

EXTRACTIVES AND SUSTAINABLE DEVELOPMENT I: *MINERALS, OIL AND GAS SECTORS IN ZIMBABWE*

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Contents

<i>List of figures</i>	<i>iv</i>
<i>List of tables</i>	<i>iv</i>
<i>Foreword</i>	1
1 Introduction	3
2 Background on the Economic Aspects of Mining	12
3 Overview of the Mining Sector in Zimbabwe	54
4 Recent Key Developments in the Mining Sector in Zimbabwe	60
5 Conclusion and Recommendations	63
<i>Sources</i>	<i>67</i>
<i>Appendix</i>	<i>71</i>
<i>About the author</i>	

List of Figures

Figure 1: Mineral resource nomenclature	4
Figure 2: Comparative growth rates across five sectors in Zimbabwe 2009-2016	38
Figure 3: Gold value chain map	41
Figure 4: PGM value chain map	42
Figure 5: Diamond value chain map	43
Figure 6: Chrome value chain map	44
Figure 7: Nickel value chain map	45
Figure 8: Coal value chain map	46
Figure 9: Phosphate value chain map	47
Figure 10: Gold production trends from 1964–2014	48
Figure 11: Categories of suppliers	49

List of Tables

Table 1: Uses of minerals	7
Table 2: Classification of the main minerals in Zimbabwe	12
Table 3: Zimbabwe's estimated reserves (ore)	13
Table 4: AMV principles vs Zimbabwe mining policy and practice	19
Table 5: The various fiscal instruments	35
Table 6: Comparative growth rates across five sectors in Zimbabwe, 2009–2016	38
Table 7: Gold-mining companies and mines	67
Table 8: Upstream, downstream and service companies for the mining sector	68

FOREWORD

Zimbabwe is going through social and economic challenges. One of the paths to resolving these challenges is to make sure that appropriate policies in different sectors of the economy are developed to support and champion development in a sustainable manner. One of the country's critical factors in the economy is the extractive sector.

It is widely asserted that the vast endowment of resources in the country offers opportunity for the future, if utilised sustainably. At the same time industrial investment in Africa has not seen the much needed social and economic development and has at times been mired in scandal. There is an emergent consensus that the extractive sectors are externally driven and continue to benefit multinational companies and a few national elites at the expense of local communities and citizens in general. FDI has been a major source of development initiatives. This has been mainly driven by the fact that African governments have failed to effectively leverage resources from extractive sectors as well as channelling their respective country's wealth into substantive improvements in the lives of their populations. Like many other African countries, Zimbabwe has close ties with some of the BRICS-States, as they are regarded as being central to the country's economic revival. There has been an upsurge of Russian, Chinese and South African investments in Zimbabwe's extractive sector over the past decade, yet mining has been characterised by environmental degradation, tax evasion, human rights abuses and exploitative labour practices. Arguably, Zimbabwe has been affected by the 'resource curse' as there is no significant development outcome attached to the revenues that are generated from the vast resources, yet on the whole the investment appears to be welcomed, thus there is need to interrogate the overall economic framework of the mining sector. On the other hand, extractive industries have seen increased participation by local small-scale and semi-large-scale extractors while the consequences are borne by the population at large.

This publication seeks to characterise the mining sector in Zimbabwe and interrogate the governance framework in the sector and what factors could explain the lack of a sustainable development path.

The Friedrich-Ebert-Stiftung (FES) has taken steps to enhance the efforts to develop sustainable models for the extractive industry. With this publication 'Extractives and Sustainable Development I: Minerals, Oil & Gas Sectors in Zimbabwe', and the follow-up 'Extractives and Sustainable Development II: Alternatives to the Exploitation of Extractives', we hope to contribute to a constructive public debate on the way to a sustainable and thriving economy in Zimbabwe.

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Friedrich Ebert Stiftung Zimbabwe
Harare, December 2016

1. INTRODUCTION

At the time of writing, Zimbabwe is at one of its lowest ever economic positions since attaining independence in 1980. Most of the economic sectors are subdued with the exception of the mining sector, which, as indicated later in subsequent chapters of this publication, is making a relatively fair statistical contribution to the economy.

It is apparent that Zimbabwe is comparatively endowed with a diverse mineral resource-base that is arguably rich in specific minerals. However, the significance of the impact of mining on the social and economic welfare of the general citizenry as well as the development of the country from a less-developed country to a more-advanced and industrialised country is questionable. There is, therefore, need for policies in the mining sector that promote sustainable development. This is important for the mining sector, especially because it has emerged as a key economic sector. It is also important for the whole extractive sector in general, particularly those that depend on finite natural resources.

It has been argued that Zimbabwe is experiencing a mineral ‘resource curse’. Evidence of the ‘resource curse’ includes:

1. Heavy reliance on Foreign Direct Investment (FDI) in the sector as well as the whole economy – that is, minerals are not used to build local capital (financial and physical).
2. FDI in the sector is benefiting big foreign interests (multinationals) and a few local elites who are complicit in the perpetuation of foreign interests, as shown by the existence of a few extremely wealthy people and a larger poor general citizenry.
3. Rampant smuggling – especially of gold and diamonds, as well as possibility of illicit transfers including transfer pricing (under or over-invoicing), re-invoicing and thin capitalisation.
4. The four main pillars of sustainable development have been transgressed: there is no intra-generational equity as poverty among the general population is worsening; extractivism has ignored the fact that future generations have an equal right to natural resources (no reinvestment of proceeds); unmitigated negative environmental effects are common; and negative social impacts not uncommon – (displacement of communities without adequate compensation, human rights violations and bad labour practices).

It is obvious that continuing on this trajectory will not positively change the fortunes of the country. What is required is a different exploitation model that seeks to effect poverty alleviation and transform the economy through diversification concomitant with industrialisation.

This paper seeks to characterise the mining sector in Zimbabwe and to interrogate the governance framework in the sector and how that framework could explain the lack of a sustainable development path in the mining sector and the economy at large. The book is organised into five sections. Section 2 gives a brief theoretical background to mining. As the great philosopher Socrates insists – ‘let’s define our terms’ – the section opens with definition of key terms and resource classifications that are commonly used in mineral economics, terms that are generally misunderstood, misused and misinterpreted. Under the same section, the book gives an outline of the main applications (uses) of the various minerals found in Zimbabwe. The objective of this outline is to demonstrate opportunities for diversification of the economy and industrialisation based on the mining sector, assuming these minerals are judiciously exploited, which arguably they are not. The section then explains, in brief, the mining project cycle and the

marketing of minerals. It ends with main policy objectives of mineral exporting and importing countries, zeroing in on policies specific to developing countries.

Section 3 gives an overview of the mining sector in Zimbabwe with emphasis on:

1. Mineral resources.
2. Exploration trends.
3. Historical development of the sector (mainly focusing on evolution of ownership structures and government participation and assistance programmes).
4. Mining policy and legal framework governing the mining sector in Zimbabwe including continental and regional frameworks to which the country is signatory.
5. The mining fiscal regime in Zimbabwe.
6. Economic contribution of the mining sector to the development of the country.
7. Value chain analyses for selected minerals.
8. Specific mineral sub-sector analyses covering gold and platinum.

Section 3, being the main section of the book, is not only descriptive, but it also interrogates the mining environment, especially the governance framework and how it impacts on the sustainability of the sector and that of the country vis-à-vis the mining sector. Thus, the sub-section on economic contribution looks, beyond the statistics, at whether the sector is contributing to the transformation of the economy and the welfare of the general population.

Section 4 looks at current initiatives in the mining sector. On one hand, the initiatives are an acknowledgement of the failure of the current model to produce sustainable outcomes in the exploitation and sharing of benefits from mining in Zimbabwe, and on the other hand, the initiatives seek to address that failure. These initiatives include beneficiation and value addition, local procurement, mining revenue transparency, mining cadastre and databank and syndication of the artisanal and small-scale mining sector.

Section 5 concludes the book and makes recommendations on the issues raised, specifically proffering an alternative way of managing the extraction of minerals and revenue from the mining sector. These recommendations essentially seek to ensure that mining contributes to the sustainable development of Zimbabwe, by espousing poverty alleviation strategies and an economic transformative agenda (diversification and industrialisation).

2. A BACKGROUND TO THE ECONOMIC ASPECTS OF MINING: THEORETICAL INTRODUCTION

2.1 The Definition of Natural Resources

Minerals are natural resources. Rudawsky (1986) quotes two alternative definitions of natural resources given by Randall (1981) and Howe (1979) respectively. Randall defines a resource as 'something that is useful and valuable in the condition in which we find it. In its raw or unmodified state it may be an input into the process of producing something of value, or it may enter consumption directly and thus be valued as an amenity' (1981, pp. 13-14, cited in Rudawsky, 1986, p. 1). Howe defines natural resources as 'all the living and non-living endowment of the earth ... traditional usage confines the term to naturally occurring resources and systems that are useful to humans or could be under plausible technological, economic and social circumstances' (Howe in Rudawsky, 1986, p. 2).

Distinct from Randall's concept, Howe understands 'resource' to be dynamic, as does Zimmermann (1951), who is famously associated with the idea that 'resources are not ... they become' (Rudawsky, 1986, p. 3). Zimmermann's argument is that for something to be a resource, it should not just naturally occur, in which case it would be some 'neutral stuff', but there should be human demand for it as well as the technology to exploit it for the benefit of mankind. As human demand and technology of exploitation change, 'neutral stuff' becomes resources and resources become 'neutral stuff'. Thus resources, in this sense are created by human needs/wants and ingenuity. For example, man has been aware of uranium compounds since 1789, but uranium became a resource towards World War II when there was both a demand and the technology to produce nuclear weapons. Howe's definition of natural resources is clearly more complete and accurate and hence is adopted in this paper.

2.2 Definition of Terms in Mineral Economics

A *mineral* can be defined as a naturally occurring solid or liquid that has a regular (crystalline) and specific structural arrangement of component atoms and has a specific chemical composition and physical properties different from other minerals (Gocht et al., 1988).¹ Minerals are extracted from *rocks*, and not vice versa. Rocks are natural products of geologic processes that result in accumulation or mixture of minerals. When a rock has a significant content of a specific mineral for profitable exploitation, given current economic conditions and technology, it is called an *ore*. The concentration level of a mineral in an ore is termed *ore grade*, which is normally expressed alternatively as a percentage (for example, 4% Ni) or grams per ton (for example, 1.4 g/t of Au). The least ore grade that is economically and technically feasible for exploitation is termed the *cut-off grade*.

A local accumulation of a specific mineral ore that is geographically delineated is called a *mineral deposit* or *ore deposit* or (loosely) a *mine* (Gocht et al., 1988). A slight divergence from the concepts of ore mentioned above is the idea of *mineral resources*, which refers to the sum of the quantities of minerals that are currently economically feasible for exploitation and those that will be potentially feasible in future. Note here that the term is not necessarily referring to a particular location, so that we can talk of national resources of a particular mineral. A very close but distinct concept (actually, a sub-set) of mineral resources is the concept of *mineral reserves*.

	Identified Resources			Undiscovered Resources	
	Demonstrated		Inferred	Probability Range	
	Measured	Indicated		Hypothetical	Speculative
Economic	Reserves		Inferred Reserves		
Marginally Economic	Marginal Reserves		Inferred Marginal Reserves		
Sub-economic	Demonstrated Sub-economic Resources		Inferred Sub-economic Resources		
	Demonstrated Sub-economic Resources		Inferred Sub-economic Resources		

Figure 1: Mineral Resource Nomenclature

These are measured quantities of mineral resources that are currently exploitable at a profit given the obtaining economic conditions (for example, mineral prices) and mineral extraction technology. All reserves are resources, but not all resources are reserves. Like the concept of mineral resources, this term is not necessarily restricted to a particular location in the country. Here the term *measured* is used loosely to mean discovered or identified – there are different levels of reserves estimated with varying degrees of confidence.

Mineral reserves are the most interesting figure for a country at any time. We must be careful not to refer to resources as reserves. We must also be careful when reporting on reserves to be clear that we are reporting quantities of ore and not the actual mineral or metal content in the ore. The distinction between reserves and resources can be a major source of confusion, yet a distinction that is very important – given that essential stakeholders will need to make use of the respective estimates. These may include individuals, companies, mines, regulators and planning authorities (Rudawsky, 1986). Furthermore, we have various sub-concepts under resources and reserves. The next sub-section presents the Modified US Department of Interior Resource/Reserve Classification Method, as presented in Rudawsky (1986).

Like the general concept of resources, all mineral concepts are dynamic because they depend on economic and technological conditions, which change with time. An improvement in either or both conditions may imply: (i) conversion of hitherto useless material into a mineral resource that shows potential usage, (ii) an increase in the amount of reserves (which can actually be exploited now) as the cut-off grade falls. However, the converse is also true – any worsening of economic conditions, for example, a decline in mineral prices or an increase in mineral royalties, may result in increased cut-off grades, reduction in reserves and resources. This phenomenon is termed *sterilisation* of mineral resources.

2.3 The Classification of Mineral Resources and Reserves

Figure 1 shows the classification of resources and reserves. As we move vertically upwards, the economic feasibility of extraction improves and as we move horizontally from right to left the degree of geologic assurance or certainty (information) increases. Let us briefly explain the terms in the diagramme. *Identified resources* are resources which have been discovered or are known in terms of their (estimated) quantity, grade, location, etc. as opposed to *undiscovered*

resources whose existence is unknown (is only postulated). Thus, for identified resources there is a significant level of geologic assurance that they exist.

The level of confidence however varies, hence some identified resources are *demonstrated* (*measured* or *indicated* or *inferred*). *Measured resources* (also termed *proven resources*) are those whose geological character (size, shape, depth and grade) has been ascertained in detail through detailed (dense) sampling and are known with high levels of accuracy. *Indicated resources* (also termed *probable resources*) have been calculated from lower sampling densities than measured resources and hence are known with lower degrees of assurance, which is nonetheless high enough to assume that the characteristics continue between sampling points. *Inferred resources* (also termed *possible resources*) are estimated based on adjacent demonstrated areas, without any sampling necessarily having been done in the inferred areas themselves.

Undiscovered resources may be *hypothetical* or *speculative*. *Hypothetical resources* are similar to known mineral bodies and are hypothesised (or expected) to exist in known mining districts. *Speculative resources* are speculated in areas where no discoveries have been made, and the speculations are on the basis only of diagnostic geologic characteristics. In both hypothetical and speculative cases, if exploration confirms existence of mineral resources including the quantity, quality and grade, then they will be reclassified as identified.

The term *economic* denotes the existence of current economic conditions that make it economically feasible (profitable) to extract a particular mineral, and that such feasibility has been demonstrated or is assumed with a reasonable level of confidence.² Below the economic zone is the *marginally economic, which* indicates those resources that would be recoverable if the economic and/or technologic conditions marginally improved.³ Resources that are neither economic nor marginally economic are *sub-economic*. If demonstrated resources are economic they enter the *reserve* category; if they are marginally economic they become *marginal reserves*; if they are sub-economic they become *demonstrated sub-economic resources*. Likewise, inferred resources can be *inferred reserves*, or *inferred marginal reserves* or *inferred sub-economic resources*.

The area pale-blue shaded in Figure 1 illustrates the *reserve base* (which includes reserves, marginal reserves and some demonstrated sub-economic resources) – it is the identified base from which reserves are estimated. Similarly, the darker blue area indicates the *inferred reserve base*. Without doubt, it is highly important, when reporting or reading, to be clear if the reserve or resource figures given refer to measured, demonstrated or to both demonstrated and inferred figures.

2.4 A Brief Mineral Typology by Characteristics and Use

There are a variety of minerals out there, and one useful way of classifying them is by their use. Incidentally, minerals sharing similar uses tend to have similar characteristics, especially in terms of bulkiness, abundance in the earth's crust and unit value. This sub-section presents a brief classification while the next sub-section outlines the detailed uses of the various specific minerals. Minerals are classified into building materials, industrial minerals, metallic minerals, precious stones and mineral fuels.

Building materials are used for various forms of construction work ranging from dams, roads, to houses. They are characterised by the following: (i) are normally bulk; (ii) are geologically common; (iii) occur in large reserves and supply; (iv) are easily substitutable in use among themselves; (v) need little processing; (vi) have low unit prices; (vii) have high costs of transport;

(viii) their exploration, mining and processing are relatively inexpensive; and (ix) are used in construction work in substantial quantities. Examples include sand, gravel, stone, crushed rock, clay-rich rock, limestone (as raw material for cement manufacturing) and black granite.

Industrial minerals are mainly used as fertilisers or as raw materials in industrial processes (for example, in the chemical industry, or industries making abrasives, etc.). Like building materials, they are non-metallic, geologically abundant, require little processing before use, and are supplied and used in large quantities. Examples are phosphates, limestone, magnesite and asbestos (see Table 2). It is clear that the similarity in characteristics between building materials and industrial minerals implies similarity or intersection in usage. For example, limestone can be used for cement and agricultural lime, asbestos can be used for roofing and for friction products and magnesite is used in agricultural, chemical and construction industries (see Table 1). These minerals are therefore both building materials and industrial minerals.

Metallic minerals are precious metals (gold, silver, and PGMs), base metals (copper, lead, zinc, tin, etc.), light metals (aluminium, magnesium, and titanium, iron and steel alloys (manganese, vanadium, tungsten, nickel, cobalt, chromium and molybdenum), fuel metals (thorium and uranium). They are (i) less abundant; (ii) less uniformly /regularly distributed in the earth's crust; and they (iii) require significant processing before use; (iv) have costly mining and processing operations; and (v) easily render themselves to recycling. A simple business dictionary definition of base metal, however, is '[r]elatively inexpensive and common metal such as copper, iron, or tin that (unlike noble metals such as gold, silver, or platinum) corrodes and/or tarnishes when exposed to air or moisture' (WebFinance Inc., 2016a).

Oxford University Press (2016) defines a *precious stone* as 'precious stones are diamonds and emeralds. Note that among diamonds is a type that is industrial and not gem-quality that finds application in industry; for example, in making diamond drilling bits and abrasive materials (see Table 1, overleaf). Thus, this type may be termed an industrial mineral, further confirming that these classes are not really hard and fast, though expedient. There are also semi-precious stones like tourmaline, aquamarine, chrysoberyl, topaz, alexandrite.

Mineral fuels include nuclear fuels (uranium and thorium), and fossil fuels (tar sand, oil shale, coal, petroleum and natural gas). The last three are also termed *hydrocarbons*. A *hydrocarbon* is an 'organic compound (such as benzene, methane, paraffin) made of two elements carbon and hydrogen and found in coal, crude oil, natural gas, and plant life. Hydrocarbons are used as fuels.' (WebFinance Inc., 2016b). Note that nuclear fuels are also termed fuel metals because they are similar to metals in terms of their geologic occurrence.

2.5 The Main Uses of Some Major Minerals

Table 1 (overleaf) shows the various end uses of minerals. This demonstrates the scope to which a country that is rich in these minerals can industrialise by further beneficiation and application in manufacturing industries.

2.6 The Development Phases of Mining Projects

A mining project goes through several stages before it becomes a producing mine. Motives for going into a mining project or any stage thereof depend on the type of organisation. Private organisations are motivated by profit or the need to secure supplies for their manufacturing concerns. Private organisations may undertake all the stages of a mining project or just a part, say, exploration only or exploration up to mineral beneficiation. Government is mainly motivated by political and social objectives such as development, employment creation, creation of strategic

Mineral	Main Uses
Diamonds	Diamond drilling bits; abrasive materials; jewellery
Emerald	Jewellery
Gold	Dentistry; computer hardware, communication equipment, space/aircraft engines, etc. (due to electrical conductivity); financial uses, e.g. backing of currency; jewellery
Platinum	Chemical catalysts used in oil refineries, gasoline production and petrochemical products; oxidation catalysts in catalytic convertors to treat automobile exhaust emissions; alloys used in furnace components; jewellery
Chrome	Production of stainless steel; catalyst; plating; pigments
Nickel	Coinage; rechargeable batteries; super-alloys used in combustion turbines in power-generation; refined metal; ferronickel; catalysts; plating
Copper	Major industrial metal ranking third after iron and aluminum; power transmission; power generation; building construction (single largest use); telecommunications; plating
Iron ore	Iron and steel industries
Lithium	Heat resistant glass; ceramics (plastics); greases; batteries; neurological drug for mood stabilization
Tantalite	Lamp filaments (now substituted by tungsten); construction of chemical process plants; electronic components (tantalum capacitors in mobile phones, computer components: memory chips, in automobiles)
Asbestos	Fibre for electrical insulation and textiles; roofing products; gaskets; friction products
Graphite	In high-temperature lubricants; friction materials; battery and fuel cells
Phosphates	Fertilizers
Limestone	Cement; agricultural lime
Magnesite	Source of magnesium used in agricultural, chemical and construction industries
Coal	Steam coal – power generation; cooking; coking coal used in steel production
CBM	Generation of electricity, gas, diesel, petrol and ethanol

Table 1: Some major uses of minerals

Source: USGS Website

supplies such as coal, oil, natural gas, uranium, and foreign exchange.

Government is also mainly concerned with regional explorations, that is exploration of large areas to identify general potential, while leaving private companies to undertake detailed exploration to identify specific targets and undertake detailed target evaluation (technical and economic).

We shall now explain the various terms that are used in characterising the sequential phases of the development of a mining project.

Planning or programme design: At this stage, the company or organisation decides on which minerals to mine, where to search for targets (countries or regions), at what scale to operate (small or large). The planning stage mainly involves empirical literature review on various

factors that affect mining investment including geological prospectivity, mining policies, mining fiscal regime, the ease of doing business, environmental regulations, marketing and profit repatriation regulations, foreign exchange regulations, political risks, technical risks, marketing risks, etc. The literature review also includes map studies.

Reconnaissance exploration: This is also termed *grassroots exploration* or *regional explorations*. This seeks to explore large areas with hitherto unknown or insignificantly known geologic characteristics and mineral occurrences. This is mainly undertaken by government or large multi-national exploration or mining companies.

Prospecting: This is the process of searching for minerals by individuals or small companies, which is normally not largely systematic and is minimally supported by high-tech methods. It mainly relies on direct field observation of diagnostic rocks (that is, rocks that are associated with the occurrence of certain minerals). For this, a prospecting licence is normally required.

Exploration: This is the systematic search for mineral occurrences using both direct and indirect evidence by application of specialised methods – geologic models, geophysical methods, and geochemical methods. Exploration spans from regional assessments to geologic evaluation that precedes mine development. For this an EPO (Exclusive Prospecting Order) is normally required. An EPO grants exclusive rights to the holder for exploration in a specific area for a specified period.

Pre-feasibility study: This is an initial assessment of the profitability of a mineral target or prospect normally based on initial exploration data and reference to economic parameters from similar or comparable projects. Being an initial, superficial assessment, the resultant report from this study only serves to indicate if the more expensive detailed evaluation of the target, which would include a full geologic evaluation, technical evaluation (that is, evaluation of mining and processing methods and equipment) and a full financial viability analysis would be necessary.

Feasibility study: This is the final comprehensive evaluation of the mineral target that forms the basis for a 'go' or 'no-go' decision by an organisation. It involves exhaustive geologic evaluation, which determines the amount of resources, reserves, the range of ore grades, average ore grades, possible cut-off grades and so on. It also looks into detailed alternative mining and processing plans and their costing, exhaustive assessment of environmental factors, policies and regulations as well as a market study.

Mine development and mining: When exploration is successful it leads to preparation for mining (mine development), and then mining. For this, a mining lease (licence) is required, which gives exclusive rights to exploit the mineral commodities in the particular area over a specified period and is renewable.

Mineral processing: Mineral processing transforms the mined ore into a product that can be marketed or can be subjected to further processes to refine or beneficiate it.

