign wealth funds: threat or salvation?* Washington: Petersen Institute for International Economics. [Online] Available from:
<https://www.piie.com/bookstore/sovereign-wealth-funds-threat-or-salvation> [Accessed: 2014-07-16].
- Tsani, S. 2013. Natural resources, governance and institutional quality: The role of resource funds. *Resources Policy*, 38(2):181-195. [Online] Available from:
<https://doi.org/10.1016/j.resourpol.2012.11.001> [Accessed: 2017-08-17].
- Tucker, C. 2014. *Mining in 28 jurisdictions worldwide 2014.* London: Getting the Deal Through. [Online] Available from: <http://www.bowmanslaw.com/article-documents/Getting-the-Deal-Through-Mining-2014.pdf> [Accessed: 2016-10-04].
- United Nations Economic Commission for Africa. 2011. *Minerals and Africa's development: the international study group report on Africa's mineral regimes.* [Online] Available from:
<http://au.int/en/dp/ti/sites/default/files/Overview%20of%20the%20ISG%20Report.pdf> [Accessed: 2015-09-15].
- United Nations. 2017. United Nations Handbook on Selected Issues for Taxation of the Extractive Industries by Developing Countries. [Online] Available from:
https://www.un.org/esa/ffd/wp-content/uploads/2018/05/Extractives-Handbook_2017.pdf [Accessed: 2018-05-27].
- University of the Witwatersrand. 2016. *Historical papers research archive: mineral discoveries and how they changed the face of South Africa, 1949-1987.* [Online] Available from:

http://www.historicalpapers.wits.ac.za/inventories/inv_pdf/A1132/A1132-C480-001-jpeg.pdf [Accessed: 2017-07-05].

Vaillancourt, F. & Bird, R. 2016. Tax Simplification in Canada: A Journey Not Yet Mapped. In: James, S., Sawyer, A. & Budak, T. *The Complexity of Tax Simplification* (pp. 70-94). London: Palgrave Macmillan. [Online] Available from: https://doi.org/10.1057/9781137478696_4 [Accessed: 2018-04-16].

Vallabhjee, B. 2019. *SA could hold the key to an energy game changer*. [Online] Available from: <https://www.fin24.com/Opinion/sa-could-hold-the-key-to-an-energy-game-changer-20190320> [Accessed: 2019-03-20].

Van Blerck, M.C. 1992. *Mining Tax in South Africa*. South Africa: Taxfax cc.

Van den Berg, H.M. 2009. Mineral rights under development: a comparative study of the evolving nature of mineral rights in South Africa and Namibia. *Masters Dissertation*. Cape Town: The University Of Cape Town.

Van den Bremer, T.S. & Van der Ploeg, F. 2016. *Saving Alberta's resource revenues: role of intergenerational and liquidity funds*. Oxford: Oxford Centre for the Analysis of Resource Rich Economies. [Online] Available from: <https://doi.org/10.1016/j.enpol.2016.09.032> [Accessed: 2017-11-24].

Van der Ploeg, F. & Poelhekke, S. 2010. The pungent smell of "red herrings": subsoil assets, rents, volatility and the resource curse. *Journal of Environmental Economics and Management*, 60(1):44-55. [Online] Available from: <https://doi.org/10.1016/j.jeem.2010.03.003> [Accessed: 2018-09-13].

Van der Schyff, E. 2012. South African mineral law: a historical overview of the state's regulatory power regarding the exploitation of minerals. *New contree: a journal of historical and human sciences for Southern Africa*, 64:131-153. [Online] Available from:

https://repository.nwu.ac.za/bitstream/handle/10394/7021/No_64%282012%29_6_Van_der_Schyff.pdf?sequence=1&isAllowed=y [Accessed: 2016-05-21].

Van Der Zwan, P. 2010. Mineral royalties: a review of the development of mineral royalty legislation in South Africa. Unpublished masters thesis. University of Pretoria. [Online] Available from: <http://hdl.handle.net/2263/24243> [Accessed: 2014-08-13].

Van Rensburg, K. 2019. Reportable Arrangement: Proposed reporting burden on mining companies and rehabilitation trusts. [Online] Available from: <http://www.mondaq.com/southafrica/x/791562/Income+Tax/Reportable+arrangement+proposed+reporting+burden+on+mining+companies+and+rehabilitation+trusts> [Accessed: 2019-03-25].

Van Zyl, G. 2019. *Potential game-changer for SA as Total strikes big gas deposit off Southern Cape.* [Online] Available from: <https://www.biznews.com/sa-investing/2019/02/07/sa-oil-gas-reserves-discovered> [Accessed: 2019-12-02].