2.7 Mineral Markets

Markets can exist at several stages of the production and processing of minerals. Where there are several marketing levels for a commodity (for example, at concentrate, matte and beneficiated product) such sub-divisions must be taken into account in the market analysis. However, what is normally referred to as 'the market' for mineral commodities is that market where the standard trade qualities for the mineral commodities most important in world trade are sold. These qualities are normally homogeneous and the commodities are traded on mineral or metal exchanges (for example, the London Metal Exchange) at uniform world market prices determined by world

demand and world supply.

According to Gocht et al. (1988), the demand for minerals, in general, is significantly determined by the following factors:

1. Development of new areas of use through research.
2. Technological progress in mineral processing, which leads to a reduction in the consumption of minerals (miniaturisation, greater efficiency, etc.).
3. Substitution of one mineral by another.
4. Changes in consumer habits.

With respect to gold, other factors include:

1. The US\$ exchange rate movements (the US\$ is a substitute for gold in asset-holding).
2. Politics, social crises, and war, which increase demand for gold as a safe haven.
3. Interest rate movements, which induce substitution in demand between gold and purely monetary assets such as bonds and equities.
4. Official demand, such as from central banks.
5. Speculation.
6. General inflation.

Factors determining supply of minerals in general, can be grouped into short-term and long-term factors. Long-term factors include geological factors, technology both for mining and processing, availability of exploration and mining development finance, economic and legal framework, and infrastructural conditions where the mineral deposits exist. In the short-term, supply can fluctuate due to:

1. Existence of commercial stockpiles held especially for speculative purposes or in commodity exchanges, whose levels are affected by the rate of interest, price expectations and the risks of procurement.
2. Strategic stockpiles held by government to ensure that the mineral is available in times of emergencies.
3. Secondary production (recycling).

Gold is traded on the world market in fine gold bars of 99.5% purity and as gold coins such as Krugerrands of South Africa and the Royal Leaf of the Royal Canadian Mint in Ottawa. While forces of demand and supply play a major role in the markets for minerals, the way these forces manifest themselves in the market to influence price dynamics is complicated. The gold market, like any mineral market, is characterised by spot trading, commodity exchanges, forward contracts, futures contracts, options, hedging, and speculation.

When mineral commodities are standardised with regard to quality and quantity, they can be negotiated on commodity exchanges where competitive forces of demand and supply determine prices. The United Nations Conference on Trade and Development (UNCTAD) (2010) lists the following exchanges for futures contracts for metal commodities:

1. Chicago Board of Trade (gold, silver)
2. London Metal Exchange (aluminium, copper, lead, nickel, tin, zinc, steel, etc.)
3. New York Mercantile Exchange (gold, silver, aluminium, copper, palladium, platinum)
4. Shanghai Futures Exchange (China) (copper, aluminium)
5. Tokyo Commodity Exchange (gold, aluminium, silver, palladium, platinum, copper).

2.8 The Main Policy Objectives of Mineral Exporting and Importing Countries and General Mining Law

Mineral exporting countries try to put in place policy measures in order to maximise their benefits from their natural comparative advantage in natural resources. Mineral exporting countries mainly seek to achieve the following policy objectives: (i) Acquisition of sovereignty over mineral exploitation through mechanisms to control their production and marketing, including influencing ownership structures (for example, by state participation or licensing systems or agreements) or measures to promote indigenous enterprises in the sector; (ii) Enhancing fiscal revenue coming from the sector; (iii) Increasing or rationalising, where the country has a significant world market share, of production levels in order to positively influence export earnings; (iv) Diversification of the minerals industry to lessen risky dependence on a few commodities; (v) Promoting local value addition and national industrialisation through increasing domestic processing, beneficiation and manufacturing (upstream and downstream industries); (vi) Controlling the exploitation of minerals to preclude destructive exploitation or premature abandonment; (vii) Development of infrastructure and employment creation in rural areas; (viii) Ensuring that the exploitation of minerals does not cause significant environmental damage; (ix) Creating adequate national supply of strategic minerals to reduce imports hence spending of foreign currency; and (x) Achieving consistent export earnings.

Countries that are not adequately endowed with mineral resources, import significantly, and normally have different policy objectives regarding the mining sector (See Gocht et al., 1988). Generally, the aim is to take as much advantage of outside resources as possible while at the same time progressively reducing dependency on those outside resources. Specific policy objectives of significant mineral importers include: (i) Seeking supply guarantees through mining investments abroad (100% or partial ownership), long-term supply contracts or co-operation agreements and diversification of international supply sources; (ii) Promotion of any possible economic domestic mineral production; (iii) Supporting intensive and extensive research in the area of substitution possibilities as well as improving the efficient utilisation of mineral raw materials, which is why one might find such countries making tremendous technological progress and moving towards nanotechnology or miniaturisation;⁴ (iv) Increase of mineral recycling; and (v) Minimising adverse environmental effects of any mining and mineral processing taking place in the country.

From mining policy follows mining law, which typically explains who owns or controls mineral resources, how those resources are to be developed and exploited (the development phases of a mining project), and the sharing of benefits from mining in terms of fiscal regime and profit. There are two mining law traditions that have influenced the current mining law in various countries – namely, *regalian law* and *common law*. *Regalian law*, which originates from the Romans, ascribes control or even ownership of sub-surface minerals to government, while the surface land may be owned by individuals or organisations. Thus, the state has authority to determine how exploration, mine development and mining should be done, and normally collects tax. *Common law* does not separate surface rights from the sub-surface mineral rights. In most countries, the current law recognises that government should control or own the mineral resource base of its country, and thus, has been heavily influenced by regalian law.

According to Gocht et al. (1988), mineral-rich developing countries face two apparently conflicting goals namely:

1. To exercise control over the exploitation of their resources and obtain the greatest possible benefits.
2. The need to obtain assistance from industrial countries in terms of the technical know-how and capital to develop those resources.

The result is a mining legislation that tries to balance between the two goals – to maintain sovereignty over resources and to meet the interests of foreign capital including economic guarantees (for example, security of tenure), fiscal incentives and favourable foreign exchange laws.

In pursuance of goal (i) above, the developing countries have adopted participation policies, which are broadly categorised into two types:

1. Progressive participation by government or state enterprise, which eventually leads to 100% ownership by the state, with the attendant issues of compensation having to be addressed.
2. Local equity participation (joint venture). There are various forms of local equity including majority joint venture (where the foreign investor gets 51% of the shares), equity joint venture (where the foreign investor gets 50% of the shares), minority joint venture (where the foreign company gets 49% of the shares) and fade out joint venture (where a majority equity converts into a minority equity after an amortisation period).

The last form may have phased out clauses that provide for the complete withdrawal of the foreign investor, in which case it is very similar to progressive participation.

Participation policies in developing countries have five main objectives. Government seeks to maximise revenue (fiscal and dividends) and foreign exchange earnings. The use of global market strategies by multi-national or transnational companies to maximise their international profits, such as transfer pricing, re-invoicing and thin capitalisation, works to the disadvantage of the host country. Government equity participation places the government in a position to be able to monitor and control production and marketing processes. Government also seeks to gain management control – participation allows government to influence company decisions on employment, local procurement (of equipment and materials), investment, production levels, local value addition (mineral processing, beneficiation and manufacturing), environmental practices, etc. Participation allows local managers, engineers, geologists, and other personnel to learn from the foreign investors. Thus, government, by participation seeks also to effect technology and skills transfer.

Lastly, there is the political objective. The need to assert national sovereignty over natural resources especially in former colonies, while simultaneously shifting financial risk to multi-national companies has resulted in various concepts of co-operation between foreign investors and government agencies, including Production Sharing Agreements (PSA).

3. AN OVERVIEW OF THE MINING SECTOR IN ZIMBABWE

3.1 Zimbabwe's Mineral Resources

Zimbabwe has a long mining history spanning over 1,000 years (Roussos, 1988). The country hosts more than 60 different types of minerals, 40 of which have historically been exploited to various extents (Mugandani and Masiya, 2011). The major minerals exploited in the country are shown in Table 2.

Precious Metals	Precious Stones	Base Metals	Industrial Metals	Hydro-carbons	Dimensional Stones
Gold	Diamonds	Copper	Asbestos	Coal	Black granite
Silver		Nickel	Graphite		
Platinum		Tantalite	Phosphate		
Palladium	Emeralds	Lithium	Limestone		
Rhodium		Iron ore	Feldspar		
		Chromium	Magnesite		

Table 2: Classification of the main minerals in Zimbabwe (Mlambo, 2010)

There are a variety of other minerals that have been exploited but not listed above. These include tin, antimony and a range of semi-precious stones such as tourmaline, aquamarine, chrysoberyl, topaz, and alexandrite. Zimbabwe also has uranium deposits estimated at 45,0000 tons according to the drills made in the Zambezi Valley, and there are several anomalies elsewhere. In addition, there are potential oil and gas reserves in the Zambezi Valley. Table 3 (overleaf) shows some major minerals that are mined in Zimbabwe, some of the places where they occur, estimated national reserves and average national grades. The estimates are largely demonstrated and inferred economic and marginally economic reserves.

3.2 Mineral Exploration Trends of Some Major Mineral Categories

Generally, for all minerals, little exploration outside rediscovering 6,000 ancient workings has been done (Mugumbate, 2010). Mining of many minerals such as gold and chromite have remained small-scale, with miners having neither capacity nor desire to undertake major exploration even though deposits are believed to be expansive. Although about 60-65% of the country has been mapped in terms of geological characteristics or rock formations (Masiya and Mugandani, 2011), exploration to discover mineral deposits for detailed follow-up has not been done. Tremendous exploration scope, therefore, exists for actual discovery of new and old minerals. Below are summaries of the exploration trends of the various mineral categories.

Precious metals (gold and silver)

There are over 4,000 recorded gold deposits, almost all of which are on ancient workings (MMMD, 2011, in Mlambo, 2016). Little exploration has taken place outside rediscovering these old workings and the number of Exclusive Prospecting Orders (EPOs) has been going down over

Mineral	Occurrence and areas	Estimated potential ore reserves	Estimated average grade
Gold	Over 4,000 recorded deposits. Acturus Goromonzi, Gwanda, Kadoma, Gweru, Chakari, Chegutu, Bindura, Chinhoyi, Shurugwi, Mazowe, Mutorashanga, Penhalonga-Makonde, Nyajena-Chiredzi, Zvishavane, Shamva, Guruve, Mutare, Bubi, Silobela, etc.	84 million tons	4. 9g/t
PGE	Great Dyke – Zvishavane, Chegutu, Shurugwi, Wedza, Msengezi	4.4 billion tons	3.6g/t, (4E) ⁵
Diamonds	Zimbabwe is a diamondiferous country. Chiadzwa, Zvishavane, Beitbridge, Somabula , Binga, Triangle, Mwenezi, Bembezi, Sese, Mbizi clusters	38 million tons, excluding Marange	37.6 carats/100t
Emeralds	Masvingo, Mberengwa, Filabusi	Enormous potential in Mberengwa District	High quality and beautiful, though small sizes
Chromium	Great Dyke – Mutorashanga, Makonde, Gweru, Chirumanzu. Greenstone belts – Shurugwi, Mashava, Belingwe (Mberengwa) Limpopo mobile belt, Mutorashanga, Makonde, Gweru, Chirumanzu. Greenstone belts–Shurugwi, Mashava, Belingwe (Mberengwa)	10 billion tons on Great Dyke; 608 million tons elsewhere. Largest reserve of metallurgical quality chromite in the world	47-60% Chromic oxide
Nickel	Great Dyke: >30 deposits discovered. Zimbabwe geology highly favourable to nickel. Areas include Madziwa-Shamva, Zvishavane, Hartley-Chegutu, Shangani-Bubi, Bindura	114 million tons	0.87% Nickel
Tantalite	Kamativi (tin slugs). 300 known occurrences, examples of which include Mutoko belt, Odzi, Bikita Tinfields, Harare belt, Makaha belt, Hurungwe, Shamva, Filabusi (potential), Chipuriro (potential), Inyanga (potential)	Suggestions from a mine database at the Institute of Mining Research are that Zimbabwe has large potential and ranks among few countries with large resources	
Lithium	Bikita, Kamativi, Zambezi belt	6 million tons. Zimbabwe is fourth largest producer after the US, Russia and Chile	4.2% Lithium
Iron ore	Mberengwa, Kwekwe, Mwenesi Range-Chivhu, Nyuni (near Masvingo), Limpopo Mobile belt (Manyoka, Mongula, etc).	>30 billion tons	53% Fe (against a typical good quality range of 70-85%)
Copper	Known deposits number 70, most are located in the northern part of Zimbabwe. Examples of areas include Zvishavane, Mhangura, Lomagundi, Sanyati	29.4 million tons	1.1% copper, Deposits are small and low-grade.

Coal	Hwange, Sengwa Coal Fields	11 billion tons, 2.5 billion tons open-castable	13.50% ash content
Coal Bed Methane Gas	Lupane	500 billion cubic metres (conservative estimate)	95% purity
Limestone	Zvishavane, Umzingwane, Shurugwi, Shamva, Rushinga, Nyanga, Lupane, Marondera, Makoni, Mutasa, Makonde, Hurungwe, Gutu, Gwanda, Mberengwa, Mazowe, Mudzi, Murehwa, Mzarabani, Mwenezi, etc.	Cement manufacture and agriculture lime quality available; quality for ferrochrome industry scarce.	>80% calcium carbonate common.
Phosphate	Buhera	97 million tons	13% Phos. pentoxide
Asbestos	Zvishavane, Mashava	>42 million tons (for only two mines). Zimbabwe has the bulkiest-known world's resources of high quality	Good quality
Graphite	Karoi-Hurungwe, Hwange	1.2 million tons	22.80% Carbon content
Feldspar	Harare (Mistress Mine)	Large deposit	
Magnesite	Kadoma	Large reserves	
Black Granite	Mutoko, Murewa, Mount Darwin	Ubiquitous in the north-east of the country	Of rare quality and good for décor. It is well-recognized internationally

Table 3: Zimbabwe's estimated mineral ore reserves

Sources: IMR database, Mlambo (2010; 2011; 2012a), MMMD (2011); Mugandani and Masiya (2011); LUPGAS, 2014; Mungoshi (2014); Mungoni (2011)

the years. For example, new EPOs for gold constituted 24.7% of all applications in 2006. This dropped to 1.2% in 2007 and to 2% in 2008 and 2009. There has been little exploration since, with several mines closed due to depressed economic conditions in the country.

Platinum group metals (PGMs)

The occurrence of PGMs in the Great Dyke was first recorded in the early 1920s. Following these documentations and the discovery of PGMs in the Merensky Reef of the Bushveld Complex of South Africa, there was a boom in PGM prospecting between 1925 and 1926, which resulted in the discovery of Wedza Mine (Mlambo, 2010). Since the 1950s there were several Exclusive Prospecting Orders (EPOs) leading to the development of the three mines, Mimosa and Ngezi (Zimplats) and more recently Unki Mine. There was renewed interest in areas outside the Great Dyke in the 1990s when 16 EPOs were granted. There has been detailed exploration by the Great Dyke Investments in Darwendale, which is expected to result in US\$3 billion worth of investment. Other ongoing explorations are by Todal Mining Pvt Ltd and the Global Platinum Resources, which are both partly owned by Zimbabwe Mining Development Corporations (ZMDC).

Precious stones (diamonds and emeralds)

Zimbabwe is located within an exceptionally rich diamondiferous metallurgic province. The successes of diamond exploration in the neighbouring Botswana and South Africa, the greatest producers of gem-quality diamonds, has made a positive impact on the diamond prospectivity of the country.

Diamond exploration in Zimbabwe remained high, constituting about 63% of EPOs at the end of 2000. This is comparative to 69.2% and 75% in 1998 and 1999, respectively. In 2004, 79.5% of all the EPO applications were for diamonds, while in 2005 they constituted 56.7%. In 2009 the applications constituted 40%. This decrease was mainly due to the fact that diamonds were being explored together with other minerals such as gold. If all the applications with diamond as one of the minerals were considered, then they would constitute 60%. Alluvial deposits are known to occur in Somabula near Gweru and the recently discovered Marange diamond fields close to Mutare. Exploration for emeralds has mainly targeted the Mberengwa area especially in the slopes of Mweza Range.

Base metals and industrial minerals

For many base metals (marginal), exploration is happening around known occurrences (deposits).

Hydrocarbons (coal, coal bed methane gas, oil)

Exploration for coal began in the eighteenth century, and Hwange deposit was discovered as early as 1894 (Mlambo, 2010). The publication of the Geological Survey Bulletin on coalfields in the southern area of the country in the late 1940s (to the 1950s) gave rise to several EPOs for coal in the Save-Limpopo Basin (Hawadi, 2014). Several private companies have been exploring for coal bed methane gas (CBM) since the 1990s, mainly concentrating in Lupane, Hwange and Gwai areas.

Oil exploration in the 1990s by Mobil Oil concluded potential for oil occurrence in the Zambezi Valley, and there is renewed interest by Government (*Sunday Mail*, 28 September, 2014). Some of the above-referred EPOs for coal also gave holders the right to explore for oil and gas, but this yielded no successful encounters. Other unsuccessful oil exploration projects include one code-named 'project X', a secret exploration project undertaken by the Rhodesian government in Gonarezhou National Park from 1967 to 1971, after the UN imposed sanctions on the country, and the Bendezi Forest project in Nyamandlovu in 1974.

Industrial minerals

Major asbestos exploration was in the mid-nineteenth century and current exploration is mainly as part of mine development around known occurrences. No new EPOs are being sought for asbestos exploration. No systematic exploration for graphite has been done in the recent past except mine development exploration programmes at known occurrences. Exploration for phosphate has been mainly targeting the carbonatite complexes of Chishanya, Dorowa and Shawa in the Buhera district.

Current exploration for phosphate is mainly in mining claims pegged on these complexes. Significant limestone exploration was in the early 1950s and exploration today is merely prospecting around known limestone occurrences through mining claims. As for feldspar, exploration is mainly for other minerals such as lithium, tantalum and beryl (feldspar is recovered as a by-product of the mining of granitic pegmatites). Magnesite exploration has always been associated with other industrial minerals or base metals. In 2003, only two EPOs had magnesite as one of the minerals being sought.

3.3 The Historical Development of Mining: The Evolution of Methods and Ownership Structure

Mining in Zimbabwe has been going on for more than a thousand years (Roussos, 1988). More than 4,000 different sites had already been mined by the close of the nineteenth century, with gold, silver, tin, copper and iron mined before the advent of the settler regime. In the pre-colonial period, mining and processing methods were primitive. Mining was also a seasonal activity and mainly confined to winter months (Masiya et al., 2012). This changed during the colonial period with the introduction of water pumps, explosives, better ventilation methods and lighting, development of railways and roads and use of mining equipment. After independence in 1980 nothing much in terms of mining and processing technology has changed.

While the coming of the colonialists in 1890 did not significantly change the mining methods for the first ten years, it did shift ownership structures (Roussos, 1988). Between 1890 and 1903 the British South Africa Company (BSAC) restricted the mining of gold to registered companies (which were all owned by colonialists. After 1903, the BSAC allowed individuals and syndicates to own and operate mines, with the prospectors relying normally on local inhabitants to locate old workings where they would then test for the existence of any further deposits.

In the 1980s, in particular around 1988, about 80% of the mining sector was still in the hands of foreign interests, which included American, British and South African Companies. The American Company, Union Carbide, controlled five mines (gold, chrome and nickel). British interests included mines owned by Lonrho, Rio Tinto Zinc, Falcon Mines, Turner & Newall and Selection Trust. Lonrho owned most of the gold mines (ten in all), Falcon Mines controlled two gold mines, Turner & Newall controlled the two asbestos mines and four other mines in gold and emerald (Sandawana Emerald Mine) and Selection Trust controlled a lithium mine in Bikita.

Britain had the largest share of the mining sector, followed by South Africa with interests almost exclusively under one company, the Anglo American Corporation (South African Branch). The other South African Company was African Explosives and Chemical Industries (AECI). Anglo American controlled 11 mines, mining chrome, nickel, copper and coal. Generally, besides ZMDC (formed in 1983), there were no significant local companies save for co-operatives to which it gave technical assistance. These co-operatives faced several problems including frequent machine breakdowns, inability to operate during rainy seasons, poor road conditions, and lack of reliable transport.

ZMDC is currently doing little exploration, nor is it still rendering support to mining co-operatives and individuals in accordance with its mandate. In general, the structure of mine ownership in the country has remained significantly foreign, with locals mainly participating in small-scale mining. Government assistance to the mining industry was significant during the colonial period in terms of the various departments of the Ministry of Mines. Examples of this assistance included advisory support to small-scale miners, frequent monitoring of safety standards, plant hire schemes for artisanal and small-scale miners (ASMs), mobile diamond drilling facilities, loan schemes, export promotion schemes (tax incentives for export market development), the Mining Project Fund (facilitated mining equipment import), export revolving funds to assist export performers to import capital goods and spares, and so forth (IMR, 1989; Roussos, 1988; Vallieres, 1993). Most of these facilities, which would have helped indigenous miners, have since stopped or been scaled down due to the budgetary constraints recent the government is facing, especially since the late 1990s.

The story of ZMDC has, however, been one of dismal failure, with its assistance to co-operatives almost now non-existent, and the mines it has accumulated over the years are either closed or

saddled with huge debits or operating at losses. Its participation in the Marange Fields, since 2006, as a 50% shareholder in all the diamond mines in the area, save for Marange Resources, where it owned 100% of the shares, has added to its record of failure. The Marange diamond mines were characterised by lack of transparency and accountability and yielded little to the government coffers. In the first place, the individual contracts with the partners in the different diamond mines were not made public, diamond production figures and revenues were not publicised, and ZMDC was not involved in the direct management of the mines as it did not have members sitting on the boards of these joint ventures. As a result, it has been speculated that Zimbabwe has lost about US\$13 billion in Marange to illicit activities including smuggling and under-pricing over the ten years the mines have been operating. The realisation that the country was not benefitting much from the joint ventures resulted in the Government terminating operations and directing the consolidation of the several diamond mines into a single company to enhance transparency, accountability and the capacity to mine kimberlites – the mines had reported that the alluvial or placer deposits were getting exhausted. This single company is the Zimbabwe Consolidated Diamond Company.

This company is yet to make a difference, as its contribution to the fiscus in April 2016 of US\$1 million fell far short of projections of about US\$30 million per month. ZMDC still continues to add new ventures to its portfolio, for example, Todal Mining Private Limited and the Global Platinum Resources in which it is in joint ventures with Lefever, CAMEC and Wanbao Rexco to mine PGMs. Going by the various ventures in which it is seeking potential financial partners, its portfolio is likely to grow wider and wider by the year.

Generally, the structure of mine ownership in the country has remained significantly foreign, with locals mainly participating in small-scale mining. Major companies in the gold sector include Caledonia Mining (Blanket Mine), ASA Resources (Freda Rebecca Mine), New Dawn (Turk/Angelus, Old Nic, Golden Quarry, Camperdown, and Dalny Mines), Duration Gold (exploration and development company), Favic Consolidated (Favic and West Nic Mines), Metallon Gold (How, Shamva, Arcturus, Redwing and Mazowe Mines), Bilboes Holdings (Isabella, Bubi, When and McCays Mines), Ox Mining (Inex and Lenox Mines), DTZ-OZGEO (DTZ-OZGEO Gold Mine), Pan African Mining (Muriel Mine), John Mack & Company (Golden Valley Mine), FA Stewart (Jessie Mine), Bronfield Mines (Brompton Mine), Pan Reef Mining (Indarama Mine), RioZim (Renco Mine) and ZMDC (Sabi, Elvington and Jena Mines) (see Mlambo 2016b). There are 12 small-scale mines registered with the Chamber of Mines and 30 registered custom millers, including Fidelity Printers and Refiners.

The platinum sector currently has three operating mines, namely Zimplats, Mimosa and Unki. Zimplats is owned by Implats of South Africa, Mimosa is owned by Mimosa Investments Ltd (which is a 50-50 venture between Aquarius and Implats and is registered in Mauritius) and Unki Platinum is owned by Anglo Platinum. There are three new entrants, namely the Great Dyke Investments (joint venture between Pen East Zimbabwe and a consortium of three Russian companies), Todal Mining (a joint venture between ZMDC and Lefever CAMECO and Global Platinum Resources (a joint venture between ZMDC and Wanbao Rexco of China).

3.4 Mining Policy Framework Governing the Mining Sector in Zimbabwe

3.4.1 Continental and Regional Mining Policy

There are continental and regional mining policies to which Zimbabwe subscribes. These policies are important in analysing the national mining policies in a broader context, as the

former tend to influence the latter. One continental policy with a bearing on national mining policy in Zimbabwe is the Africa Mining Vision (AMV). Zimbabwe is yet to significantly comply with the Africa Mining Vision principles in practice, though on paper it is largely compliant. Table 4 (overleaf) compares a recast of the AMV principles against policy and practice in Zimbabwe.

The failure to achieve the tenets of AMV in Zimbabwe perpetuates dependence on foreign investment and lack of broad-based development.

At the regional level, examples of mining policy documents that impact on mining include SADC Common Agenda of 1992 in the SADC Treaty, the Protocol on Mining in the Southern African Development Community (SADC) ratified in 2000, SADC Mining Strategic Plan (MSP) of 2001, the Harmonisation of Mining Policies, Standards, Legislative and Regulatory Framework in Southern Africa and its implementation Action Plan, which were adopted in 2006 and 2007, respectively (TOR, 2015) and the Regional Indicative Strategic Development Plan (RISDP) (ECA and SADC, 2004; Mlambo, 2015c). Zimbabwe is a signatory to all these regional policies and treaties. It is important that, as in the case of the AMV, almost every regional policy document explicitly or implicitly speaks to regional integration of economies and consequently, to harmonisation of mining policies and strategies.

Thus a key regional policy is the Harmonisation of Mining Policies, Standards, Legislative and Regulatory Framework in Southern Africa. The regional framework on harmonisation of the mining sectors gives qualitative benchmarks that member states should work towards in order for the region to ultimately have a common approach to mining sector development and management.

Some of the important benchmarks relate to:

1. mineral policies (stability, consistency, consultation, social obligations, etc.).
2. Political, economic and social environment (reduction of unemployment, macro-economic and political stability, promotion of small-scale enterprises).
3. General investment regulations (state equity on commercial terms, etc.).
4. Mining fiscal environment (introduce additional profit tax (apt) to capture extremely high economic rents, limit loss carry-overs, etc.).
5. Mineral administration and development systems (simplified and transparent administration systems, etc.).
6. Artisanal and small-scale mining (asm) (specific legislation to support asms, etc.).
7. Research & Development (R&D) and Human Resources Development (HRD) (funding from government and industry for applied research, etc.).

Failure to achieve these benchmarks means the benefits from the mining sector remain insignificant.

Currently, the country is operating in a mineral policy vacuum. A few mining-related disparate policies are used to guide the sector. The government has been working on a new mineral policy over the past few years, which, when approved and adopted, is expected to provide a clearly defined framework to guide investors.

The new policy framework that will overhaul the current Mines and Minerals Act has been on the cards for years. It has been alleged by some stakeholders that stakeholder consultations were not broad-based. Consultative meetings, though held in all mining provinces, were held in towns and hence left out the grassroots population. There is concern that some stakeholders' views were not included in the 2013 draft policy, especially with respect to the contributions by representatives of the ASM sector. It is deemed to be too broad, lacking the necessary depth to guide development of related legislation. It is recommended that these gaps in the process and

AMV Tenet	Mining Policy	Practice
<p>Broad-based, development-based on development of:</p> <ul style="list-style-type: none"> • Linkages • Knowledge of endowments 	<p>Development based on:</p> <ul style="list-style-type: none"> • Linkages • Funding of geological survey to enhance knowledge of endowments 	<ul style="list-style-type: none"> • Policy only a draft hence not yet binding • Insignificant linkages • Beneficiation policy not effective because there are only pronouncements and not formal policy • Establishment of Mining Promotion Company for exploration; however, has no capacity • The government has information disadvantage against foreign investors on its own endowments, which makes contract negotiations difficult for government.
<p>A mining sector that is fully integrated into and contributes towards industrialisation impetus</p>	<p>A mining sector that is fully integrated into the economy</p>	<p>Linkages still weak</p>
<p>Sound mineral resource governance based</p>	<ul style="list-style-type: none"> • Transparency on revenue flows and benefits from the sector • Affected communities to benefit • Wider benefits of mining to regional and national economies • Equitable and competitive mineral fiscal regime • Environmental stewardship • Investing for the future 	<ul style="list-style-type: none"> • Transparency is under discussion, with Min. of finance favoring adoption of EITI, but Ministry of Mines favor a domesticated version of EITI. No much movement there. • Indigenisation policies provide for CSOTs and ESOTs, but the policies are not clear and there is no formal full legal backing for these schemes. • Revenue from mining (revenue) have been secretive (very opaque) • Environmental stewardship in the form of enforcement of EIA • For inter-generational equity, Zimbabwe has legislated Sovereign Wealth Fund but nothing is really happening.
<p>Optimal extraction of finite resources, both high-value and low-value minerals at all scales</p>	<ul style="list-style-type: none"> • Committed to a clear regulatory framework that is conducive to optimal exploitation of minerals • Policy being formulated (draft) • Mines Act being amended 	<ul style="list-style-type: none"> • Emphasis remains on high-value minerals like diamonds, gold, platinum. • Policy is felt to be more of a linkages development policy than a minerals development policy that promotes best practices of extraction. • Policy taking too long to be finalized • Act (961) being amended and taking too long to be finalized (since 2002) – hence regulatory framework not yet finalised

Harnessing the ASM sector	ASM to be developed and formalized	<ul style="list-style-type: none"> • Joint monitoring (police and ZIMRA) to mop up production especially of gold and to tax them. • Attempts are underway to register syndicates of miners which will make it easy to monitor them and also support them.
Human and institutional capacity building that fosters innovation, research and development	<ul style="list-style-type: none"> • Building capable institutions • Minerals knowledge formation (skills development) 	<ul style="list-style-type: none"> • Key institutions are losing their capacities – equipment, human resources, etc • Learning institutions are constricted by lack of staff and equipment, hence are producing less number of graduates who are possibly of poor quality.

Table 4: AMV Principles vs Zimbabwe Mining Policy and Practice

Source: Adapted from Mlambo (2015b)

the draft document be revisited before the final draft is subjected to robustness test to ensure that it will remain relevant and consistent over time. Lack of policy stability, clarity and consistency are key challenges to harmonisation efforts.

Stable political, economic and social conditions are an important pillar in harmonisation and enhancing overall attractiveness of a country. The Zimbabwean economy stabilised between 2009 and 2013, following the formation of the Government of National Unity (GNU). During this period hyperinflation was tamed, whilst the average economic growth rate was 8.5% (Mlambo and Mupamhadzi, 2015). However, the performance of the economy slowed down after the GNU era as the ZANU-PF-led Government struggled to come up with policies that could grow the economy. Unemployment is now recorded as more than 90%, the major component of the economy is informal and characterised by low productivities, poor capitalisation, inadequate equipment and insignificant contribution to the fiscus.

Zimbabwe has failed to attract foreign direct investment (FDI), as the business environment is complex, government policy is inconsistent and the risks very high. The country was ranked 171 out of 189 countries by the World Bank for ease of doing business in 2015, and the 2015-16 Global Competitiveness Index ranked the country 125 out of 140.

The ruling party's factionalism has compounded the country risk profile, which together with macro-economic instability and unemployment has retarded the momentum of the country towards achieving the harmonisation agenda. Much progress has however been made in pursuing strategies to tackle HIV/AIDS in the country, with the support of NGOs and donor communities. As a result, the HIV infection rate dropped to 15% in 2014. The increased usage of anti-retroviral drugs (ARVs) and the general decline of the HIV infection rate has had a positive impact on productivity in the mining sector and seen reduced absenteeism.

The single element that has significantly affected the mining sector is the fiscal regime. There are general shortcomings of the system that apply to the mining sector as a whole. These include:

1. Multiplicity of revenue collecting agencies.
2. Multiplicity of legislative instruments governing the system.
3. Multiplicity of tax heads.
4. The *in rem* nature of the royalty regime (based on gross revenue rather than profit).

5. Instability of the regime.
6. High royalties (highest in the region).
7. High fees and ground rentals.

The royalty regime is *in rem* and non-deductible for income tax purposes. Its *in rem* nature creates inefficiency in the sector as it interferes with business behaviour as the royalty enters into the variable costs of production directly. When royalty rates are raised, they raise the cut-off grade and can easily sterilise marginal and para-marginal resources.

Generally, the fiscal rates, including withholding taxes and royalties, are high, with an effective tax rate of more than 60%. Tax treaties to avoid double taxation are non-existent in Zimbabwe, and though unverified, there are speculations that transfer pricing and other illicit mechanisms of profit-shifting (including re-invoicing and thin capitalisation) are taking place. However, the regime is in compliance with the harmonisation framework on the issues of additional profit tax and limitation of carryover of losses.

Government has to some extent tried to support small-scale miners in the country. Examples of such efforts, which are however still to yield fruit, include the US\$100 million facility agreement with China's Xuzhou Construction Machinery Group for the provision of small-scale mining equipment on credit and tax incentives to financial institutions accepting geologically-surveyed claims as collateral for small-scale miners' borrowing requirements.

The Government of Zimbabwe also reduced the royalty rate levied on small-scale gold-producers whose output does not exceed 0.5kg per month to 3% from 7% in 2014, reducing it further to 1% with effect from 1 September 2015. Within the mining sector, a significant proportion of women is active in ASM, in line with the harmonisation framework. The key challenge is that in most instances these activities are illegal and lack proper government supporting infrastructure. Furthermore, some of the activities of ASM have an adverse impact on the environment. Much still needs to be done with respect to geological support (information), appropriate legislation, simplifying the rights systems administration for ASM, as well as many other pertinent issues.

Zimbabwe is operating a liberalised foreign exchange policy that is consistent with the recommendations of the harmonised framework. Foreign companies can freely repatriate profits without any challenges (subject to payment of a withholding tax) and bring in capital and machinery duty free. This is beneficial to investors who are seeking exploiting opportunities in the country. Furthermore, there is no exchange rate risk in the country due to the use of the multiple currency system, which is a big advantage for investors. However, Zimbabwe still controls the marketing of minerals and minerals products. From 1983, all mineral exports (except gold) have been controlled by the Minerals Marketing Corporation of Zimbabwe (MMCZ), which is not consistent with the harmonisation framework. In the case of gold, Fidelity Printers and Refiners are the sole buyer and exporter of gold. There is still need to open up the marketing of minerals in line with the harmonisation framework.

With regards to gender mainstreaming, much ground has been covered. The Constitution has provisions guaranteeing equal rights to men and women in all endeavours, and more than that, women's empowerment provisions are enshrined. There is a gender-mainstreaming programme that tries to ensure that all policies, programmes, projects and budgets of government are gender-sensitive. The guidelines and parameters for gender mainstreaming are provided for in the National Gender Policy. Among the small-scale miners associations is Women in Mining, which looks at the interests of women in the sub-sector. However, financial support for this forum has

been insignificant due to the general financial crisis. Nevertheless, the participation of women in mining operations, especially in small-scale mining, has increased tremendously in the last few years. The same applies to actual appointment of women to senior positions including directors, permanent secretaries.

In a bid to uplift previously marginalised members of society, the Government of Zimbabwe embarked on a number of initiatives, of which the most notable is the indigenisation and economic empowerment law. The first policy framework on indigenisation was published in February 1998 and was called 'Government Policy Framework for Indigenisation of the Economy'. Following this, the government created a National Investment Trust to lead the participation of indigenous Zimbabweans in the economy. The Revised Policy Framework for the Indigenisation of the Economy was approved in 2004 and resulted in the promulgation of the Indigenisation and Economic Empowerment Act (Chapter 14:33) in 2007, which became national law in January 2008. The law compels all foreign companies operating in Zimbabwe to cede 51% ownership of their shares or interests therein to indigenous Zimbabweans. Although the Act became law in 2008, it was not set into motion due to the absence of General Regulations that spelt out the implementation modalities.

The Indigenisation and Economic Empowerment General Regulations were gazetted on 29 January 2010 and were supposed to be operational as of 1 March 2010. The regulations were a cause of much consternation in Zimbabwe and this forced the Government to suspend implementation. Instead, it adopted a sector-by-sector approach to indigenisation in a bid to address the anomalies. New regulations were then passed during the first quarter of 2011 that largely focus on the mining sector, and with which the sector was supposed to comply by 25 September 2011. Various statutory instruments were subsequently published to put the law into effect and to stipulate indigenisation thresholds applicable for the different sectors of the economy.

Although Zimbabwe, in line with recommendations of the SADC mining protocol and the harmonisation framework, tried to ensure that previously marginalised citizens benefit from this indigenisation and empowerment programme through 51% local shareholding, the implementation has been disastrous. The law sent shockwaves throughout the national economy; it destroyed foreign investors' interest in the mining sector, froze virtually all external lines of credit that are desperately required to revitalise the sector and other economic sectors; saw business confidence plunge (a prerequisite for a virile economy) to subterranean lows; intensified Zimbabwe's isolation and its international pariah status; motivated many long-established enterprises to give serious thought to discontinuing operations and divesting of assets, with the resultant increase in unemployment and exacerbation of poverty. The approach of Government to indigenisation and empowerment has been viewed as tantamount to the nationalisation of assets in the country.

3.4.2 National Minerals Policy Framework

As alluded to earlier, Zimbabwe does not have a national minerals policy. What is in place is a draft minerals policy that is still to be finalised. The sector as a whole has been regulated by various acts, principal of which is the Mines and Minerals Act, which is also being amended. However, having an Act without a policy is like putting the cart before the horse, since an Act is an implementation tool for a policy. There is one specific mineral sub-sector policy – the Diamond Policy.

The vision for the mining sector in Zimbabwe is based on the Africa Mining Vision (AMV). The

policy, once adopted, will form the basis for revision of mining-related regulations. It will guide interventions by various stakeholders, including government institutions. Its ultimate objective is the sustainable management of the country's mineral resources, which will result in sustainable development of the country.

As indicated, though mining itself is not sustainable it can lead to sustainable development through the development of economic linkages when the resource is still available. The draft policy seeks to outline strategies for the development of these linkages as a major objective. In particular, it seeks, by linkages development, to preclude the 'resource curse', the looting of resource rents by a few elites, rent-seeking behaviour and the lack of reinvestment of rents in the local economy. It seeks to achieve these linkages by making them a condition of preference in the public tender process for mining rights. It also looks at achieving intra- and inter-generational equity.

In terms of principles, the draft Minerals Policy is largely based on the Constitution of Zimbabwe and the Mines and Minerals Act. Its proposed governance framework includes:

1. Transparency in all matters, fairness, honesty, all-stakeholder consultations, cost-effectiveness and competitiveness in the acquisition of exploration licences and the leasing of mining rights.
2. Balance between the development imperative and environmental sustainability.
3. Facilitation of exploration by both state and private sector.
4. Discouragement of hoarding and speculative tendencies in the sector.
5. Promotion of beneficiation and local content.
6. A fiscal regime that balances between maximum revenue by the state and maintenance of a competitive environment that is attractive to investors.
7. Support for small-scale miners (through the so-called 'golden triangle' of finance, marketing and technical support) and medium-scale miners to increase employment and reduce rural-poverty levels.
8. A new asset disposal system that is a hybrid of FIFA (first-in-first-assessed) and public tender, depending on whether the resource is unknown (FIFA) or known (public tender).
9. Exploration licences (for large-scale mines), prospecting licences (for ASM), mining leases and ASM leases granted on the 'use-it-or-lose-it' basis.
10. Improvement in the title management system through establishment of a mining cadastre information management system (MCIMS).
11. Clear guidelines on identification of and regulation of the extraction of strategic minerals, which are inputs to manufacturing, agriculture, infrastructure and power.
12. Establishment of a Minerals Development Board comprising government, industry and university representatives and selected experts, tasked with mainly advising the Minister.
13. Marketing of all minerals except gold and PGMs, which are to be marketed through a Dealer authorised by the Finance Ministry, to be done through the MMCZ at competitive marketing commissions, with the current rate to be reviewed.
14. ZMDC's mandate to be reviewed towards development of strategic minerals and critical economic linkages.
15. Commitment towards progressive adoption of Extractive Industries Transparency Initiative (EITI).
16. Support for participation of indigenous Zimbabweans through partnerships with foreign interests and building of local capacity in mining, mining-related industries and mine supplies (local content).
17. Recognition of competing land uses and crafting of land dispute resolution and compensation measures.
18. Skills stock assessment and creation of a human resources development strategy.
19. Institutional capacity building funded from mineral revenue (including geological surveys, governance, facilitation, promotion and training institutions).

The draft policy clearly represents an improvement on the current system, which was nonetheless largely consistent, from an administrative point of view, with the requirements of the harmonisation framework and the AMV. The emphasis on linkages introduces a transformative agenda.

The current situation is that all minerals are vested in the state (represented by the President). However, any permanent resident of Zimbabwe who is of legal age (18 years and above) can apply for a two-year prospecting licence from Mining Commissioners' offices around the country. The prospecting licence also allows the holder to peg any mining claims he/she may have discovered by putting up a very clear discovery peg, besides posting prospecting notices, discovery notices and registration notices.

Before any major development and production work can be commenced on a claim, the miner should submit a project prospectus to the Environmental Management Agency (EMA) detailing the proposed project components and the likely impact of the project on the broad (physical, social, human and economic) environment. The EMA will either allow the miner to proceed with works if the impact is minor or request a detailed Environmental Impact Assessment (EIA) if the likely impact is deemed significant. These EIAs are produced on behalf of the miner by a consultant selected from a list registered with EMA. The EIA guidelines provided by government, while not making it mandatory to have mine closure plans, encourage the EIA documents to include them. A submission fee is charged by EMA.

The above process applies to individuals or companies intending to work at least ten hectares for precious metals or stones, or 25 hectares for base metals. For large areas or any defined reserved area (except for coal), the proponent must apply for Exclusive Prospecting Orders (EPOs) to the Mining Affairs Board (MAB). The MAB gazettes the EPOs for objection, after which recommendations are made (to the Minister of Mines and Mining Development for granting or refusal an exploration permit. In making recommendations, MAB looks at the applicant's background, their corporate structure, their financial (and technical) capacity to undertake the work, national interest in the project and the applicant's proposed programme of work.

Types of Mining Leases

There are four types of mining leases or licences granted. These are:

1. Ordinary mining leases for any holder of registered location.
2. Special mining leases for investments in foreign exchange exceeding US\$100 million and output is destined for export.
3. Special grants on reserved areas.
4. Special grants for exploitation of coal and energy minerals (coal-bed methane gas and natural gas).

Special grants are given initially as exploration permits and the application process is the same as for EPOs, although the MAB will in such instances consider issues unique to the areas concerned.

All these leases have perpetual renewal. Claims should be continuously worked for the leases to be renewed otherwise they will be forfeited, on an annual basis (annual fees are charged). Mining rights are transferable. Besides forfeiture, the holder of a claim may lose title by cancellation or abandonment.

Several other permits issued by the Ministry of Mines and Mining Development (MMMD). The permit to purchase and possess gold is governed by the Gold Trade Act (Chapter 21:03). The holder of the permit may buy gold from small-scale miners and sell it to the Reserve Bank of Zimbabwe and Fidelity Printers and Refiners. Those who apply for this permit have to be vetted by the Zimbabwe Republic Police and pay a non-refundable annual fee. There is also a licence for custom milling centres governed by Statutory Instrument (SI) 329 of 2002 and SI 178 of 2006.

Custom milling plants are subjected to an EIA and annual fees are paid, which are reviewed from time to time. There is also the Gold Jewellery Permit for those who manufacture gold jewellery. Lastly, there is the licence to deal in precious stones, including cutting and polishing diamonds.

3.4.3 *Diamond Policy*

The Zimbabwe Diamond Policy was unveiled in 2012, with the main objective being to promote the sustainable development of the diamond industry for the benefit of the nation. The policy is a positive development towards good mineral governance and attaining full benefits from the nation's mineral resources. The policy deals with the issue of beneficiation, marketing diamonds, security, monitoring and access to information by the Ministry of Mines and Mining Development.

It has been and still is expected that the mining of diamonds will result in the enhancement of government fiscal revenues and the general welfare of the Zimbabwean population (Chamber of Mines of Zimbabwe, 2012). The previous lack of policy resulted in the country's loss of large amounts of in foreign currency due to illegal mining, smuggling and illegal trading of these precious stones from Marange.

The policy provides guidance on how the diamond industry should develop. Various issues are addressed by the diamond policy. These include:

1. Regulation of the production, processing, beneficiation, value addition, handling, transportation and marketing of both rough and cut diamonds mined or imported into the country.
2. Diversification and integration of the diamond industry into the rest of the economy, including promotion of downstream linkages, which enhances the sector's economic contribution.
3. Ensuring that the sector meets the Kimberly Process Certification Scheme standards.
4. The need to align the diamond industry with existing policies, development goals and laws (for example, the Mines and Minerals Act and the EMA Act).
5. Provision for creation of the necessary exclusive legislation (Act) and institutional framework for the administration of the diamond sector.
6. (Development of requisite human resources through promotion of skills training in the sector.
7. Research and development for knowledge and technology growth.
8. Promotion of regional and international integration of the sector. For example, associations with African Diamond Producing Countries under KPCS, SADC, COMESA, WTO and UNCTAD.

The policy has many provisions whose implementation would significantly affect the governance of the sector positively (CNRG, 2013). These are:

1. State ownership of diamond resources, which stamps the sovereignty of the state in the exploitation of diamonds.
2. The potential conflict in most developing countries between state control and the need to attract foreign capital is resolved through a partnership arrangement between government and foreign investors in which the government retains a controlling stake.
3. The policy requires companies to make quarterly reports on exploration and mining, which makes it possible for government to acquire data generated in the operations.
4. The policy's ban on export of samples precludes the ability of mines to export valuables clandestinely.
5. The policy provides for the appointment of the Precious Stones Commissioner by the Public Service Commission, which gives him/her some independence (from the Minister). The Commissioner's responsibility will be to administer the amended Precious Stones Trade Act.

The policy was put in place to quickly address issues in a new industry in which everyone was learning (including private sector and government). Because of its exceptional issues, the diamond sector could not be governed by the existing broad regulation, though the latter

makes reference to the diamond sub-sector. It is also governed by rigorous International Laws like Kimberly Process Certification Scheme (KPCS) hence the need to have specific national legislation. There are various issues of techniques, security and transparency, which however need to be addressed. For example, there are no skills in diamond beneficiation in the country at the moment.

There are many questions around the current diamond policy, which may challenge its adequacy. While the Centre for Natural Resource Governance (CNRG) acknowledges that the production of the policy itself was a significant development in the governance of the diamond sector in Zimbabwe, it has identified several loopholes. It would be important to assess the extent to which the policy addresses various issues that have plagued the sub-sector as well as potential issues. The Diamond Act may take some time to be produced, but the country is moving towards it. The policy is not very useful without an Act, especially in that there is no recourse. The Ministry of Mines and Mining Development has only produced a draft Memorandum to Cabinet on the Principles of the Enactment of the Diamond Act (Ministry of Mines and Mining Development, MMMD, 2011b). This memorandum lays out the principles without much elaboration and the principles cannot be implemented at law without an Act.