Venables, A.J. 2016. Using natural resources for development: why has it proven so difficult? *Journal of Economic Perspectives*, 30(1):161–184. [Online] Available from: <https://www.jstor.org/stable/43710015> [Accessed: 2016-12-09].

Venables, A.J. & Wills, S.E. 2016. Resource Funds: Stabilising, Parking, and Intergenerational Transfer. *Journal of African Economies*, 25, AERC Supplement 2:ii20–ii40. [Online] Available from: doi: 10.1093/jae/ejw016 [Accessed: 2019-01-26]

Venter, J., Parsons, R., Strydom, P., Stroebel, L., Naudé, W., Moeng, M., Mukhithi, L., Mmutle, L.V & Ramakokovhu, T. 2015. *Policy uncertainty: how it affects South Africa's growth and development prospects.* Potchefstroom: WTO Policy Brief Series. [Online] Available from: http://commerce.nwu.ac.za/sites/commerce.nwu.ac.za/files/files/TRADE/Media/News%20Print/WTO-Trade%20Policy%20Brief%20Series_1.pdf [Accessed: 2016-02-12].

- Vermaak, C. 1997. A brief overview of South Africa's mineral industry: world context and changing local circumstances. *Mineralium Deposita*, 32(4):12-322. [Online] Available from: <https://doi.org/10.1007/s001260050098> [Accessed: 2014-12-07].
- Wait, R., Loots, E., Bezuidenhout, H. & Rossouw, R. 2014. *The effects of licensing and tax policy on the development of the upstream oil and gas sector: the case of South Africa*. Paper presented at the 2nd SA Economic Regulators Conference, Johannesburg, South Africa, 18–19 March. [Online] Available from: <http://www.nwu.ac.za/af/nasionale-konferensievoordragte-trade> [Accessed: 2019-03-20].
- Webber Wentzel. 2014. *Mineral and Petroleum Resources Development Amendment Bill, 2013, passed by the National Assembly*. [Online] Available from: <http://www.polity.org.za/article/mineral-and-petroleum-resources-development-amendment-bill-2013-passed-by-the-national-assembly-2014-03-20> [Accessed: 2017-05-12].
- Weijermars, R. 2015. Natural resource wealth optimization: a review of fiscal regimes and equitable agreements for petroleum and mineral extraction projects. *Natural Resources Research*, 24(4):385-441. [Online] Available from: <http://weijermars.engr.tamu.edu/wp-content/uploads/2017/02/Natural-Resource-Wealth-Optimization.pdf> [Accessed: 2016-10-14].
- Wehrich, H. 1982. The TOWS matrix—A tool for situational analysis. *Long range planning*, 15(2):54-66. [Online] Available from: [https://doi.org/10.1016/0024-6301\(82\)90120-0](https://doi.org/10.1016/0024-6301(82)90120-0) [Accessed: 2019-07-22].
- Weinthal, E. & Luong, P.J. 2006. Combating the resource curse: an alternative solution to managing mineral wealth. *Perspectives on Politics*, 4(1):35-53. [Online] Available from: <https://www.jstor.org/stable/3688625> [Accessed; 2018-08-24]

- Weisbach, D.A. & Bankman, J. 2005. The superiority of an ideal consumption tax over an ideal income tax. *Stanford Law Review*, 1413-1456. [Online] Available from: https://chicagounbound.uchicago.edu/law_and_economics [Accessed: 2018-12-28].
- Whittaker, E. 1938. Gold-mining taxation in relation to national planning in South Africa, 1932-1937. *The American Economic Review*, 28(4):688-701. [Online] Available from: <https://www.jstor.org/stable/1806305> [Accessed: 2015-06-03].
- Wilde, D. 2016. Key issues in natural resource taxation and revenue management in the commonwealth. *Commonwealth Secretariat*, 96, 1-48. [Online] Available from: <https://doi.org/10.14217/23101385> [Accessed: 2017-08-23]
- Williams, J. 2012. Global Trends and Tribulations in Mining Regulations. *Journal of Energy and Natural Resource Law*, 30(4), 391-422. [Online] Available from: <https://doi.org/10.1080/02646811.2012.11435304> [Accessed; 2016-01-13]
- Wills, S. 2015. Seven principles for managing resource wealth. *Oxford Centre for the Analysis of Resource Rich Economies*(154), 1-61. [Online] Available from: <https://pdfs.semanticscholar.org/db60/e3e6004f181b326fca86d948521366e24dcb.pdf> [Accessed: 2017-05-16].
- Wills, S.E., Senbet, L.W. & Simbanegavi, W. 2016. Sovereign wealth funds and natural resource management in Africa. *Journal of African Economies*, 25(2):ii3–ii19. [Online] Available from: <https://doi.org/10.1093/jae/ejw018> [Accessed: 2018-06-29].
- World Bank. 1992. Strategy for African Mining, World Bank Technical Paper No. 181, Africa Technical Department Series, Mining Unit, Industry and Energy Division, Washington D.C.
- World Bank. 2010. *Granting mineral rights: A good practice note*. Dundee: University of Dundee. [Online] Available from: http://www.eisourcebook.org/cms/files/uow_granting_mineral_rights%3B_a_good_practice_note.pdf [Accessed: 2014-09-15].