The Centre for Natural Resource Governance (CNRG) (2013) recommends that the policy be reviewed further and continuously in light of identified weaknesses and that this review be done in consultation with academics, Civil society organisations (CSOs), industry and the communities in which mining takes place. The policy, which came six years after the discovery of diamonds in Marange (and many more years after the mining of kimberlites at River Ranch), was a bit late, though it has positive elements in terms of addressing governance challenges in the sector. CNRG also highlights other weaknesses in the policy:

- It lacks enough safeguards, in terms of transparency measures, against political elite predation. The policy does not clearly specify how the investors are to be screened in the awarding of tenders, for example, the requisite qualifications in terms of track record in the business and available finance for a venture.
- The policy does not provide for the enactment of a Diamond Act, but instead cites the archaic Mines and Minerals Act (CAP 21:05), the Precious Stones Trade Act (CAP 21:06) and the Minerals Marketing Corporation of Zimbabwe Act (CAP 21:04) among others as the legislative instruments administering the diamond sector. This legislative arrangement inherits the problems inherent in the various existing legislative pieces. For example, the Mines and Minerals Act gives excessive powers to the Minister, relegating the Mining Affairs Board to an advisory organ to the Minister, who has the liberty to accept or reject the Board's recommendations.
- The policy does not provide for robust monitoring of the issuance of mining titles through the Parliamentary Committee on Mines and Energy. Nor does the policy provide for such oversight to be rectified by any other stakeholder. This creates opportunities for corruption.
- The policy is silent on specifics on how relocation and compensation issues should be dealt with. Instead, it gives a blanket provision that relocation and compensation costs will be met by the investor subject to government standards, which are not specified. This apparently explains why compensation has remained an issue in the Marange area, especially given that the homesteads were razed down before valuation. The policy also puts an upper limit on the time during which a company is obliged to provide and maintain infrastructure and amenities in the relocation areas, which CNRG argues should be equivalent to the life expectancy of operations, that is, as long as the company operates.
- The policy's concept of sustainable development is very narrow, only referring to development and maintenance of infrastructure, leaving out issues of livelihoods, social equity (and the welfare of future generations).

- The policy does not give any role to traditional leaders, which is inconsistent with the provisions of the Traditional Leaders Act. The latter gives the traditional leaders the role of monitoring how natural resources in their areas of jurisdiction are exploited and managed. CNRG also notes that traditional leaders can have a key role in facilitating issues of relocation.
- Regarding the issue of transparency and accountability, the following are noted: (i) while provision is made for government to access exploration and financial data, this provision does not extend to the general public. Lack of information breeds suspicion and tension; (ii) while the policy mentions beneficiation of diamonds, it does not specify the criteria for the selection of permit holders in diamond cutting and polishing, which breeds corruption and the benefitting of a few connected people; (iii) there is a clause in the policy that states that besides tender or auction or negotiation, the sale of diamonds shall be 'by any other system approved by government'. This quoted phrase remains vague, and can potentially cause problems of transparency and accountability; and (iv) the role of various government stakeholders is not clearly specified, hence duplication of duties is possible.
- While mentioning offenses and penalties, the policy does not clearly specify the penalties, nor does it make reference to the appropriate pieces of legislation.
- The policy is not sensitive to the gender and youth dimension – the need to promote participation of women and youth in the sector.
- The policy does not indicate the requirement for a mine closure plan.
- The policy provides for a Diamond Board, which is appointed by the Minister of Mines and Mining Development in consultation with unnamed stakeholders and chaired by the Permanent Secretary but is largely subordinate to the Minister, hence not independent.
- While the policy provides for a blanket approval for all companies operating in the country once the country is approved compliant, KPCS uses a company-by-company approach, which is more appropriate.
- The functions of the Precious Stones Commissioner are not clearly specified and distinguished from those of the Diamond Board.

While the policy itself is generally good and a step in the right direction, the artisanal and small-scale miners feel that the policy needs to cover other semi-precious stones as well as provide for the participation of the small-scale mining sector in the industry. The policy favours the big mines even as does the Gold Trade Act. ASMs also feel that sometimes MMCZ overvalues some minerals (semi-precious stones) to the extent that there is no market for them.

3.5 The Legal Framework Governing the Mining Sector in Zimbabwe: Pertinent Instruments

3.5.1 *Mines and Minerals Act (Chapter 21:05) and the Act Amendment Bill*

The Mines and Minerals Act (Chapter 21:05) is the current principal legislation that regulates the acquisition of mining rights in Zimbabwe. It applies to all minerals found in the country. In terms of Section 2, all rights to minerals are vested in the President of Zimbabwe and are administered by government through the Ministry of Mines and Mining Development. According to the Act, for one to prospect, explore and mine mineral resources in Zimbabwe, they need to apply for a mining title or permit/licence. Various mining licences issued under these include:

1. Ordinary prospecting licences that give the holder the right to prospect for any mineral on the land open for prospecting, measuring 10 ha for precious stones/metals and 25 ha for base metals.
2. Exclusive Prospecting Orders (EPOs) that give an exclusive right to the holder to explore for minerals in any defined area measuring 65,000ha. This is open for all minerals except coal.
3. Mining Leases that gives the holder of any registered mining claim/location the right to mine under perpetual annual renewal.

4. Special Mining Leases, which are granted as a mining lease to those holders who want to invest foreign exchange amounting to at least US\$100 million and the output is intended for export.
5. Special Grants, which gives the right to any person to prospect for any mineral in reserved ground under perpetual renewal.

It is therefore illegal for anyone to prospect, explore or mine minerals without a licence. If correctly applied and monitored, with all the transparency required, good mineral governance would be achieved. In some instances, the special mining lease is awarded to Zimbabwe Mining Development Corporation (ZMDC), an arm of government, for example, in Marange, and any firm that wants to exploit the deposit has form a joint venture with ZMDC. The Act however, has limited provisions for access to information, resulting in non-disclosure of contracts that are signed with both foreign and local investors in the sector.

The current Mines and Minerals Act (Chapter 21:05) was passed in 1961, and since then it has undergone several amendments. Recently amendments have been proposed, which are still in draft form. The recent draft amendments have gone through several ministers, beginning with Amos Midzi, then Obert Mpofu and Walter Chidakwa. Generally, stakeholders feel that the draft amendments have taken long to be finalised because of the changes in Government, whereby with the appointment of a new minister, priorities and thrusts change. This has significantly affected the effective management of the mineral sector in Zimbabwe.

The amendment bill itself has come under significant criticism. Regarding licences and contract awards. Anderson (2011) contends that there is need to:

- Limit the Executive's decisions, to avoid abuse of power.
- have the minimum technical and financial qualifications for prospecting licences and the basis for cancellation of licences clearly laid out.
- Put a limit to the maximum number of renewals of exploration licences under all categories in order to encourage exploration of exclusive areas.
- Possibly consider rationalising the licensing system and make decisions less discretionary by having a single licensing authority and a standard model mining contract.

The bill is silent on local content programmes and their implementation. These programmes represent one way in which local employment and supply of goods and services can be enhanced, hence the need for the bill to include local content provisions. Alternatively this issue can be clarified in related regulations or the country can just have a separate policy developed on local content.

The bill does not clearly indicate how environmental rehabilitation funds or mine closure cost provisions are to be created and managed. It also does not provide for the harmonisation of 'mining and environmental regimes, to establish mechanisms for implementation and monitoring of environmental provisions' (Anderson 2011, p. 2).

Amendments to the Mines and Minerals Act have been piecemeal since 1961. Generally, there are many issues that need to be addressed by the amendments, such that there is need for a complete overhaul of the Act, though in the absence of a new Act amendments are better.

Before we can talk about the Act, issues of policy must be resolved so that we do not put the cart before the horse. Acts should not be formulated in policy vacuums. We need to strengthen policy first. Thus, the development of the Act becomes dependent on the finalisation of the policy, as it should. Incidentally, the draft policy proposes a new Act.

3.5.2 The Income Tax Bill

In this bill, the government is proposing to move from the source-based system to the residence-based system of taxation (Mutombodzi, 2014). Source-based taxation is whereby tax is applied on income generated within the country's borders irrespective of where the recipient resides, whereas residence-based taxation is whereby tax is applied on a Zimbabwean resident's worldwide income. In the latter case, any tax incurred on income from foreign lands is allowed for local income tax purposes, while still domestic income earned by non-residents is taxed.

The above change will clearly increase the tax base as it will include in the tax net offshore businesses owned by Zimbabweans or any income coming from outside the country, without doing away with the source-based principle. This will mean more revenue for government will be earned from the mining sector as some income comes from mining concerns outside the country. It allows the government to benefit from the exploitation of mineral resources in other countries where Zimbabwean residents have interests. Thus, while this is not directly about the governance of the country's mineral resources, the revenue flows that it makes possible can be channelled towards sustainable development of the mining industry as it increases fiscal revenue from the sector in general.

There will be need, however, for a comprehensive database of tax-payers and their mining concerns in and outside the country, a database that will need to be updated continuously. This reform is in line with regional trends as ten out of the 15 SADC countries are already using the residence-based system, with the five exceptions being Zimbabwe, Zambia, Malawi, Mozambique and Angola. This reform is good for revenue and, by extension, for mineral resource governance, if the revenue is treated in the same way as mineral tax. However, with the fiscal system in the country already uncompetitive regionally and internationally, it is important to note its potential impact on the attractiveness of the country for investment. As Mutombodzi (2014) concludes, there is need for more detailed impact analysis of the bill.

3.5.3 The Sovereign Wealth Fund Act

The Sovereign Wealth Fund Act (SWFA) was passed in November 2014. It seeks to establish a fund to be administered by a board whose objective is to secure investment for the benefit and enjoyment of future generations of Zimbabweans. The Act is meant to support the objectives of the government, which include long-term economic and social development. It is also meant to support fiscal and macro-economic stabilisation, and to supplement national revenue when it is low. The fund will be driven primarily by 25% of all royalties on mineral exports, which will be deposited, along with special dividends on the sales of diamonds, gas, granite and other minerals through the ZMDC.

This development signifies a milestone towards ensuring that the benefits of the country's resource endowments go beyond the lifespan of the mineral resources. The Minister of Finance and Economic Development allocated US\$500,000 in the 2015 national budget in support of the initial operations of the Sovereign Wealth Fund while exploring other measures to augment the Fund's start-up capital.

The basic question of sustainable development is that the community that hosts the resources should benefit (which is the essence of community-share ownership trusts). Outside that, a global fund needs to be created that should be distributed to other regions for equitability. Sustainability should also be considered from the industry's perspective, where there is need for the mining industry to be supported or cushioned when prices are going down (some kind of a buffer scheme), which then requires a fund. There are also some mineral resources that are

likely to be affected by technical progress (miniaturisation, greater efficiency in resource use, and development of substitutes) that we may need to exploit before they are overtaken by time.

There is a need to address both intra-generational equity and inter-generational equity. Though the SWFA is viewed as a good idea, it raises a question regarding the distribution of the fund to each of the two issues above: how to share it between addressing issues of the current and future generations? It is evidently important to ensure that we do enough for current poverty alleviation before we can think of future generations. It is sometimes argued that conditions are not yet ripe for the SWF because of low savings, the need to address the country's huge external debt and its need to attract FDI.

One argument that is advanced is that the worry about intra-generational equity is taken care of through the redistribution effected by tax and government budget – regional development programmes should address the inequities in opportunities. However, this argument does not hold when the government budget is mainly consumptive – about 80% of it currently goes towards civil servants' salaries. Given that we have little savings, nothing is left for future generations. Sustainability is about developing the country since this will benefit both the current and future generations. However, if the benefits are individualised it may compromise the ability of the country as a whole to address these issues.

Sustainability for the future can be in the building of skills- and knowledge-based economies. A sound economy bequeathed to an uneducated future will be destroyed. It is not about the 96% literacy rate that Zimbabwe boasts, for this is just reading and writing, but about vocational training centres, encouraging science subjects and promoting the funding of small to medium-sized enterprises. Sustainability also requires an industrial policy that speaks to development of inter-sectoral linkages. In fact, the SWF must receive funds from all sectors. Thus, there is need to look at sustainable development broadly, not just from the mining sector perspective.

The fund, if implemented, should be managed by a Board comprising the private sector, government, CSOs, Parliament and the community. There is need to look at the competence of individual members. The Fund must be run like a private investment company, without government interference, except to ensure that there is transparency and accountability.

One thing that has not been addressed by the governance framework is the need to assess the extent to which the mineral resource base as an asset or natural capital is depreciating. This measure should be taken into account in the computation of national income accounts, in the same way that the depreciation of man-made assets is netted out from gross income measures to obtain net measures. In this exercise, the choice of the discount rate is key as it reflects preferences between current and future welfare. A large discount rate would mean that the welfare of future generations is not of priority. While incorporating resource accounts into income statistics is not easy, several developed countries have started to make attempts, and in this regard, ZIMSTAT should consider doing the same.

3.5.4 The Indigenisation and Economic Empowerment Act

The Indigenisation and Economic Empowerment Act (IEEA) was enacted in 2008. The Act, which seeks to address imbalances originating from the colonial era, provides that all mining companies, and other businesses for that matter, should have 51% local ownership, that is, by indigenous Zimbabweans. It makes particular mention of women, youth and disabled people. In practice, this requirement essentially translated to Employee Share Ownership Trusts (ESOTs), Community Share Ownership Trusts (CSOTs) and government equity. CSOTs are approved by the Minister. The Act also provides for 50% local procurement.

Statutory Instrument 21 of 2010 gave 2015 as the deadline for compliance with the 51% local ownership stipulation for every foreign business with a value of at least US\$500,000. The Instrument demanded that compliance plans be submitted within 45 days, a deadline that could not be met by most companies. In 2011 the ministry issued amended regulations for mining companies, that reduced the threshold to US\$1, meaning that every mine was required to meet 51% local ownership, with another 45 days given as deadline for submission of plans. Again this failed to be met by most mining companies. The process was partly stalled by disagreements between mining companies and government on the valuation of shares being transferred, with most mines requesting more time to negotiate. Essentially, the deals ended up being negotiated on company-by-company basis.

ESOTs and CSOTs are supposed to receive 10% ownership each from all mines, both indigenous and foreign. CSOTs are defined per district with membership of 7-15 people. Members include a Chief (rotational Chairperson of Trust where a district has more than one chief), other Chiefs, District Head of the Ministry of Youth Development, Indigenisation and Economic Empowerment, DA, Council Chairperson (Vice-Chairperson of Trust), CEO of Rural District Council (RDC) (Secretary of Trust), representatives of the business at senior management level, women representative, youth representative, representative of the disabled, a lawyer, an accountant and co-opted expert(s). For foreign companies, the remaining 31% from the required 51% goes to government, where the company elects to use CSOT's 10% to contribute towards its empowerment quota.

Proceeds paid into CSOTs are supposed to be used for community infrastructure projects as determined by the priorities of the community. To preclude the tendency to avoid declaring dividends, hence avoiding paying into CSOTs, companies are supposed to make dividend declarations every sixth months.

The starting point in discussing indigenisation is the principle that the entire population of a nation should benefit from its mineral resources. Government participation is expected to result in increase in revenues for the government. The question is, can this happen (and how)? Currently, people are benefitting from employment and infrastructure development where CSOTs are taking place, but in some areas even these are minimal. It is important to note that the principle is acceptable to both the locals and to the investors.

Some stakeholders argue that government should not be involved in direct production, but should quantify resources and allow the private sector to do the mining. Government should task experts (for example, geologists and economists) to do quantification work and allow experts to make decisions. Politicians should start to respect expertise. Government is good at commissioning expert studies but poor at adopting study recommendations. One example from outside the mining sector is the Nziramasanga Commission on education. The Commission's results were not adopted by Zimbabwe, but instead were used by Namibia to improve its systems.

No consultation was made on the 51% local equity. Generally, stakeholders view an immediate requirement of 51% as a deterrent to investors, considering issues of security of tenure. They propose that the 51% be achieved gradually as the individual and corporate indigenous investors reinvest their dividends. Given that dividends are not regularly paid, it would take quite some time to reach the threshold of 51%. It is important to also note that Zimbabwe's domestic savings ratio is low because of the very high marginal propensity to consume. As a result, individuals find it difficult to buy into mining companies. Thus, indigenisation and empowerment, in practice, are mainly limited to Government, few wealthy individuals, and to

a lesser extent Community and Employee Share Ownership Trusts. One option might be for the government to give mining titles to locals, which they may use for securing partnerships, though this could fuel speculation.

The argument has also been made is that government has failed to convey the indigenisation principle and to explain the model, which has been prostituted by other political issues. The convolution of pure business principles with a political agenda automatically extends to risk perceptions. There is no trust-building, transparency and consistency in the way in which the model has been explained, and various arms of government have also explained it differently. Policy as legislated, policy as pronounced and policy as implemented are all different. Failure in government on transparency and accountability has resulted in looting sprees under the guise of indigenisation and perceptions that it was only meant to benefit a few connected people.

One great weakness of the CSOT and ESOT arrangement is that it lacks legal backing as the principal indigenisation and empowerment Act does not mention it. The word 'community' does not appear at all. Statutory Instrument 21 of 2010, which brought in the CSOTs as an afterthought, does not make the 10% community share disposal compulsory, and neither do other instruments that refer to it, such as Statutory Instrument 116 and 114 of 2010. CSOTs are just one way in which mining companies can achieve their minimum empowerment quotas. Without important legal backing, the establishment of each particular CSOT and the continued existence of CSOTs in general remains at the Minister's discretion. It is a great drawback that, in their establishment, there was no consultation with communities, to the extent that some are not even aware of their existence. Without the awareness of the community, it is anyone's guess if they will benefit from the Trust or if it will effectively address the community's priorities.

Many things are not clear in law, pronouncement and/or practice. In practice, the meaning of the term 'complying' is ambiguous as it seems to be variously applied to a situation where a mining company has actually disposed of the required 51% of its shares or a situation where the mining company has successfully submitted its indigenisation plan to the Minister. Details of companies' status with National Indigenisation and Economic Empowerment Board (NIEEB) are not published, hence the actual situation remains unknown to the public. It is confusing for the public when the government says that 100% of the mining sector has complied. Like NIEEB, the National Indigenisation and Economic Empowerment Fund (NIEEF), which handles the shares in case of slow uptake by indigenous people, does not make public the number of shares they actually have and how they were or are to be financed. The law and the pronouncement on whether the shares to be disposed of are to be sold or surrendered are divergent. The law speaks of selling while the pronouncements have spoken of surrendering (note that the regional Harmonisation Framework speaks of commercial transfer or selling). It is also not clear how the indigenous Zimbabweans can benefit from acquiring shares in non-performing mining entities.

Another inconsistency regards NIEEF and the SWF. Mawowa's 2013 study found that public officials differed on their understanding of the two. This has probably now been clarified by the enactment of the Sovereign Wealth Fund Act as a separate from the Indigenisation and Economic Empowerment Act. As indicated earlier, CSOTs have been implemented on a company-by-company basis, and in some cases the agreement might involve the company indicating that it will stop corporate social responsibility (CSR) activities, as the community will be getting dividends. In other cases, CSOTs launched in terms of money donated by the mining company and shares transferred, without clarity on full financing of the shares or on the constitution (membership) of the CSOT. Where the financing is by loan the community may stand not to benefit for a long time, as the dividends will be going towards repayment, while CSR activities

are ceased. This raises a serious question of sustainability of community benefits given that the resources are finite.

The CSOTs have also failed to bond with already existing community-based organisations as the latter are not represented (Mawowa, 2013). Most CSOT members are from outside the community and it is not clear how the few community representatives are chosen (that is, the criteria used is not clear) and who chooses them. CSOTs, like the NIEEB, are male-dominated, which is inconsistent with gender mainstreaming. The other problem with the implementation of CSOTs is that the structure is political. A pertinent question to ask is whether or not ownership is what the community wants. It might be more useful to talk of community benefit, which could be achieved in alternative ways. As indicated earlier dividends are not always paid.

Greater shared understanding of the concept is required. The companies have generally accepted the principle, but the majority of companies still find it difficult, given the business environment whereby they are failing to cover costs. Most companies make pledges (to contribute to the trust in terms of money) but then fail to honour their pledges. Thus, not all companies have complied, and there is no penalty for non-compliance. There is no adequate dialogue between Chiefs and the companies on the Trust. Companies are not communicating to the community on how they are performing, which they should do even if they are not able to contribute to the CSOTs. Lack of communication breeds mistrust and misunderstanding, making transparency a key success factor for these schemes.

3.5.5 Other Acts Governing the Mining Sector in Zimbabwe

Precious Stones Trade Act (Chapter 21:06): This Act was passed in 1978 and is meant to regulate possession and dealing in precious stones in Zimbabwe (including rough diamonds). The Act broadly describes dealing in precious stones as buying, selling, barter, pledge, exchange, gifts (received or given), or offer for sale or any other dealings or transactions. The Act defines precious stones as rough or uncut diamond or uncut emeralds or other stones declared as precious (polished diamonds do not fall into this category). The government also passed the Precious Stones Trade Regulations in 1978, which have been amended a number of times through Statutory Instruments to comply with the Kimberley Process Certification Scheme.

Minerals Marketing Corporation of Zimbabwe Act (Chapter 21:04): The Act provides for the control and regulation of the export, sale and stockpiling of minerals. The Act provides for the establishment of the Minerals Marketing Corporation of Zimbabwe (MMCZ). It prohibits the sale of minerals by anyone else except the MMCZ. The Act also empowers MMCZ to levy a commission which is fixed as a percentage (currently at 0.875%) of the price at which a mineral is sold, for negotiating, authorising and providing paperwork for the contract.

Zimbabwe Mining Development Corporation Act (Chapter 21:08): The Act enables the establishment of the Zimbabwe Mining Development Corporation (ZMDC), which is the government's investment arm in the mining sector. The Act also gives ZMDC the right to undertake prospecting, exploration, mining and mineral beneficiation on behalf of the government independently or in joint ventures.

Environmental Management Act (20:27): The Act provides for the establishment of the Environmental Management Agency, and compels all extractive firms to submit environmental impact assessment and environmental management plans on every project to be undertaken. The environmental impact assessment report should be made public

for community scrutiny, and the public is allowed to submit objections if they have any. If the final approved report could be complied with, then negative impacts of the extractive industry would be minimised. There are current proposals to make the closure plans as well as annual contributions towards a rehabilitation fund mandatory.

3.6 Mining's Fiscal Regime

3.6.1 *Taxes Applicable to the Mining Sector*

Mining companies in Zimbabwe are subject to a range of taxes, which include: royalties, income taxes or corporate income tax (CIT), PAYE, Additional Profit Tax (APT) for special mining lease companies, VAT, capital gains tax, withholding tax, non-residents shareholder's tax, customs duties, marketing commission, licensing fees, environmental charges, and Local Authority charges.

The tax heads that are applicable to Zimbabwe taxation have been operating in a way, which is consistent with other SADC countries. The relevant Acts used in governing the taxation process are the Mines and Minerals Act for royalties, Income Tax Act (Chapter 23:06), the Value Added Tax Act, the Capital Gains Tax Act, the Customs and Excise Act, the Finance Act among others. The above taxes and fees constitute 17% of mining revenue and around 60% of the mining sector profitability (before tax).

Tax administration requires that tax-payers keep records of accounts for at least six years, and that these records be accessible to ZIMRA at any time (ZIMRA, 2013). These records include ledgers, cash-books, journals, paid cheques, bank statements, deposit slips, stock sheets, invoices, credit notes, debit notes, computer records, bills of entry, consignment notes. Table 5 (overleaf) shows the various taxes, governing Acts and rates.

3.6.2 *Fiscal Incentives*

The Government of Zimbabwe has stated that its incentives to the mining industry 'are flexible and will constantly be reviewed in order to respond to market conditions and viability concerns of the mining industry'. The Government provides tax incentives as measures to attract both local investment and FDI to particular sectors or geographical areas of the country. Tax incentives ultimately seek to achieve the following: employment creation, skills-transfer, export promotion, income-generation, industrial development, small business development and revenue inflows. Generally, they represent an advantage to investors and a cost to government. Tax incentives are administered by ZIMRA, whilst a number of non-tax incentives are administered by other organisations such as the Ministry of Industry and International Trade, Industrial Development Corporation (IDC) and Zimbabwe Investment Authority (ZIA). Revenue incentives do not discriminate between local and foreign investors.

Tax incentives vary by sector, economic activity, organisational form, and geography of investment (ZIMRA, 2013). Examples of incentives are tax holidays, tax rate reduction, and accelerated depreciation. Several incentives are available to the mining sector.

These include:

1. Full claiming of Capital Redemption Allowance on mining capital expenditure (Special Mining leases claim the allowances over four years).
2. Income tax on special mining leases is at a special rate of 15% (compared to 25% for others).
3. Use of rebates on imported capital equipment that suppresses customs duty and VAT.
4. Use of double taxation agreements (DTAs) that provides for lower rates of withholding taxes on payments to foreign services providers.

Some taxes/levies applicable to mining	Governing legislation	Notes and rates
Corporate Income Tax	Income Tax Act	Standard 25%, Special Mining Leases 15% (Zimplats; Unki)
Additional Profit Tax	Income Tax Act	SMLs, rate negotiable
Withholding Tax	Income Tax Act	Payable on dividends remitted outside the country, 15% for both residents and non-residents
AIDS Levy	Income Tax Act	The levy (3%) became applicable to mining with effect from 1 January 2015
VAT	Value Added Tax Act	15%. Inputs qualify for deferment, exports zero-rated
PAYE	Income Tax Act	Up to 35%
Capital Gains Tax	Capital Gains Tax Act	Levied on the capital gained on a specified asset such as land and buildings, and any marketable security.
Royalties	Mines and Minerals Act	Diamonds 15%; other precious stones 10%; platinum 10%; gold: large-scale mines 5% down to 3% on incremental output, small-scale mines 1%; other precious metals 4%; base metals and CBM 2%; coal 1%. Non-profit-based, variable costs.
Mineral Export Taxes		
Customs Duties	Customs and Excise Act	Allowed in full for all mining capital expenditure for exploration and mine development
Marketing Commission	MMCZ Act	0. 875% of mineral sales
Prospecting licences		
EMA Charges	EMA Act	2% of gross revenue
ZIMDEF Levy	Manpower, Planning and Development Act	1% of payroll
Radiation Protection Fees	Radiation Protection Act	Licensing of radiation generating apparatus. Medium-scale operating mining and mineral processing facilities fees are US\$15,000 per annum, whilst for large-scale facilities the fee is US\$40,000 per annum.

Table 5: Various fiscal instruments

Source: Chamber of Mines; Deloitte (2012, cited in Jourdan et al., 2012, p. 54)

5. 90 days deferment of collection of VAT on importation of capital goods.

Interest on debt is allowed up to the debt-equity ratio of 3:1, and any extra payment shall be regarded as dividend and taxed as such. Loan dealings between affiliated companies are at Arm's Length Interest Rates and any excess interest above the market rate is not deductible but taxed as dividend.

There are also several allowable deductions for tax purposes, such as donations to National Scholarship Fund; National Bursary Fund and charitable trusts; payments to Community Share Ownership Trusts; contributions for equipment, construction, extension, maintenance of hospitals

and procurement of drugs and equipment; contribution to a research institution; contribution for equipment, construction/extension, and maintenance of schools and procurement of books; donations to the Public–Private Partnership Fund; Contribution to the maintenance of buildings, roads, bridges, sanitation works, water works, public parks, or any other utility amenity or item of infrastructure approved by the Ministry of Local Government, Rural and Urban Development.

3.6.3. A Summary Evaluation of the Zimbabwe Mining Fiscal Regime

Zimbabwe's corporate tax rate compares well with those charged in other mining jurisdictions in Africa and Southern America and Organisation for Economic Co-operation and Development countries. Zimbabwe has a special reduced rate for SMLs, a differentiation not found in other jurisdictions. It is therefore, concluded that the corporate tax rate in Zimbabwe is reasonably competitive compared to other FDI destinations, which has also been complemented by the fact that it has remained generally stable over time.

The same can be said about withholding taxes, where some jurisdictions have maximum rates that are more than double the Zimbabwean rate of 15%, for example, Chile, Canada, Colombia, and Peru. As is the case in most mining countries, such as Ghana, Tanzania, Peru, Colombia, Brazil, Chile, and South Africa, all mineral exports in Zimbabwe are VAT zero-rated (Trench et al., 2015). Given that mining companies can claim VAT input tax and are allowed to defer VAT payment on importation of capital goods, the VAT regime in Zimbabwe is apparently more generous than in other jurisdictions. The same conclusion is reached on skills development levies.

There are also many incentives availed to the mining industry in Zimbabwe including the reduced corporate tax rate on SMLs, unrestricted carryover of losses, rebates on imported capital equipment, allowance of interest on debt to a certain threshold, and allowable deductions on various contributions to the economy and community including scholarship funds, Community Share Ownership Trusts, research institutions.

The main sticking points on the mining fiscal regime in Zimbabwe are the royalty and the multiplicity of the regime in terms of tax heads and collection agencies and regulatory instruments. Mining royalties in Zimbabwe are some of the highest on the continent and internationally. This coupled with the fact that they are in rem (based on gross revenue, not profit), which makes them an effective variable cost of production, could have resulted in resource sterilisation compared to other countries. Their nature also means that they are exacted on both profit-making and loss-making mines alike, resulting in some mines (especially the low-grade and high-cost ones) closing down. This is contrasted with Canada, where though the royalties are high, they are profit-based, and in Australia where though high and in rem, they are deductible for corporate income tax purposes.

Assessment of the fiscal regime in terms of taxation best practice is tricky. It is noted that the royalty regime in Zimbabwe is easy to implement, limits tax evasion and is highly revenue productive because of its in rem nature. However, this same nature promotes a short-term view of revenue productivity because of inefficiency (its ability to affect decisions through affecting variable costs). Its instability has also created significant risk for investors. That the regime can tax loss making firms makes it inequitable (not sensitive to the ability to pay).

Non-deductibility for income tax implies double taxation of profits. Thus, royalty, assessed in isolation promotes short-term revenue productivity at the expense of efficiency and long-term revenue productivity. Considering that ideally royalty setting should be based on either a notion of ownership transfer fee or depletion charge (user cost), the current basis results in its

overestimation. For Corporate Income Tax (CIT) the converse tends to be true. There is trade-off of revenue productivity – especially when prices are depressed and cost structures high – for efficiency, with the latter strengthened by the fact that it is reasonably rated. The main problem with CIT, in terms of best practice, is that it is complex to compute and subject to falsification by companies (especially of costs). Zimbabwe's mining fiscal regime has very generous incentives. These have tended to negate revenue productivity in the short-term, while promoting long-term revenue productivity and growth of the sector. Withholding tax is an efficient head, but would make sense if accompanied by measures to develop local supply capacity of both materials and services.

Apparently, in terms of taxation best practice, the main question to consider in the Zimbabwean case is, which is more important, short-term revenue productivity, which tends to be insensitive to sterilisation, or long-term revenue productivity, which is equivalent to efficiency of the fiscal regime? It appears that both short-term and long-term are; hence there is need for a balance. The government has serious demands for revenue right now, and industry thus needs to see a positive profitability horizon.

One might conclude that the royalty regime seems to balance out with the fiscal incentive regime since the latter reduces short-term government revenue. Any changes on the two will have to be marginal. This leaves other profit-based taxes (in particular, withholding tax and resource rent tax), regulatory issues that promote economic development and sustainability (especially knowledge-intensive initiatives – that is, HRD and R&D), and improvement in the efficiency of tax collection and administration.

The mining fiscal regime in Zimbabwe has not performed well in terms of meeting government objectives. While fiscal revenue from the sector has generally improved (both in absolute and relative terms) over time since 2009, the revenue is obviously not enough to address the needs of government. This is why the government has indicated that it is not getting enough from the minerals sector. Redistribution objective has also not been achieved as the process has tended to be defined simply by the mine cost structure (supplies, utilities, workers, and taxes/government). CSOTs and ESOTs have not been very successful due to lack of clarity on the indigenisation policy. The difficulty (lack of ease) of doing business has remained a sticking point in investment promotion. The tax structure has remained complex (multiple tax heads) and its administration equally complex (multiple regulatory instruments and collecting agencies).

From a qualitative point of view, the study makes several recommendations on an optimal fiscal regime. There is need to make royalties deductible for income tax purposes to make the regime more efficient, and also to enhance the formalisation of the artisanal and small-scale mining sector so that more royalties can be collected. For SMLs there is need to do away with the APT for SMLs (or generalise it to the whole mining sector) and consolidate it with the general mining CIT, which will improve simplicity and economy of collection. While there is some attraction to apply the Resource Rent Tax, it should be implemented at a moderate rate. To reduce the burden of compliance and administration, there is need to simplify the fiscal regime to a few heads, regulations and collecting agents. This is especially necessary for the artisanal and small-scale miners, who, in addition, need education on simple book-keeping and basic technical issues of mining and processing.

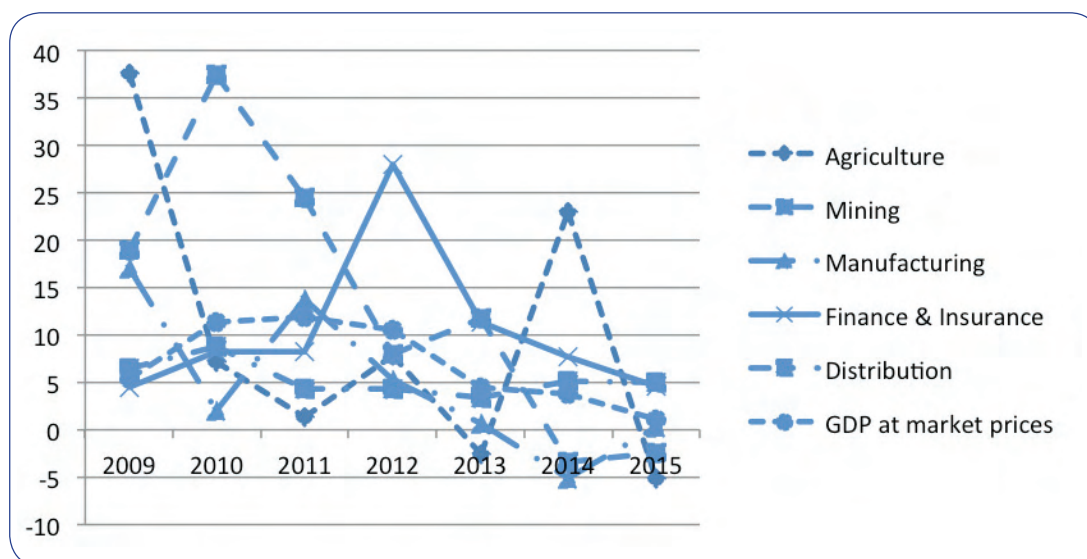


Figure 2: Comparative growth rates across five sectors in Zimbabwe (2009–2016)

	2009	2010	2011	2012	2013	2014	2015	2016 (projected)
Agriculture	37.6	7.2	1.4	7.8	-2.6	23	-5.2	-9.9
Mining	18.9	37.4	24.4	8	11.7	-3.4	-2.5	14.9
Manufacturing	17	2	13.8	5.3	0.6	-5.1	0.2	0.5
Finance and Insurance	4.5	8.3	8.3	28	11.3	7.7	4.6	6.4
Distribution	6.5	8.8	4.3	4.3	3.4	5.1	5	na
GDP at market prices	5.4	11.4	11.9	10.6	4.5	3.8	1.1	1.4

Table 6: Comparative growth rates across five sectors in Zimbabwe (2009–2016)

Sources: Chigumira, Mlambo and Kwesu (2014); Chamber of Mines of Zimbabwe (2016)

3.7 The Contribution of the Mining Sector to Zimbabwe's Economy

3.7.1. The Statistical Contribution

The economic importance of mining is historically demonstrated by the fact that most mines formed commercial centres and permanent communities around them, and most towns in the country developed as mining towns. Figure 2 and Table 6 show the projected comparative growth rates of five sectors in Zimbabwe from 2009 to 2016. Just after dollarisation in 2009, mining trailed behind agriculture in at 18.9 against 37.6, though it was ahead of the rest of the sectors. By 2010 mining was leading at 37.4% a status that continued into 2011, riding on the mineral commodity super-cycle. However, in 2012 mineral commodity prices had started to fall and mining sector growth fell to 8% and was overtaken by finance and insurance. By 2014 and 2015 the sector's growth had become negative.

However, in terms of contribution to gross domestic product (GDP), exports, employment, fiscal revenue and investment levels, the mining sector remained the key sector in the economy (for growth rates are only relative). In 2015 the sector is estimated to have contributed 9% to GDP directly, 55% to all national exports, 35,000 formal direct jobs, 70,000 indirect jobs through

upstream and downstream linkages, 11% of fiscal revenue, more than 50% of total fixed capital formation and in particular 65% of private sector investment. Mining is a source of inputs for various industries (though the industrial sector is subdued at the moment), for example, fertilisers, cement, power generation. Mining is also a market for many suppliers in the economy. Thus, the multiplier effect of the mining sector including induced effect of household income spending makes the mining sector more important than is normally considered. It is arguably true to say that the sector is the anchor of the economy currently, with the demise of agriculture.

3.7.2. Is Mining in Zimbabwe Really Contributing to National Wealth?

According to Pearce (1986), wealth includes 'physical goods and assets, financial assets and personal skills, which can generate an income'. Capital is wealth because it can generate output (income). 'Minerals, in their natural unexploited state, are not per se output (income), but can be used to produce output.... It is in this sense that minerals... can be regarded as capital, that is, natural capital. Therefore, as the capital equipment depreciates, so does the mineral resource base. Depreciation in the case of minerals refers to the fact that the resource base as a whole is getting smaller and smaller and opportunities for (future) value-added output or income to be produced by its exploitation are getting narrower' (Mlambo, 2010).

Naturally, mining is not sustainable in that minerals are depletable. Yet if we look at mining as a catalyst for the transformation of the welfare of citizens and the industrialisation of the country, we can appreciate how it can produce sustainable development. It is useful to think of the question of wealth, in this case, at three levels:

1. Natural endowment (unexploited mineral) – geological prospectivity is wealth in that it has the potential to generate income.
2. Statistical contributions as indicated above – Investopedia indicates that countries measure wealth using GDP or GDP per capita.
3. Socioeconomic outcomes (sustainable development) – there are two questions that need to be answered here: 1. Is the extraction of minerals in Zimbabwe changing the poverty situation of the country (poverty alleviation, intra-generational equity)? 2. Is the extraction of minerals transforming the economy from a less developed to a more developed economy (in terms of infrastructural development, development of financial markets, stock markets, commodity exchanges, industrialisation)? If the answers to these questions are 'no', then the natural wealth and the statistical contribution become meaningless to national wealth creation.

In fact, if statistical contribution remains significant yet cannot produce desirable impact on the socioeconomic front, then national wealth is effectively going down in that we are depleting natural wealth (natural endowment) without compensations (nothing to show for it). This happens to be the tragedy of Zimbabwe and many African countries.

In Zimbabwe, however, the issue gets a bit more complicated. The country generally lacks accurate information on the extent of physical natural capital (natural wealth) due to lack of exhaustive geological exploration. There are also difficulties in valuation of this natural wealth stock, which mean the country can be short-changed in deals with foreign investors who are normally supported by expert negotiators and advanced valuation skills. It is truly a sad situation that we have several instances in which some foreign investors (for example, in South Africa and Canada) have more information about our resources than us. The valuation problem is compounded by the fact that cut-off grades change as technology, demand, prices and costs change, which demands a revaluation at every negotiating forum.

The third wealth level above questions who is allowed to exploit the minerals, who gets

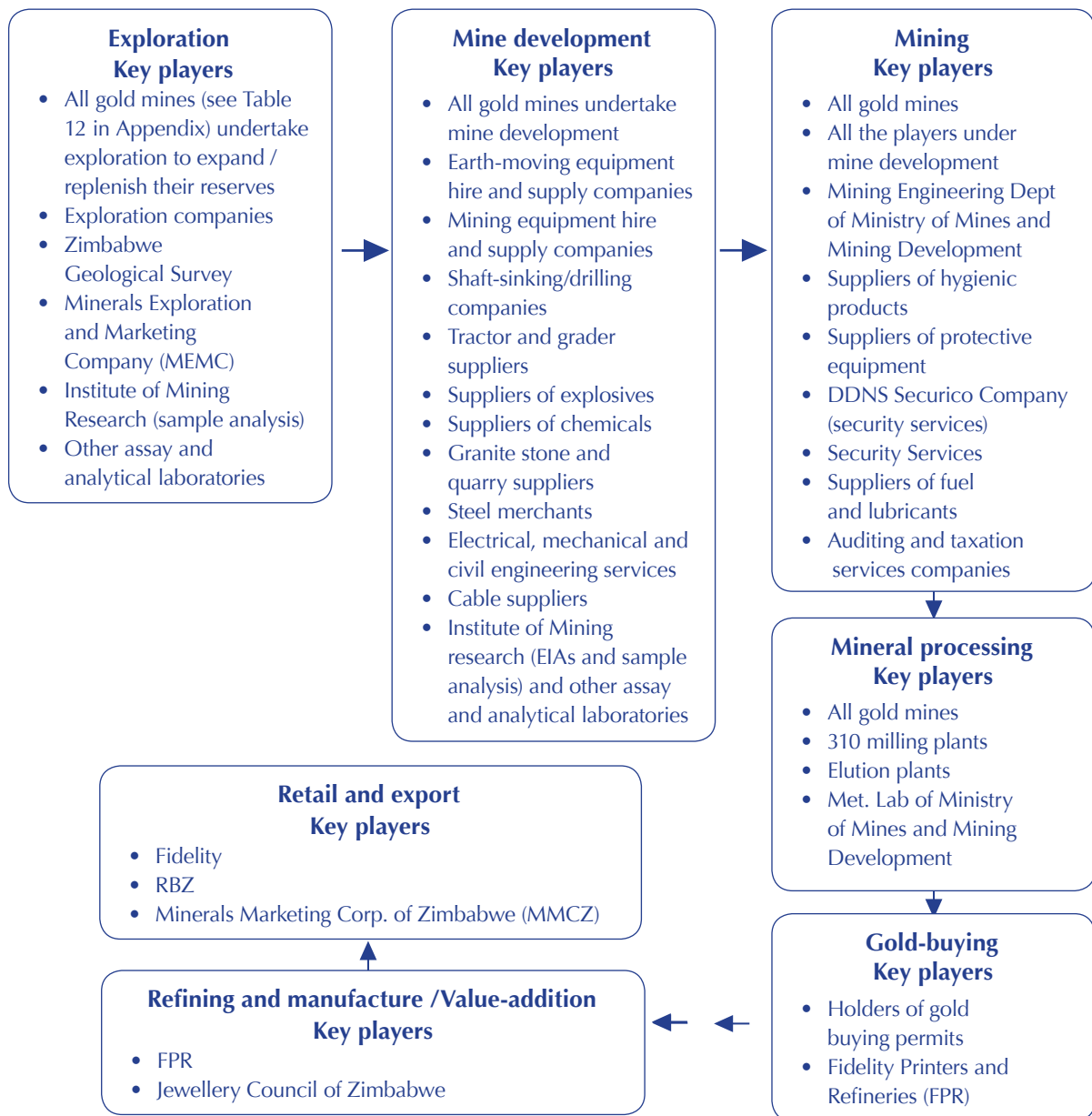
revenue from the exploitation of the minerals (be it government, miners, communities, etc.) and how is that income used (how much is consumed and how much is reinvested). If only a few have access to the minerals and the revenue thereof and spend the revenue on current consumption (buying private jets, expensive cars, etc.), then instead of increasing the net worth of the country (national wealth) we are decreasing it. That means if there is serious corruption in the issuance of mining rights, the revenue is not broadly distributed (some sections of the community are excluded from the benefits) and there is generally lack of transparency in how the revenue is used (consumption or capital development), we have a problem. Thus, all the questions of natural resource governance become relevant – what policies, what regulations, what institutions? The use of fiscal revenue from mining sector is telling in the case of inter-generational equity. This revenue is not treated separately from revenue from other sectors, and we all know that government's recurrent expenditure is over 90% of the total national budget, leaving almost nothing for capital development. Government is not creating wealth but destroying it. Of the remaining revenue, a bigger part goes to the miner and most big mines are foreign owned, which means their profits are repatriated save for that used for local procurement of materials and services (including labour). The foreign miner colludes with a few local elites who get the rest of what remains.

As a case in point, this book asks: Did the exploitation of diamonds in Chiadzwa increase national wealth or decreased it? Definitely natural capital stock went down because we largely depleted the known alluvial deposit. Did we build bridges, roads, schools, etc. from it? Did we see new industries (reinvestments) from it? Did the general public benefit? Did local communities benefit? The answers are all 'NO'. Until we entrench a transformative agenda to mineral exploitation, where minerals are used to transform lives in a broad-based way and transform the country as a whole, from a perennially developing to a developed country, mineral exploitation is not increasing but decreasing national wealth. Burgis (2015) presents more revealing details on how wealth in Chiadzwa was personalised by a political elite and that examples abound in Africa where countries that are geologically wealthy yet are in fact economically poor.

Ulfelder (2007) states that 'Other things being equal, autocracies that derive more of their national income from oil, natural gas, and other mineral resources are substantially less likely to transition to democracy'. This is probably because they want to entrench their power and protect the ill-gotten gains obtained from the unfair plunder of natural resources, an easier business than the skill-intensive manufacturing and services businesses (see the concluding remarks in Gylfason (2008)). The real problem is that these autocratic elites have no capacity to promote industrialisation nor to diversify the economy through the use of mineral revenues.

3.8 Value Chains for Selected Major Minerals

The minerals industry value chain denotes 'the stages and processes that a mineral project will go through to produce mineral products. Each stage represents value-addition on the previous and there are opportunities to invest at each of the major stages'. It indicates the major processes, players, and an outline of products (including intermediate, finished and value-added or end-user products). Table 8 (see Appendix) lists the various upstream and downstream companies or organisations that are linked with the mining sector. The subsections below give diagrammatic representations of the value chains for gold, PGMs, chrome, nickel and phosphate in Zimbabwe. These particular minerals are chosen because they are currently being produced and have significant linkages with the rest of the economy.