- World Bank. 2013. *Kazakhstan legislation for allocation of mining exploration rights : Report 1. allocation of exploration rights for mining in a sample of major global mining countries.* Washington: World Bank. [Online] Available from: <http://documents.worldbank.org/curated/en/593691468039006437/pdf/890050WP0P133800Exploration0Report1.pdf> [Accessed: 2016-01-15].
- World Bank. 2015a. *Botswana: Systematic country diagnostic.* Botswana: World Bank. [Online] Available from: <http://documents.worldbank.org/curated/en/489431468012950282/pdf/95304-REPLACEMENT-SCD-P150575-PUBLIC-Botswana-Systematic-Country-Diagnostic-Report.pdf> [Accessed: 2017-03-12].
- World Bank. 2015b. *South Africa country-level fiscal policy notes: Sector study of the tax burden & effectiveness of investment incentives in South Africa-Part 1.* Washington: World Bank. [Online] Available from: https://www.researchgate.net/publication/306416827_Sector_Study_of_Effective_Tax_Burden_in_South_Africa_-_Part_1_-_June_2015 [Accessed: 2017-07-10].
- World Bank. 2016a. *Botswana overview.* [Online] Available from: <http://www.worldbank.org/en/country/botswana/overview> [Accessed: 2016-12-05].
- World Bank. 2016b. *Good-fit practice activities in the international oil, gas & mining industries.* [Online] Available from: http://www.eisourcebook.org/642_5PolicyLegalandContractualFramework.html [Accessed: 2016-06-01].
- World Bank. 2016c. *The mining investment and governance review.* Washington: International Bank for Reconstruction and Development and World Bank. [Online] Available from: <http://pubdocs.worldbank.org/en/374851455203703561/MInGov-Questionnaire-FINAL-160424.pdf> [Accessed: 2017-07-23].

- World Bank. 2018a. *World Bank In Middle Income Countries*. [Online] Available from: <https://data.worldbank.org/income-level/upper-middle-income> [Accessed: 2018-06-03].
- World Bank. 2018b. *World Bank In South Africa*. [Online] Available from: <https://www.worldbank.org/en/country/southafrica/overview> [Accessed: 2018-08-01].
- World Bank. n.d. *Total natural resources rents (% of GDP) 1970-2014*. [Online] Available from: <http://data.worldbank.org/indicator/NY.GDP.TOTL.RT.ZS> [Accessed: 2016-12-05].
- World Economic Forum. 2015. *The global competitiveness report 2015-2016*. Geneva: World Economic Forum. [Online] Available from: http://www3.weforum.org/docs/gcr/2015-2016/Global_Competitiveness_Report_2015-2016.pdf [Accessed: 2017-05-18].
- Wright, G. & Czelusta, J. 2004. The myth of the resource curse. *Challenge*, 47(2):6–38. [Online] Available from: <https://web.stanford.edu/~write/papers/Wright%20Res%20Curse.pdf> [Accessed:2018-09-08].
- Yager, T. 2014. *U.S. Geological survey minerals yearbook—2012: South Africa*. United States: U.S. Geological Survey. [Online] Available from: <https://s3-us-west-2.amazonaws.com/prd-wret/assets/palladium/production/mineral-pubs/country/2012/myb3-2012-sf.pdf> [Accessed: 2016-02-21].
- Yin, R.K. 2014. *Case study research: design and methods*. 5th ed. Thousand Oaks, CA: Sage.
- Zientek, M.L., Causey, J.D., Parks, H.L. and Miller, R.J. 2014. Platinum-group elements in southern Africa: mineral inventory and an assessment of undiscovered mineral resources: Chapter Q in global mineral resource assessment Scientific Investigations

Report 2010-5090- Q. US Geological Survey. [Online] Available from:
<https://doi.org/10.3133/sir20105090Q> [Accessed: 2016-02-21].