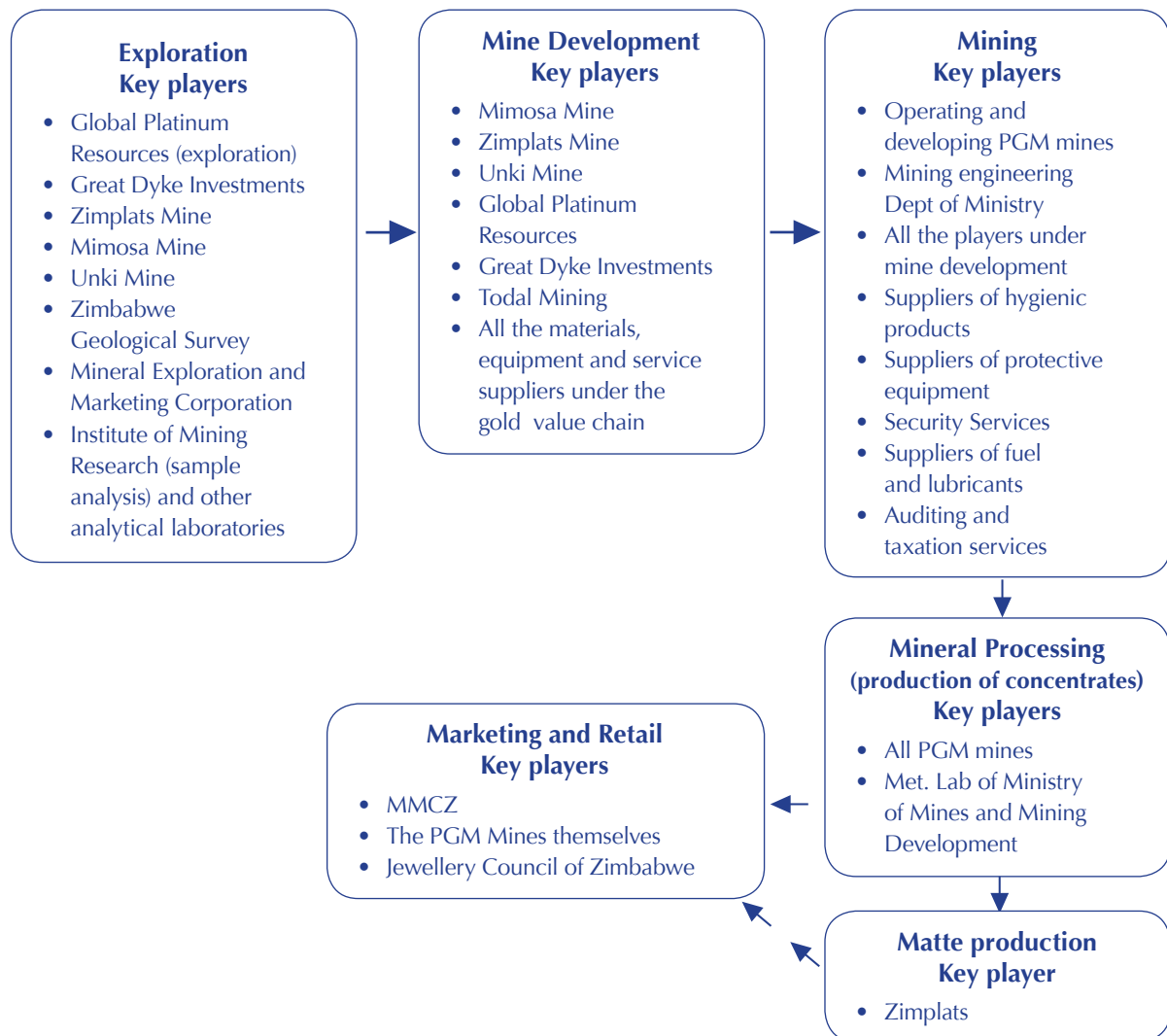
3.8.1 The Gold Sector Value Chain – Figure 3

Major gold associations

1. Chamber of Mines Gold Producers Committee
2. Zimbabwe Miners Federation (representing small-scale and artisanal miners)
3. Fidelity Printers and Refiners (with gold-buying centres throughout the country)
4. The Jewellery Council of Zimbabwe (JCZ) (Represents companies involved in jewellery and silverware manufacture, dealing and retailing).

Finished and value-added products

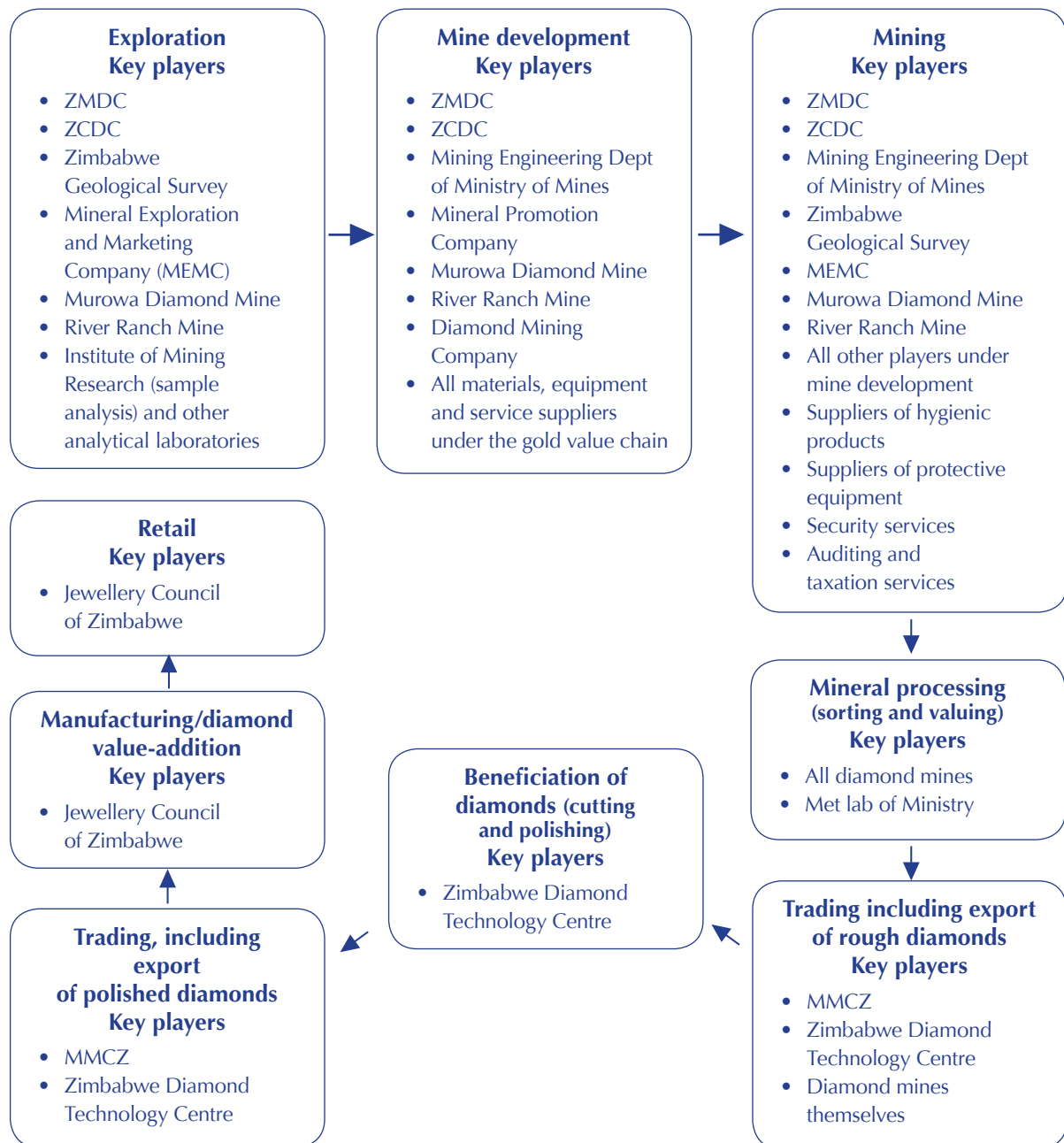
- Jewellery (made in Zimbabwe and outside)
- Intermediate products
- Gold ore (mined by mines)
- Gold dore (Gold concentrate (after milling or elution – that is, ore processing)
- Bullion (at least 99.5% pure gold – produced at Fidelity Printers and Refiners)
- Recyclable gold (mainly from jewellery, and small quantities from electronic components and investment gold bars and coins)



3.8.2 PGM Value Chain – Figure 4

Major associations

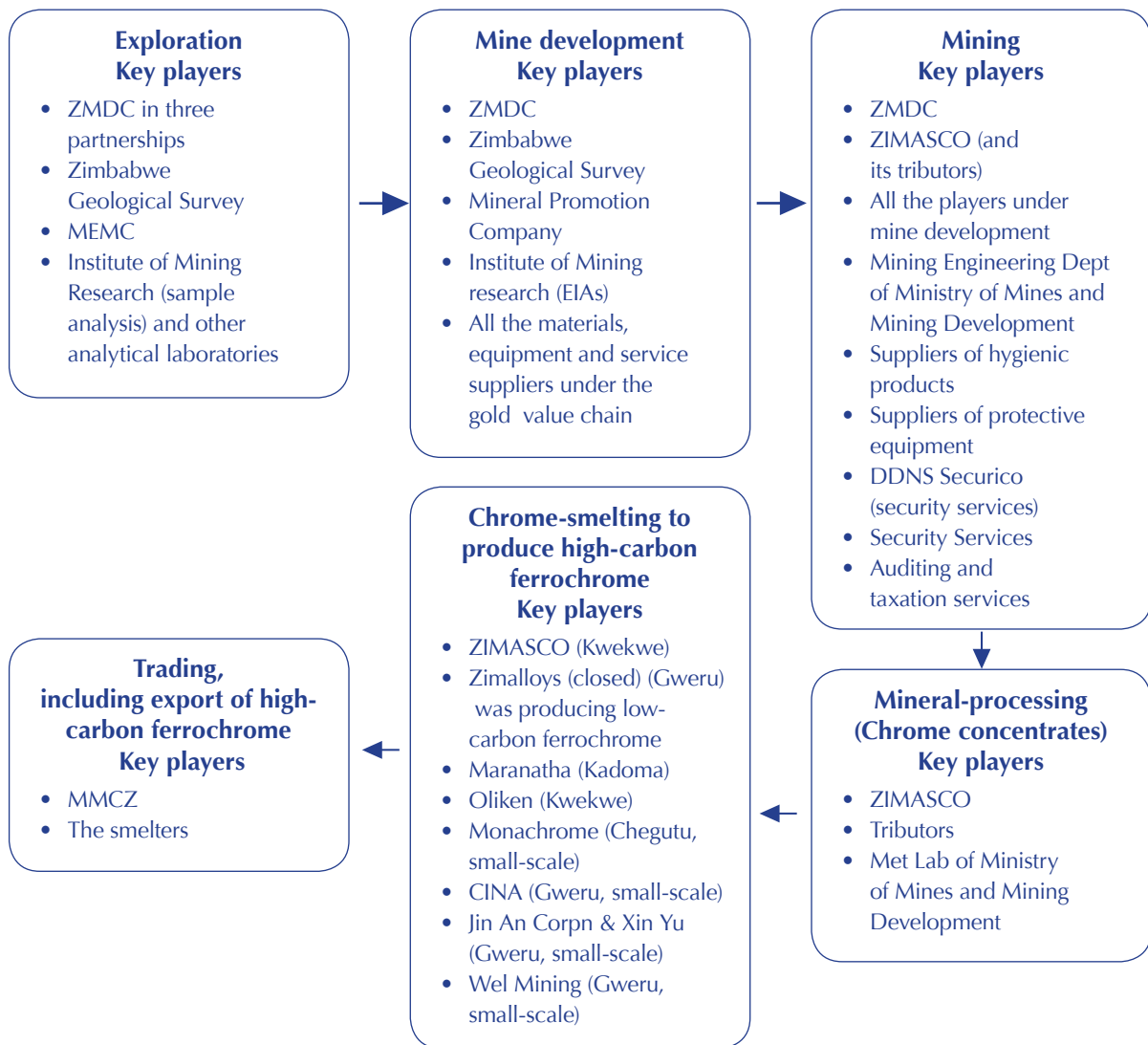
1. Chamber of Mines of Zimbabwe Platinum Producers Committee (PPC)
2. The Jewellery Council of Zimbabwe (JCZ) (Represents companies involved in jewellery and silverware manufacture, dealing and retailing).
3. Finished and value-added products
4. Jewellery (made in and outside Zimbabwe)
5. Chemical catalysts used in oil refineries, gasoline production and other petrochemical products (made outside Zimbabwe)
6. Oxidation catalysts in catalytic convertors to treat automobile exhaust emissions (made outside Zimbabwe)
7. Alloys used in furnace components (made outside Zimbabwe)
8. Intermediate and by-products
9. PGM ore (mined)
10. PGM concentrate – Unki and Mimosa mines end at concentrate level
11. PGM matte (after smelting) – Zimplats process up to matte level.
12. Base Metal Refinery (BMR) (to separate nickel, copper and cobalt)
13. Precious Metal Refinery (PMR) (to separate gold, platinum, palladium, rhodium, iridium and ruthenium).



3.8.3 Diamond Value Chain – Figure 5

Major Associations and Institutes

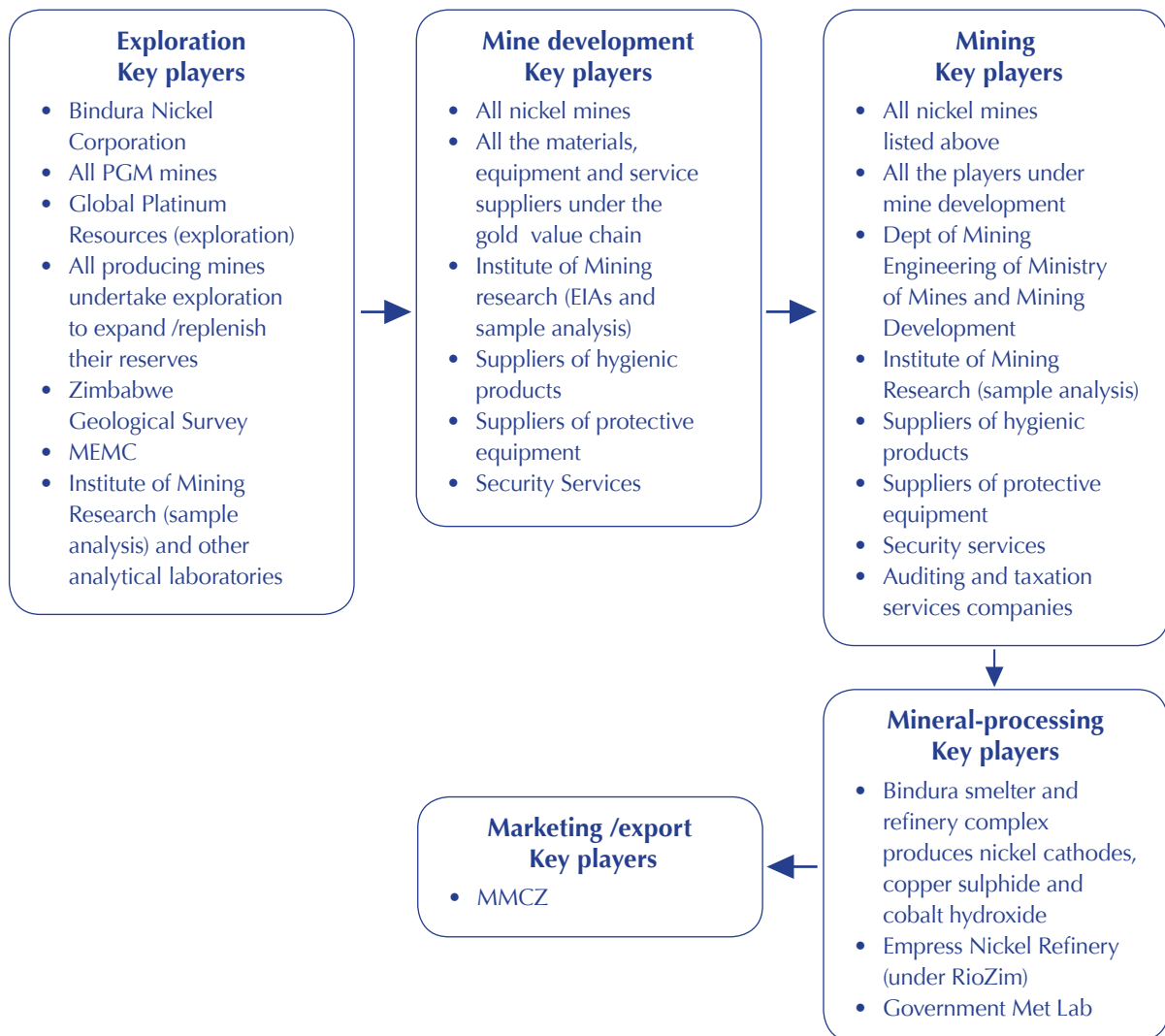
1. Zimbabwe Diamond Education College (ZDEC)
2. Diamond Technology Centre (DTC)
3. Jewellery Council of Zimbabwe
4. Finished and value-added products
5. Jewellery: wedding rings, necklaces, earrings, wrist watches, etc
6. Diamond drilling bits (not produced locally)
7. Abrasive materials (not produced locally)
8. Intermediate and by-products
9. Rough diamonds



3.8.5 Chrome Value Chain – Figure 6

Finished and value-added products

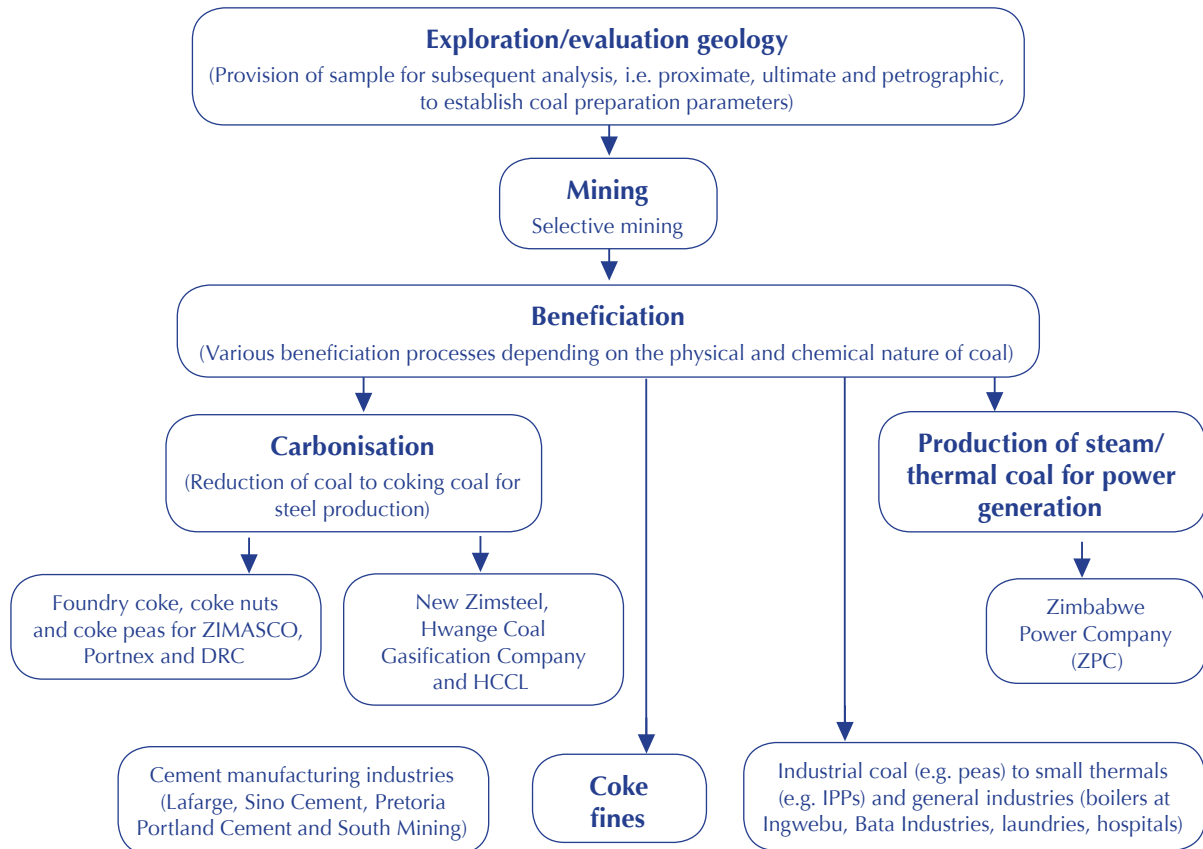
- Chrome-plated alloys, for example, stainless steel and high-speed tool steel
- Intermediary Products
- High-carbon Ferrochrome
- Ancillary Products
- Dye and Pigment for painting
- Wood preservative
- Refractory material



3.8.6 Nickel Value Chain – Figure 7

Finished and value-added products

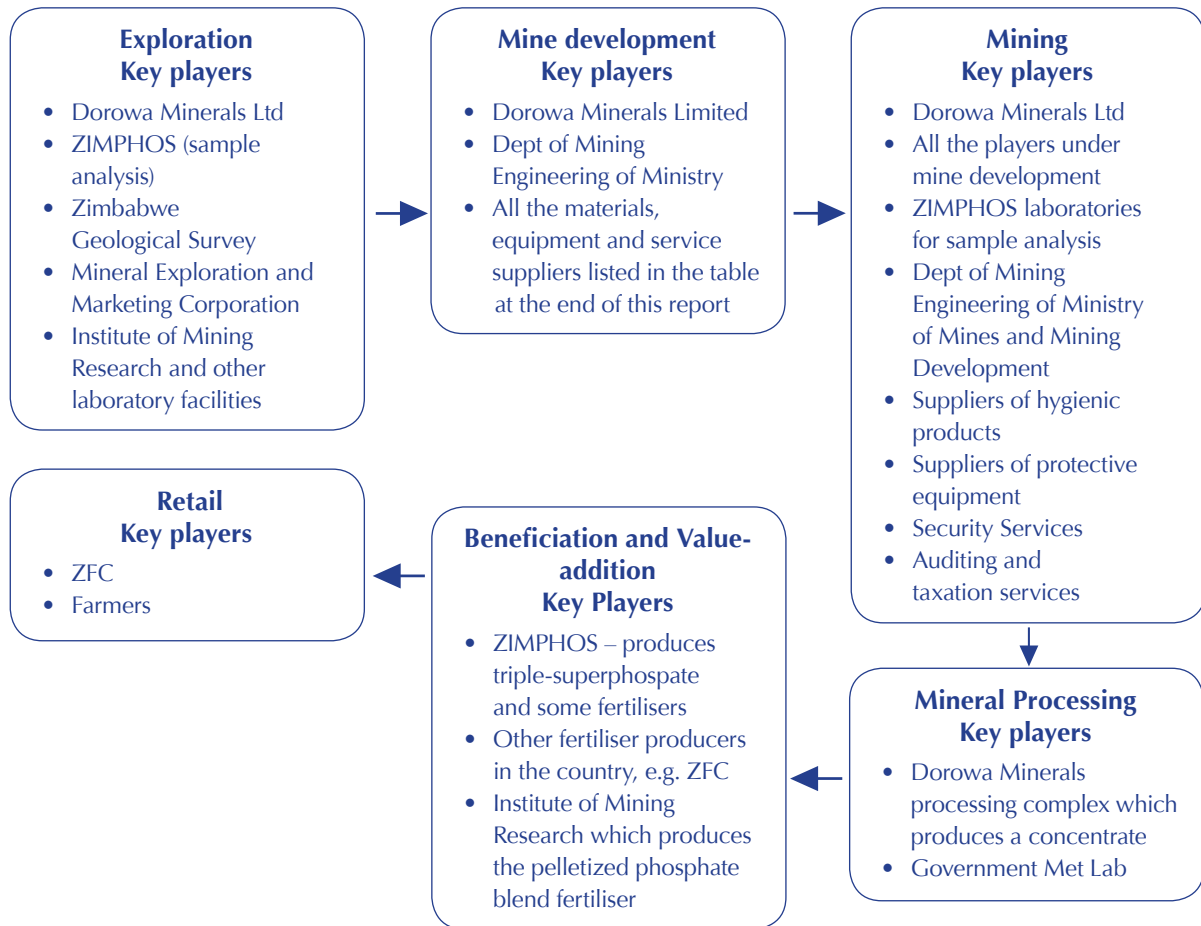
- Making super-alloys used in combustion turbines in power generation
- Rechargeable batteries
- Coinage
- Catalysts
- Plating
- Stainless steel
- Intermediate products and by-products
- Nickel cathode
- Ferronickel
- Cobalt hydroxide.



3.8.7 Coal Value Chain Map – Figure 7

Finished and value-added products

- Electricity
- Coke batteries
- Steel
- Cement
- Intermediate and by-products
- Steam/thermal coal
- Metallurgical/coking coal and industrial coal
- Coal fires.



3.8.8 Phosphate Value Chain – Figure 9

Finished and value-added products

- Fertilisers (nitrogen-phosphorous-potassium)
- Pelletised phosphate blends fertiliser (combined with cattle manure as organic fertiliser)
- Intermediate products and by-products
- Triple-superphosphate.

3.9 Specific Mineral Sector Analysis: Synopses

3.9.1 *The Gold Sector*

Arguably, Zimbabwe is richly endowed in gold, with national reserves estimated at a conservative 84 million tons at an average grade of 4.9g/t. Conservative, because large mines estimate reserves for short periods and small mines do not estimate them at all. It is generally incontrovertible that the country is largely underexplored especially using modern methods, resulting in low actual average grades being exploited at 2.5g/t. Zimbabwe also has one of the highest global gold productivity per square kilometre rates. In all this, the latent stupendous opportunities for investment in exploration and development in the sector are self-evident. Mining methods, though they vary from mine to mine resulting in variations in unit production costs (ranging from US\$800/ounce for partial mechanised method, to US\$1,350/ounce for narrow seam), are predominantly underground. The strategic importance of gold mining to the economy of Zimbabwe is demonstrated by the fact that:

1. Several mining towns developed into centres of commerce around gold mining hubs.
2. The sector contributes significantly to GDP (28% of mining GDP and 2.6% of national GDP), exports (32% of mining exports and 18% of national exports), government revenue (with gold mining royalties making up 19% of total mining fiscal revenue and 1% of total national revenue) and employment (25% of total mining employment and 0.5% of national employment) as of 2014.
3. The sector undertakes significant CSR activities.
4. The sector has developed upstream (supply) and downstream linkages, which have resulted in multiplier effects upon the economy (in terms of output, GDP, income, indirect tax revenue, employment, and the induced effects of household spending from their additional income).

The sector also has a vibrant informal (artisanal) sub-sector estimated to benefit about 200,000 people. Generally, the gold sector has remained the most resilient (though it has also suffered from economic depressions) of all the mining sectors in the country throughout the ups and downs of the macro-economy. The history of gold production in Zimbabwe has been punctuated by:

1. Accelerated growth from 1980–1999 reaching an all-time peak of 871,700 ounces in 1999.
2. Progressive decline from 2000 to 2008, which was interrupted with a localised peak in 2004 (due to liberalisation of gold marketing, support price for small-scale miners and establishment of custom milling centres). The decline pushed almost all gold mines to care and maintenance and some to closure.
3. Resurgence in the post-2008 era to 2012 as a result of dollarisation of the Zimbabwean economy and accompanying macro-economic stability, as well as the commodity super-cycle (rising prices).
4. Post-2012 decline due to fall in prices compounded by high-cost structures, power and capital shortages.

Figure 10 shows the trend of production from 1964 to 2014. It is important to note that production has since increased from 542,726 ounces (15.4 tons) in 2014 to 706,185 ounces (20 tons) in 2015. The price, though still depressed compared to the 2011 peak, has shown a resurgence since the beginning of this year, although it is on a fluctuating trend. At the time of writing the price stood at about US\$1,340/oz.

The competitiveness of the mining sector in Zimbabwe, including the gold sector, compares unfavourably with other mining jurisdictions in the world. Based on the recent Fraser Institute's Policy Perception Index, Zimbabwe ranks fifth from last. According to the more micro perception index of the Fraser Institute, the Taxation Regime Index, Zimbabwe ranks second worst after Bolivia. Perceptions, while not necessarily accurate, tend to determine the actual level of mining investment. However, in the case of Zimbabwe, the perceptions receive significant credence

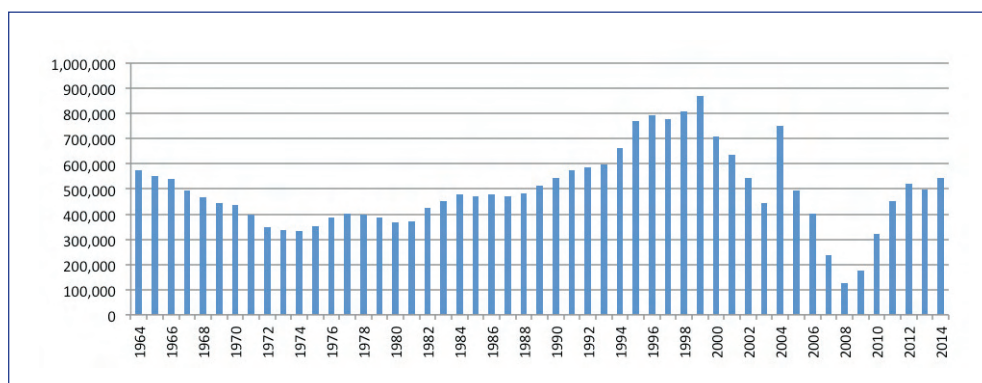


Figure 10: Gold Production Trends 1964–2014

Source: Original numerical data obtained from ZIMSTAT, QDS (December 1986; June 1989); Compendium of Statistics (2000; October 2001), Index Mundi (2015), Chamber of Mines of Zimbabwe and Coakley (2002).

from the fact that Zimbabwe's mining effective tax rate is among the highest in the world at 65%, compared, for example, to South Africa's 36.3%; and the existence of some administrative challenges, such as the difficulty of doing business, and non-conducive investment climate and labour laws.

Zimbabwe's percentage share in world gold production has fallen from 1.17% (1964) to 0.54% (2014). The trend in the share from the year 2000 onwards, generally resembles the trend in Zimbabwe production, indicating that the share in world production has been influenced by underlying causes of production decline in the country (albeit except royalties in the post-2008 era when the share was on a general rebound). Zimbabwe's ranking among world gold producers worsened from 8th in 1970 to 40th in 2009 and then up to 27th in 2014. Similarly, Zimbabwe's share in Africa's total production has fluctuated on a downward trend from 3.5% in 1997 to 2.5% in 2014. Over the period 2005–2009 Zimbabwe's average share in Africa was 2.4% and the country ranked 5th after South Africa (51%), Ghana (16%), Mali (9%) and Tanzania (9%). The attendant challenges, which help explain the trend in gold production in Zimbabwe (recently) relative to the world and Africa include: (i) high unit costs of production, currently averaging US\$1,170/ounce, which are the highest compared to Burkina Faso (US\$674), Russia (US\$649), Central African average (US\$680), East African average (US\$549), West African average (US\$752), Canada (US\$871), South Africa (US\$923) and Mali (US\$674); (ii) power outages; (iii) infrastructure deficit; (iv) an investment environment perceived to have policies that are unfavourable to foreign capital, coupled with limited and high cost sources of local finance; and (iv) rigid labour laws.

The structure of the gold industry in Zimbabwe is characterised by large-scale producers, small-scale and artisanal producers and secondary producers (who produce it as a by-product), all totalling 2,216 miners, including millers. Large-scale primary producers most of who are private and foreign-owned, are the main contributors to output, though this contribution has been declining over time relative to that of other groups (small-scale and secondary producers). The structure of the marketing side includes Fidelity Printers and Refiners, which buys all the gold produced through the agency of custom millers and elution plants. The millers and elution plants sell to its 12 buying centres located throughout the producing areas, in the case of small-scale producers, and through direct delivery for the case of large-scale producers. It currently sells to the Rand Refinery in South Africa and is awaiting accreditation with the London Bullion Market Association as it has surpassed the required ten tons of gold per annum.

As alluded to earlier, the average cost of gold production in Zimbabwe stands at US\$1,170/ounces, though some mines, specifically narrow seam, open cast (heap and leach) mines, have higher unit costs. At the price of US\$1,140/ounce, many mines are making losses. Major cost drivers include labour (36% of total costs), consumables (26%), electricity (16%), administrative services and others (12%), engineering maintenance (5%) and fuel and lubricants (5%). Also to note is that at US\$12.8/KWh, the gold sector is charged an electricity tariff higher than other sub-sectors like chrome (US\$6.7/KWh) and platinum (US\$8.5/KWh). The sub-sector's labour cost is, at 36%, higher than South Africa's 23%, while average labour productivity in the two respective countries stands at 33 ounces and 41 ounces per annum, respectively.

The problem with the fiscal regime is multiplicity of collecting agencies, legislative instruments and tax heads as well as high and unstable royalty rates relative to other countries, which are not deductible for income tax purposes and hence have sterilised many gold resources by raising cut-off grades. The perceived country risk has resulted in high cost of offshore finance while the local market is faced with liquidity challenges. Whilst gold producers in Zimbabwe are making losses on average, those in other areas such as Burkina Faso, Russia, Central Africa, East Africa, West Africa, Canada, South Africa and Mali are making profits.

In the above challenging context, the gold sector has adopted survival strategies, but these have long-term negative implications on the growth of the sector. These include: (i) reduction on exploration and development (both expansion and replacement); (ii) reduction in both sustaining and expansion capital investment; (iii) reduction in working hours and wages; (iv) supply discount negotiations; and (v) replacement of contractors with in-house staff.

Due to the challenges alluded to above, the gold industry in Zimbabwe in 2015 was operating at 70% capacity utilisation. This implies a significant scope for the growth of the sector if necessary measures are taken. In the short term, the focus should be on survival and stabilisation measures.

The following actions are recommended in the short term:

1. Reduction in royalty rates in tandem with price changes (index royalties to price changes), this measure should maintain royalty revenue as volumes increase while restoring viability, as done in some best investment destinations like Burkina Faso - indexation to prices ensures that government participates in super rents during times of booms.
2. Make royalties deductible for income tax purposes, in line with global best practice.
3. Index electricity tariffs to price changes beginning from around US\$6/KWh at price less than US\$1,150 to US\$13/KWh at a price above US\$1,500 – profitability is guaranteed at an electricity tariff of at most US\$8/KWh accompanied by a royalty of at most 4%.

In the medium to long term, the growth of the sector largely hinges on the availability of capital and a supportive operating, regulatory and policy environment (that reduces the country risk). The gold industry requires total capital injection of at least US\$600 million in the next five years, which should result in an increase in output growth from the current 2% per annum to more than 10%. With the required capital gold output should reach almost 31 tons by 2020 from the current 11 tons. It is also estimated that if the capital requirements are met, employment should reach 30,000 by 2020 instead of 12,300 in the absence of required capital. The only way to attract the necessary capital is a revisit of the implementation modalities (not the principle) of indigenisation regulations to a gradual approach beginning at 10% mandatory indigenous equity as well as improving the ease of doing business.

Assuming that the capital requirement as indicated above is met, gold revenues from large-scale producers only are expected to be in the region of US\$1.14 billion by 2020 – an increase of 180% over the US\$405.6 million for 2014. With the government adopting conducive policies

for investment, it is expected that the effective tax rate will fall from the current level of about 65% to 41.5%, which is the regional average. This should increase government fiscal revenue from the sector from the US\$168.3 million of 2014 to US\$472.6 million by 2020 through viability and volume increase.

Other key success factors for the development of the gold industry include:

1. A supportive legislative and regulatory environment. This requires the finalisation of the minerals development policy and the amendments to the mines and minerals Act. It also requires the synchronisation and streamlining of the multiple regulatory instruments governing the mining industry in general.
2. A review of the fiscal regime to make it more competitive in the region, continent and internationally. A single tax head and a single collecting agent will go a long way in achieving this.
3. Closing the infrastructure gap. Zimbabwe Electricity Supply Authority needs to recognise the importance of mining to the economy and prioritise power allocation to key minerals like gold. It is also imperative to reduce establishment and fixed charges on water and to implement effective water harvesting strategies in the country.
4. Urgent rehabilitation of transport infrastructure including roads and railway facilities.

3.9.2 Platinum

Zimbabwe, with the world's second largest PGM resource and at third place in terms of contribution to the world's primary platinum production (after South Africa and Russia), stands a good chance of catching up with Russia. Since 2002 when the largest producers in the country (Zimplats and Mimosa) resumed operations, production capacity has increased tremendously, and with it, employment, exports and tax revenue. Besides the gold sector, the platinum sector has the greatest potential to expand in the near future with the sector having several expansion programmes and new entrants.

While the mines are currently exporting concentrates (Mimosa and Unki) and matte (Zimplats), plans are afoot to expand concentrator and smelter facilities and to retool Bindura Nickel Refinery, Empress Nickel Refinery and the Zimplats Base Metal Refinery. The contribution of the platinum sector to the Zimbabwean economy remains significant as demonstrated by the following indicators: 3.5% of GDP, 5% of total exports, 3.2% of fiscal revenue, 8,831 jobs and 37% of FDI. Since 2002 the sector has recorded an annual growth of about 35%, outpacing the growth of the mining sector as a whole.

The major challenges facing the platinum sector in Zimbabwe include depressed prices, the non-conducive fiscal regime, power shortages and very high tariffs, water shortages, lack of access to finance and lack of geological data. While nothing can be done about prices, it is imperative for government in partnership with industry to address the other challenges and make the operating environment more conducive for mining business. The price of platinum peaked in 2007, but has since been depressed and fluctuating, with an all-time low in 2009. The price at the time of writing stood at US\$1,112/oz.

Based on existing plans by operating mines, the production outlook for PGEs and the whole PGM sector is a monotonic increase that will reach a peak in 2017 and thereafter stabilise slightly downwards up to 2019. In terms of PGMs, it will be an increase from about 882,000 ounces to over 1 million ounces by 2017. Taking new players into account, the PGM output is projected to reach over 2.1 million ounces by 2019, which is a percentage increase of 142.5% (output is projected to double). The same growth is projected for exports, which in absolute terms are expected to increase from \$136.89m (2014) to \$331.98m by 2019 (note that these export figures only refer to platinum, not the whole PGM sector).

Tax revenue from the whole PGM sector is projected to increase over the period from the current \$121.19m (2014) to \$415.52m by 2019 – an increase of 242.87%, which will also be monotonic. Employment levels in the whole sector are expected to increase (for both contract and permanent labour) significantly over the same period, with employees expected to reach more than 18,000 from the current 8,831. The greatest increase over the long term is expected to come from the new players.

All the planned expansions, as well as the coming in of new players, are expected to result in significant increases in investment levels. For existing mines planned investment (only for Zimplats and Mimosa) is expected to increase from the current \$141.13m (2014) to a peak of \$277.90m (2017).

Regarding the beneficiation agenda, it is noted that there is convergence between government and the PGM industry on the importance of the agenda, not only for the PGM sector alone but for the whole mining industry. However, this paper notes that beneficiation requires a critical mass of primary output, which is currently not available, and that the facilities take time to establish. This paper also notes that export tax has been used as a measure to foster beneficiation and value addition; however, export taxes need to be used cautiously as they are a high-risk strategy, which can have serious negative outcomes on production.

Beneficiation in Zimbabwe faces numerous challenges, which include: insufficient and erratic power, insufficient water supply, poor transport infrastructure, national shortage of fixed capital, high interest rates on working capital, shortage of requisite skills, and a primary sector operating at low capacity. Creation of an enabling environment for beneficiation requires as a first imperative, the reversal of the conditions mentioned. That would be the first step of an alternative beneficiation scenario.

There is need to revisit policies that hinder investment and also give enough time for the platinum producers to increase output and enjoy cost savings from the resultant economies of scale, which could be applied to the higher stages of beneficiation and value addition.

An alternative beneficiation framework

An alternative beneficiation scenario would be to expand primary production and concentrator facilities in the short-term (+/- five years), establish smelters for matte production and base metal refineries in the medium-term (say ten years) and finally precious metal refineries in the long term. Thus, a more phased approach would be production expansion, concentrator expansion, smelting set-up (for those mines not yet smelting), expansion of smelter facilities, establishment of base metal refineries and precious metal refineries. Such an approach would be implementable and certain to achieve desired results. However, there is need for a clear beneficiation policy, clear legislative provisions, detailed market studies and promotion of strategic alliances with those already in the business of beneficiation in the region.

Key governance issues that will ensure that the growth plans in the sector will be achieved include the fiscal regime, mining policy, beneficiation policy, indigenisation policy, and local procurement policy. It is this paper's view that the fiscal regime under, which the platinum sector operates is complex due to multiplicity of agencies, legislative instruments and tax heads, which make the cost of compliance high. There is need to simplify the regime to a single collecting agency, a single document outlining the legislative provisions governing the sector, and a single tax head. The royalty rates are high, in rem and unstable, which has affected cut-off grades in the sector resulting in resource sterilisation. The basis for royalty setting is not clear, which should necessitate a broad-based discussion on the issue so that some commonly-held basis may be

established. Additional profits levied on holders of special mining leases, which are all platinum producers currently, have essentially cancelled out the incentive in reduced corporate taxes.

The draft minerals policy is more of a mining linkages development policy than a minerals development policy. The need to balance the two in the policy and to have closure on the policy formulation process is recommended. The paper also advocates for a beneficiation policy, rather than pronouncements, and a phased-approach covering short-term, medium-term and long-term milestones as already indicated above.

The principle of indigenisation is acceptable to both government and industry, in particular, the PGM sector. However, the 51% as an immediate requirement scares away investors; hence a gradual approach is recommended. A lot of confusion surrounds the implementation of indigenisation because of lack of clarity of the indigenisation policy and lack of full legal backing of its components.

Payments by the sector to local suppliers are at least 60% of all payments on supplies. Main problems associated with local procurement include unreliable supplies, outright non-availability, poor quality, poor backup service, expensive supplies, lengthy to delivery time and demand for payment upfront. Supply of skills has been affected by skills flight (brain drain) and the deteriorating quality of education at colleges and universities. A study to assess the skills gaps in the mining-related training institutions and collaboration with international partners to fill the gaps is recommended.

Key stakeholders that have a role to play in the growth of the platinum sector include the PGM mines (industry), government (in its broad sense) and academics. Government has a significant task of addressing the policy environment and collaborating with industry to address the hindrances facing the sector. Industry has the task to invest in skills training in partnership with government and academics, creating strategic partnerships with other industry players in the region and to secure funding for both primary production expansion programmes and beneficiation. A market study would require the collaboration of academics, industry and government.

The PGM sector is poised to be one of the most key contributors to the economy among all minerals and all other sectors in the country. Projections of output growth and positive economic impacts made in this paper are real and achievable. The beneficiation and value addition agenda is also very implementable. However, all these achievements can only be made possible if reasonable milestones are set in terms of time as well as a conducive policy and operating environment. Such an environment can only be established through open, honest and mutually beneficial engagement between government, industry and other stakeholders.

4. RECENT KEY DEVELOPMENTS IN ZIMBABWE'S MINING SECTOR

4.1 Beneficiation and Value-Addition Pronouncements

There has been of late an aggressive drive on beneficiation and value addition in the mining sector in Zimbabwe. Stakeholders, however, generally feel that there are more benefits in investing in primary mineral production than in beneficiation, especially in terms of employment creation. The argument here is that a dollar spent in primary mineral production employs more labour than a dollar spent in beneficiation because the latter is more capital-intensive than the former. Some have argued that, in fact, the country does not lose any of its value by exporting un-beneficiated mineral products because at every stage it is paid for contained metal. However, this is not to say that beneficiation is not important, but that it should be allowed to arise naturally as primary production increases and it becomes uneconomic to move large quantities of un-beneficiated primary product.

However, the overall picture that comes out from the stakeholder interactions is that we need a two-pronged approach. On one hand, we need to promote increased primary production because of the edge it has in terms of creating quick economic benefits; and on the other hand incentivise and in some cases legislate for beneficiation – the latter in areas, which do not appear attractive but may create a supply industry.

We need to be careful, nonetheless not to over-legislate – we must use a big carrot and small stick. The small stick means that we do not always need to benchmark beneficiation on profitability, but also on linkages it develops and on long-term development. For one thing, beneficiation can avoid ghost towns when primary production stops as the beneficiation facilities can continue to operate on the basis of feed transported from other mines in the country or region. One important mistake that is made in discussions is to see legislation and incentives as opposites in the beneficiation equation. Incentives can be provided for through legislation, so that the two are not necessarily always mutually exclusive.

The African Union through the Africa Mining Vision, the UN and the World Bank have all indicated that one of the major drawbacks in the development of African countries is lack of beneficiation and value addition. Thus, beneficiation and value addition are noble causes, which should be pursued, however on a mineral-by-mineral basis using the value chain approach (which is a clearer approach). We need to identify the minerals to start with (low-hanging fruits) and then progress incrementally.

In fact, it might not be all minerals that should be beneficiated, but some must be exported raw. The debate should actually be on which minerals to start with, at what point in the value chain and how to move towards 100% beneficiation. A clear roadmap indicating timelines (short-term, medium-term and long-term) is important. Some actually view beneficiation itself as a long-term process. It must be understood that beneficiation is a different issue from mining. Thus, it should be promoted as a business on its own, so that other industrialists who are not miners can also come in. There is need to consider a regional approach where regional beneficiation facilities can be developed and clear arrangements be agreed on how each country will benefit, both in terms of beneficiating its products and absorbing the benefits associated with that level of the project cycle. The current set-up, where the country is sending some of its minerals to South

Africa for refining does not allow the country to benefit so doing itself in terms of employment, profit margins and opportunities for industrialisation.

There is need to address the infrastructure requisites for beneficiation to take place. Technical skills in beneficiation should be developed and skilled negotiators should be trained to attract investors into this area. It is the view of some stakeholders that government is not serious about beneficiation and value addition as nothing concrete has been done on the ground (for example, to incentivise, legislate, develop requisite infrastructure and create a beneficiation fund). There is also need for more exploration to determine the lifespan of the minerals, so as to justify the sustainability of the beneficiation industry, hence attract investors. The beneficiation agenda, to some extent has been politicised – driven by politicians who have no long-term interests. It has also been stalled by some politicians, who find opportunities in exporting raw minerals, without declaring profits. Beneficiation will bring more transparency and accountability, something that those who thrive on opacity in the sector do not want. So, it is not surprising sometimes to see inconsistency in policy.

Another question that stakeholders have asked is about the market. Where will Zimbabwe sell its beneficiated products given that there are already competing and seasoned producers of these products? Some also feel the 51% indigenisation requirement negates the beneficiation thrust given the risk it creates vis-à-vis the amount of investment capital required. Some stakeholders are of the view that the approach that has been taken by government to tax some raw exports did not yield the desired results, but instead killed mining in some minerals like chrome, which obviously was not the intention.

4.2 Local Procurement and the Capacity of Local Service Institutions

We need to define who is a local supplier – the definition based on level of local content is more appropriate. Local procurement is actually the existence of upstream linkages, which are akin to what Piffaretti (2013) terms ‘production linkages’ (supply linkages). There are four types of mining suppliers in terms of local ownership and local value-addition, as shown by the four quadrants in Figure 11 (overleaf). Quadrant I represents the foreign importer – that is, the supplier is a foreigner (not a citizen of the country) who brings the stock into the country with little or no local value-added.

Quadrant II is a foreign supplier whose supply is produced within the country, with significant or 100% local value-added. Quadrant III is the local producer who is a citizen, so that both local ownership and local value-addition are very high.

Quadrant IV represents the citizen who imports his stock or services, which he then supplies to the mines. In this case, local ownership is high, but local value-added is low. In order to promote greater linkages in the domestic economy, procurement should be concentrated on the locally based foreign provider and the local provider, since this creates a market for locally produced goods, which has a multiplier effect on the economy. Imports dampen the multiplier effect.

The mining sector procures a variety of goods and services locally. These include chemicals, fuels, lubricants, coal, certain oils, silica, chrome ores, construction and civil engineering materials and services; some small equipment including ball mills, drilling equipment and explosives; protective clothing; blasting and mining services; transport; catering and management; plant maintenance and general hardware. However, major equipment and spares, gearboxes, motors, roof trusses, bearings and a great number of various laboratory consumables are imported.

The main problems faced with local procurement include: expensiveness, lack of reliability of supplies (supplies are not always available when needed), outright non-availability, poor

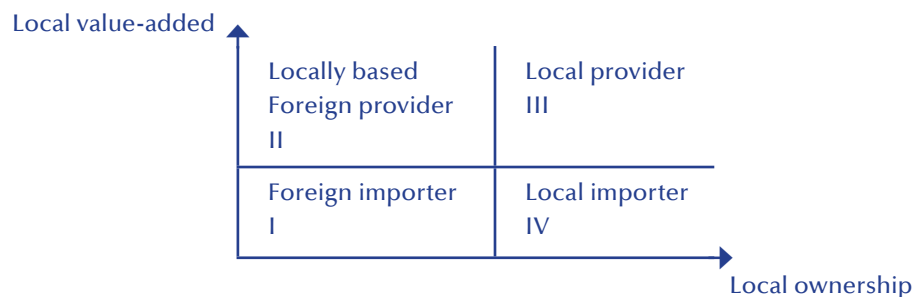


Figure 11: Categories of Suppliers

Source: Piffaretti (2013)

quality supplies, poor backup service, long delivery time, and need for upfront payment (for most suppliers). However, most mines are not concerned about whether suppliers are certified to certain international standards, and only a few have tried to assist their suppliers to meet any standards. Most mines have no shareholder interest in mine supplies, which indicates limited vertical integration backwards – in other words, most mines are not trying to acquire supply source companies.

The main suppliers of mining skills are local universities, technical colleges, and the Zimbabwe School of Mines (the main supplier). However, the trend in local skills supply is worsening. One stakeholder remarked that, generally, institutional capacity, especially in terms of skills ‘is where the disaster is’. The Zimbabwe Geological Society must be able to update their database. We need knowledge around our resources. While educational infrastructure is improving at the Zimbabwe School of Mines through the support from Government and the Chamber of Mines of Zimbabwe (mining industry), this cannot be said about other critical service providers like the Institute of Mining Research (IMR) and mining departments at universities.

Generally, geologists and mining engineers are scarce in the country to the extent that critical research institutes like the IMR operate entirely without them. This means that the Institute can only offer a limited range of services to the mining industry. Also the student–teacher ratio in training colleges and universities is very high. This, coupled with poor conditions of service at training institutions, results in compromised skill level of produced graduates. Thus, a wide range of expert technical services (consultants) is still imported. There is need to assess the skills gaps in the institutions related to mining and to collaborate with international partners where possible to fill the gaps.

The problem with some government institutions is that of political appointments, whereby some members are appointed from the ruling party particularly to advance the interests of that party. There is also lack of political will to discharge the mandates of those offices properly. Does the government also have the political will to accept the roles of organisations, to accept the technical support they provide? They also need to refocus towards research and development.

4.3 Mining Revenue Transparency

4.3.1 Introduction

The Extractive Industries Transparency Initiative (EITI) is a global coalition of governments, companies and civil society working together to improve openness and an accountable management of revenues from natural resources. EITI holds that natural resources, such as minerals, belong to a country’s citizens.

The extraction of natural resources can lead to economic growth and social development. However, when poorly managed it too often leads to corruption and even conflict. More openness around how a country manages its natural resource wealth is necessary to ensure that these resources can benefit all citizens. Countries implement the EITI Standard to ensure full disclosure of taxes and other payments made by mining companies to governments. These payments are disclosed in an annual EITI Report. This report allows citizens to see for themselves how much their government is receiving from their country's natural resources.

Transparency can only lead to accountability if there is understanding of what the figures mean and public debate about how the country's resource wealth should be managed. Therefore, the EITI Standard requires that EITI Reports are comprehensible, actively promoted and contribute to public debate. The EITI Standard contains the set of requirements that countries need to meet in order to be recognised as first an *EITI candidate* and ultimately an *EITI-Compliant* country.

4.3.2 *The rationale and benefits of transparency in Zimbabwe's mining sector*

The background to transparency in Zimbabwe is contained in the Constitution, the Zimbabwe Agenda for Sustainable Social and Economic Transformation (ZimAsset), the AMV to which the country subscribes, the Draft Minerals Policy, the Amendments to the Mines and Minerals Act and the various national budget statements. All these documents refer to transparency as one of the principal pillars of the country's governance.

Why transparency in the mining sector of Zimbabwe at this time?

The limited fiscal space the country faces has made it imperative to leverage the mineral resources for the development of the country. Mining communities and general citizens are now keen to participate in the benefits coming from the exploitation of their resources, especially given that the Government has created expectations that mining is the future of the economy. The volatility in the international commodity markets has made frequent engagements between the mining industry and Government a necessity, yet one that is predicated on transparency and trust. Mining suppliers also need information on the performance of the mining sector in order to plan. The worsening gap between the rich and the poor, while the country's mineral resources are being exploited has raised many questions.

With transparency, the mining industry can easily demonstrate its contribution to the community, fiscal revenue and the economy at large, which has recently been the subject of much controversy and hostility between government and industry on one hand, and industry and communities, on the other. Without information, perceptions become realities and thus transparency replaces perceptions with facts. It makes the government more accountable to the citizens because, with information, people can hold their government to account.

Transparency in the mining industry will also reduce the amount of illicit flows and corruption and hence increase government revenue. It will aid government budget revenue forecasts especially with prospective implementation of the mining fiscal revenue models. Also, civil society organisations can champion their advocacy work from an informed position.

4.3.3 *The Zimbabwe Mining Transparency Initiative (ZMRTI)*

Though Zimbabwe does not subscribe to EITI, it has attempted to implement a domestic version, namely the Zimbabwe Mining Revenue Transparency Initiative (ZMRTI). The initiative started with a cabinet decision to mobilise resources locally during the tenure of the GNU. With stakeholder consultations done in 2014, it was established that this cabinet decision was to be implemented in the office of Deputy Prime Minister, Thokozani Khupe (who was from the opposition MDC

party). It was felt that in order to mobilise resources effectively government needed to clearly understand the sources of these revenues (revenue streams) hence the inception of the Zimbabwe Mining Revenue Transparency Initiative (ZMRTI).

The World Bank supported the initiative, which was regarded as the first step towards the full adoption of EITI. It was felt that the concept of EITI could not be adopted wholesomely – that it needed to be indigenised or domesticated in the form of the ZMRTI. A Zimbabwe Oversight Group (ZOG) was formed to oversee the process of developing this initiative. ZOG included members from World Bank, Chamber of Mines of Zimbabwe, Reserve Bank of Zimbabwe, Ministry of Finance, Ministry of Mines and Mining Development, Parliamentary Portfolio Committee on Mines and Energy. The end of the GNU in July 2013 automatically brought an end to the initiative for the simple reason that it was housed in the Deputy Prime Minister's office, which office no longer existed.

ZMRTI faced several challenges. There was serious political polarisation on the initiative, especially that it was housed in the office controlled by one political party and could possibly be used as a political weapon. Now that there is one party in government it may be easy to implement such an initiative if government decides to resuscitate it.

There was lack of trust among stakeholders. Government did not trust civil society because of the latter's involvement in issues to do with the Kimberly process. Government also did not trust industry, as there had been perennial controversies on contribution and the fiscal regime. The Chamber of Mines of Zimbabwe did not trust civil society either, accusing it of downplaying its CSR efforts and exaggerating negative environmental impacts. Trust is still an issue today, to some extent. The old Mines and Minerals Act did not overtly make adequate provisions for access to information. The Act also did not differentiate between small and large-scale mines, which resulted in the former remaining largely informal and not transparent. ZMRTI emanated from a cabinet decision, but there was no legal backing. There was also limited participation in ZOG by the Ministry and consequently by the Chamber of Mines, as the two normally would want to move in the same direction.

4.3.4 The way forward on transparency in Zimbabwe's mining sector

The Government has strongly signalled its intention to institutionalise transparency in the mining sector. For example, the Diamond Policy seeks, among other objectives, 'to account for every diamond mined in Zimbabwe to enhance transparency and ensure the sector achieves its potential'. What factors should be taken into account as the country takes steps in this direction? Transparency is about communication and dialogue, hence the importance of multi-stakeholder engagement and the building of trust. The strategic approach is to introduce this initiative as part of the broad governance issue, not as a measure to deal with a particular sensitive issue, such as alleged diamonds pilfering. The approach, in terms of coverage of minerals and issues, should be incremental. There is need to consider a home-grown initiative without outside monitoring in order to avoid political sensitivities and facilitate its acceptance.

There is the question of which ministry should lead the initiative – the Ministry of Mines and Mining Development or the Ministry of Finance. Various arguments should be considered. One argument is that all that mines do is to extract the mineral, but after that follows accounting – therefore, revenue transparency initiative must be housed under the Ministry of Finance, which controls the revenue collection agent (ZIMRA). Another argument against the Mines Ministry in this regard is that it would be like a ministry regulating itself. However, an opposite argument is that the Ministry of Mines is the generator of the revenue and also better informed in the

mining processes that generate the revenue. Parliament, the civil society organisations and communities should adequately play their oversight role. The communities especially need to monitor environmental management and corporate social responsibility practices. However, multi-stakeholder engagement should yield other mechanisms in case of oversight. There is also need to enact policies and regulations, such as, the mining policy and revisions of the Mines Act, in line with the new Constitution, which provides for transparency and accountability as well as to decriminalise the artisanal and small-scale mining sector. Regulation on how to participate in mining should be simplified since the difficulty to get licences can lead to opaqueness and corruption. It is important to improve the ease of doing business including simplified mechanisms for dispute resolution.

The problem with lack of transparency is not always about lack of information, but sometimes it is capacity to interpret information. There is, therefore, need to undertake capacity building of Government, Parliament and other stakeholders to understand the mining processes – contract negotiation, licensing, fees, exploration, mine development, mining, mineral processing, marketing, mining taxation, mining cost structures, value chains, profit-shifting mechanisms (transfer pricing, re-invoicing and thin capitalisation). Institutional capacity to define resources is also important so that the Government negotiates contracts from an informed point of view. Needless to say, negotiating skills on the part of government officials need to be enhanced in order for government to negotiate winning contracts. All stakeholders need to be educated about the right to withhold some information – it is not all information that should be disclosed and stakeholders need to appreciate the minimum requirements so they can do proactive disclosure.

4.4 Mining Cadastre

The Ministry of Mines and Mining Development has floated tenders for the implementation of a computerised mining cadastre, as government moves to establish a computerised mining management system for licensing, project implementation and accounting for production. In taking this stance, government seeks to align the country's title management system with regional and international best practices to provide for a faster and more efficient system, which also offers security of tenure to investors. The system is already being used in Australia, Canada and Zambia. Until then, the governance of mineral resources will continue to be a challenge, for no one knows the exact amount and value of mineral resources in the country.

4.5 The Syndication and Formalisation of Artisanal and Small-Scale Miners

The government has taken a step to encourage and group small-scale miners into syndicates for easy registration and to ensure that assistance and monitoring of the activities of the small-scale miners can be achieved.

Government, on realising the potential contribution of small-scale miners to the national economy, has taken a move to formalise the operations of small-scale miners and decriminalise their activities. This is meant to reduce mineral leakages, reduce environmental degradation and increase accountability and transparency. What remains to be seen is whether the government will align the law to accommodate this initiative.

5. CONCLUSION AND RECOMMENDATIONS

As a mineral exporting country, Zimbabwe is expected to be mainly concerned with the objectives of exporters rather than importers. It is a fair assessment that these objectives have not been met. The country has failed in gaining real sovereignty over its mineral resource exploitation because the government is outwitted by foreign companies in negotiating contracts. The agreements produced have effectively removed Government or its relevant entities from the actual management of joint ventures and from control over exploration, production and effective marketing of mineral produce. The ownership structure of the mining industry has basically remained the same as from the pre-independence era. The large-scale sector is dominated by foreign multi-nationals. Thus, Zimbabwe has remained a source of raw materials that are processed and beneficiated in these companies' parent countries, thereby exporting jobs and profit margins associated with those stages of the mining project cycle, as well as squandering stupendous opportunities for industrialisation of the country. This is evidenced by the narrow mineral value chains described herein. Zimbabwe has remained heavily reliant on FDI due to its failure to use minerals to produce other forms of capital and also due to the loss of the industry's support from Government assistance programmes, which used to be given in the colonial period and immediately after independence.

Participation policies in Zimbabwe, which have sought to address the Government dilemma between control and capital or know-how have not yielded results. The joint venture deals struck in Chiadzwa have been secretive and little of the income generated found its way to the Treasury. These deals tended to benefit only a few powerful and connected elites who effectively were complicit in the plundering of the country's natural resources. The indigenisation policy has been marred by lack of clarity, lack of consistency, and general convulsion with political agenda. Legislations, pronouncements and the practices are all different. In its own right, the ZMDC, as the production arm of Government, has proved to be a monumental failure as it has run down all properties it has acquired since its formation. In general, then, participation policies have failed to engender any poverty alleviation or transform the economy, effectively making the country poorer.

In terms of general policy and regulation, this study concludes that it is positive that Zimbabwe subscribes to various continental and regional policies, which are progressive as they seek to transform member countries by leveraging on the mining industry. They also seek to harmonise policies and practices in order to stand in the global competitive world as one economic giant. However, this paper has highlighted the worrying divergence between national policy documents (which are based on continental and regional policies) and actual practice. For one thing, Zimbabwe does not have a substantive mining policy, relying instead on disparate related policies and legal instruments to guide the sector. Both mining policy and a new amended Act are being formulated but have already received criticism, coupled with the time it is taking to have them finalised. This could imply a lack of commitment to finalising policies because some few powerful people may be benefiting from existing loopholes.

While fiscal revenue from the sector is high, compared to other sectors, it could be higher if measures were taken to (i) reduce illicit flows (transfer pricing, thin capitalisation and re-invoicing) and smuggling; (ii) prevent corruption in state entities and government departments; (iii) speed

the formalisation of the ASM sector; (iv) apply more in personam than in rem taxes; and (v) reduce the incentives that are applicable to foreign capital. The mining sector has not performed well in terms of meeting the income redistribution objective of government as distribution of revenue from the mining sector has simply been defined by mine cost structures.

The tax system has remained complex, hence difficult to administer and comply with. The need to shift from in rem to in personam taxes, alluded to above, would arrest sterilisation of some resources caused by the royalty regime coupled with cost surges and unstable prices. In personam taxes are efficient and do not affect business incentive as they are applied on profits that have already been made. They are also capable of capturing huge economic rents that are sometimes associated with mining (price booms and mineral bonanzas). While royalties remain a highly revenue productive instrument for government in the short-term (which may not be said about the long term), it would mitigate its resource sterilisation impact and long-term impact on the sector's development if it could be made deductible for income tax.

The industry is not well diversified in terms of commodities as concentration is on high-value minerals at the expense of some industrial and base metals like lithium, tin, limestone, which are experiencing good prices or have the potential for developing linkages.

While there are mixed feelings on the urgency of beneficiation in Zimbabwe, there is general agreement on the need for a country like Zimbabwe to move beyond the natural comparative advantage in resource endowment to competitive advantage that is normally catalyzed by beneficiation and the concomitant need to develop high-level industrial skills in both upstream and downstream industries. This requires a clear policy on:

1. Infrastructural development.
2. Simultaneous promotion of primary production to maintain necessary feed.
3. Identification of low hanging fruits (not all minerals need to be beneficiated now – an incremental approach would be useful).
4. Setting of short-, medium- and long-term goals on beneficiation.
5. Market studies

Environmental problems are rife in both large-scale and artisanal and small-scale mining (ASMs) areas. The latter, for example, have become notorious for use of mercury in gold extraction, which is hazardous to both humans and animals. ASMs are characterised by premature abandonment owing to selective mining. Due to the generally small-scale nature of mines in Zimbabwe, there is no significant infrastructural development in rural areas, yet this is one of the conventional benefits expected from mining activities. Thus, the rural areas are generally left to nurse their wounds from environmental damage and negative social impacts.

Sustainability in the mining sector also requires that the mining sector be able to continue exploiting mineral resources. Mineral resources in the ground are only sleeping resources, which require investment to make them actively contribute to national well-being. The specific mineral case studies in this paper (gold and platinum) have shown that the mining industry has been significantly affected by: (i) depressed prices; (ii) shortages of capital; (iii) high costs of operations due to high electricity tariffs, high capital costs, sub-optimal fiscal regime with high royalty rates, which are also in rem and non-deductible for income tax; (iv) low ore grades being exploited, and (v) low productivity.

This study concludes that, despite huge natural capital wealth and the significance of economic statistics indicating its exploitation, the total national wealth is actually decreasing due to depletion. There is need for transparency in the awarding of contracts, mining and marketing

processes, as well as in mining revenue management so that sustainable development (in both intra and inter-generational equities) can be achieved.

The SWF, while a positive idea, can easily be made ineffective by lack of transparency and accountability and the appointment of an incompetent and corrupt Board of Management. The way forward regarding transparency is the need to build trust among stakeholders through communication; identify the driver of the initiative between the Mines and the Finance Ministry; emphasise the oversight role of parliament, civil society organisations and communities; develop information-generation tools; and build the capacity of stakeholders so that they understand the information.

Endnotes

- ¹ The US Department of the Interior also includes gaseous materials under minerals.
- ² Note that technological feasibility of recovery is implicit in economic feasibility of recovery or recoverability.
- ³ Resources that would become economic if the market price of the mineral were to increase by a factor of 1.5 (under the McKelvy classification) are termed 'paramarginal resources'. Under the Unified Department of Interior Classification Method, they also include resources that would be recoverable if legal and environmental restrictions were relaxed.
- ⁴ Miniaturisation is where a country develops small gadgets that do as much as or better than large ones in order to reduce material input.
- ⁵ Ore containing platinum, palladium, rhodium and gold.
- ⁶ 100% owned.
- ⁷ 100% owned.
- ⁸ 85% owned through New Dawn's 85% ownership of Falcon Gold Zimbabwe Ltd.
- ⁹ 100% owned.
- ¹⁰ 85% owned through New Dawn's 85% ownership of Falcon Gold Zimbabwe Ltd.

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APPENDIX

Table 7: Gold Mining Companies and Mines

Company	Size	Listed or private	Mine	Location
Caledonia Mining	L	Listed	Blanket	150 km from Bulawayo
Mwana Africa	L	Listed	Freda Rebecca	Near Bindura
New Dawn	L	Listed	Turk/Angelus ⁶	Bulawayo-Bubi greenstone belt
	L		Old Nic ⁷	6 km east of Bulawayo
	L		Golden Quarry ⁸	5 km NE of Shurugwi and 35 km SE of Gweru.
	L		Camperdown ⁹	5 km from Golden Quarry
	L		Dalny ¹⁰	Chakari District, 36 km N of Kadoma
RioZim	L	Listed	Renco	N of the Limpopo Mobile Belt
Duration Gold	L	Private	(Exploration and development Company)	Five projects in Matabeleland and Midlands provinces.
Favic Consolidated	L	Private	Favic and West Nich. Mines	Gwanda
Metallon Gold	L	Private	How Mine	25km SE of Bulawayo
	L		Shamva Mine	Shamva, 80km NE of Harare
	L		Arcturus Mine	29km E of Harare
	L		Redwing Mine	210 km SE of Harare in Mutare greenstone belt
			Mazowe Mine	41km NW of Harare
Bilboes Holdings	L	Private	Isabella	Bubi
	L	Private	Bubi	Bubi
	L	Private	When	Bubi
	L	Private	McCays	Bubi
Ox Mining	L	Private	Inex and Lenox Mines	Near Kadoma
ZMDC	L	Private	Sabi	Zvishavane
	L		Elvington	Chegututu
	L		Jena	Kwekwe
DTZ-OZGEO	L	Private	DTZ-OZGEO Gold Mine	Penhalonga

Pan African Mining	L	Private	Muriel	South of Mutorashanga, Lomagundi District
John Mack & Co.	S	Private	Golden Valley	160 km west of Harare
FA Stewart	L	Private	Jessie	Gwanda
Bronfield Mines	L	Private	Brompton Mine	Kadoma
Pan Reef Mining	L	Private	Indarama	Kwekwe
Small-scale miners, including Tetrad Investments	S	Private	12 mines (registered with the Chamber of Mines)	
Custom millers, including Fidelity Printers and Refinery (FPR)	S	Private	30 millers reporting, including FPR, Magobo Service & Milling Centre, Dayless Services Pvt. Ltd, Suraj Mining & Milling, Earthrow Investments and Munyati Mining & Milling Co.	In all the gold belts
Artisanal Miners (‘Makorokoza’)	S	Private		

L = large-scale;

S = small-scale

*Source: Piran Mining Research (2013) and various internet sources***Table 8: Upstream, downstream and service companies for the whole mining sector**

Company	Business
MMCZ	Marketing of all minerals except gold and silver
Fidelity Printers and Refiners	Purchase and exporting of all gold
Acol Chemicals	Mining chemicals
AEL Mining Service Zim	Mining explosives
Africa Steel	Steel merchant
Antech Laboratories Pvt Ltd	Analysis of metals
Atlas Corpo	Mining equipment
Barzem Enterprises	Mining (earthmoving) equipment
BEM (Omnia Fertiliser)	Mining explosives
Blonton Management Consultants	Consultancy
Cafca Limited	Cable manufacturing
Conduit Investments Pvt Ltd	Automotive supply and service, engineering (electrical, mechanical, civil)
Croco Motors	Automotives
Curechem Overseas	Mining chemicals

Davies Granite	Granite stone and quarry sand
DDNS Securico	Security services
Deloitte and Touche	Auditors and tax services
Drilling Resources – K.W. Blasting	Drilling and blasting
Earthclean Metal	Mining equipment
Ernest and Young	Auditors and tax services
Haggie Rand	Steel wire products
Integrated Hygiene System	Manufacture hygienic products
Intrachem Pvt. Ltd	Mining explosives, chemicals and drilling equipment
Medent (Pvt). Ltd	Protective equipment, electrical kits
Mike Appel Organisation	Automotives, generators
Nicoz Diamond Insurance Co.	Insurance
Nirm & Chapman Mnfg	Foundry and engineering
North Safety Products	Protective equipment
Original Technology	Manufacture bolts
P.G. Building Suppliers	Hardware
Paasol Resources Zimbabwe	Consultancy
Perf Zim Laboratories	Assay and analytical services
Portland Holdings	Cement
Power Speed Electrical	Hardware, electric motors
Safeguard Security Services	Security services
Sakunda Energy t/a Sakunda Trading	Fuel and lubricants
Sandvik Mining & Construction	Mining (earthmoving) equipment
Tanzi Zimbabwe	Ropes
Tractor and Grader Suppliers	Mining (earthmoving) equipment
Tregers	Roofing material
W.G. Kinsey	Mining (earthmoving) equipment
William Bain & Co. Holdings	Mining equipment
Real Gain Investment	Drilling
Tandamanzi	Drilling
Whaleside	Shaft-sinking
Exporien Mining	Exploration
Global Platinum Resources	Exploration
Flych Development	Exploration

Canape Investment	Exploration
Dusty Earthmoving	Mining equipment
Zimbabwe School of Mines	Training
Institute of Mining Research	Research, consultancy and lab analysis
Zimbabwe Diamond Education College	Training



About the Author

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In his research career he has published 15 articles in academic journals on various topics in mineral economics and macroeconomic policy. His research efforts have won him three Best in Session Awards (BISA) at the Global Conference on Business and Finance Research hosted by the Institute for Business and Finance Research (USA). The same institute awarded the University of Zimbabwe a Research Leadership Trophy as a result of his research submissions. In his institutional and private capacity, he has conducted and participated in many consultancies for various well-known international and national institutions and organisations and presented at many mining forums.

Founded in 1925 in memory of Friedrich Ebert, the Friedrich-Ebert-Stiftung (FES) is a private, non-profit organisation committed to the values of Social Democracy. The goals that guide the political education work of FES is to enable and encourage citizens to participate in civil society, the labour movement and to engage in the political processes. The aim of the international co-operation of the Friedrich-Ebert-Stiftung is to promote freedom, justice and solidarity in a globalised world and to contribute to peace and security.

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