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Local is lekker: cam the Mining Charter III create a new black industrialist class

Davids-Green, Larah-Ann

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Local is lekker: cam the Mining Charter III create a new black industrialist class.

A Research Proposal submitted in partial fulfilment of the Degree of
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by

Larah-Ann Davids-Green
Student No: 437183

Supervised by
Sibulele Nkunzi

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Abstract

Despite the vast resource endowment, South Africa has experienced a hollowing out of industrial capabilities and entered into premature de-industrialisation. This research was motivated by the State of the Nation Address on the 16th of February 2019, given by the current President of South Africa, Cyril Ramaphosa. He spoke of the government taking action to transform the economy using the mining and manufacturing industry not as a sunset industry, but rather as a sunrise industry. The President highlighted the critical role of the Mining Charter Three would play as "truly an effective instrument to sustainably transform the face of mining in South Africa." This informed the research objective: to assess whether the Mining Charter Three can successfully foster a new black industrialist class. Qualitative research underpinned the study. Data was collected from five companies which have emerged as BBEE partners to determine whether they are enjoying the fruits of forward and backward linkages in the mining sector. From the data collected, it is evident that the sector is empowering a new breed of black entrepreneurs, hence the sector is acting as a sunrise industry.

CHAPTER ONE
A sunrise Industry?

"Fellow South Africans,

The process of industrialisation must be underpinned by transformation.
Through measures like preferential procurement and the black industrialists programme, we are developing a new generation of black and women producers that are able to build enterprises of significant scale and capability.
We will improve our capacity to support black professionals, deal decisively with companies that resist transformation, use competition policy to open markets up to new black entrants, and invest in the development of businesses in townships and rural areas.

Mining is another area that has massive unrealised potential for growth and job creation.
We need to see mining as a sunrise industry. […]
This year, we will intensify engagements with all stakeholders on the Mining Charter to ensure that it is truly an effective instrument to sustainably transform the face of mining in South Africa.
State of the Nation Address

President of South Africa Cyril Ramaphosa
16 February 2018

In the above first State of the Nation Address (SONA), President Cyril Ramaphosa goes a long way in inspiring hope for the future amongst South Africans. This study is motivated by the promises of this address. It seeks to determine whether a new dawn has really come under the leadership of President Ramaphosa or if it remains the same as usual based on the African National Congress (ANC) modus operandi of talking left but walking right (Bond, 2014). More specifically, this research examines certain aspects mentioned in the SONA, such as inequality based on race and social economic status, women emancipation in the work force, industrialisation underpinned by transformation and whether decisive action has been taken with against companies that resist transformation. In order to assess these aspects, the research focuses on The Mining Charter Three to see if its local content stipulation does indeed create a black industrialist class. If the findings of the study are favourable, then one can concede to

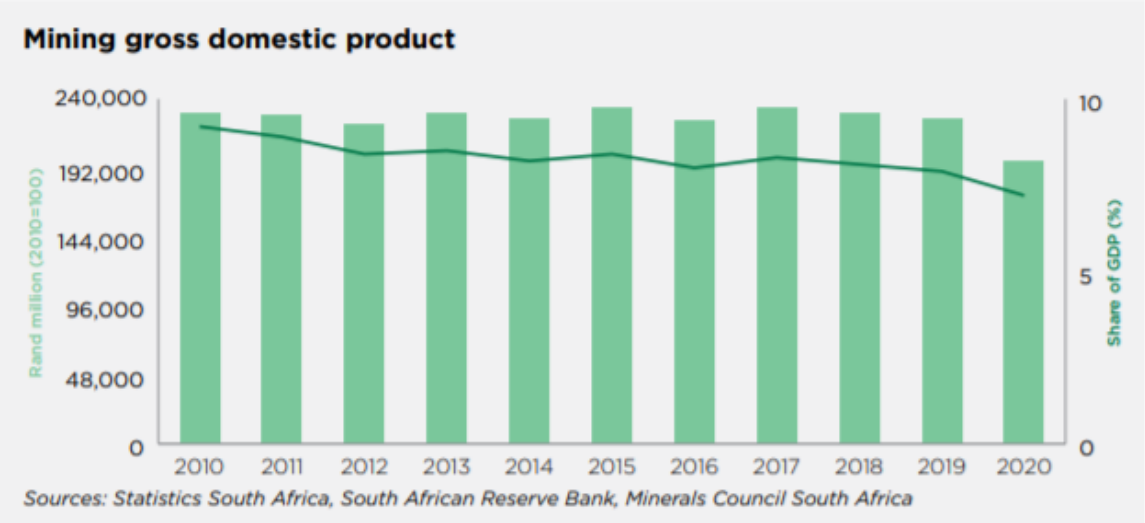
Mining being a sunrise industry, however if the findings are contrary, then so far, the industry remains a sunset industry for South Africa.

A sunrise industry is defined as "*An emerging industry that is gaining favour with investors and is expected to be an engine of future economic growth through steadily rising generation of employment and profits, and comparatively lower environmental costs*"[1]. It is easy to be sceptical as for more than 100 years of mining in South Africa, the industry has failed to be a sunrise industry. Therefore the question begs, why would it change now? The history of mining is characterised by slave labour, low wages for workers; dangerous working conditions; illness; gender discrimination; land expropriation not to mention air, land, and water pollution. Furthermore, it has widened the inequality gap as evident by the salaries of CEOs of Anglo-American R67 Million or CEO of Goldfields R28 Million per annum (Moneyweb, 2015), as opposed to the R 8 500 per month minimum wage for mine workers in 2014. In addition, the mining industry shed almost 50,000 jobs from 2012 to 2015, further deepening poverty.

So why the focus on mining? It is estimated that South Africa's known non-energy resources are valued at USD 6.2 trillion (Baartjes & Gouden, 2012), being the fifth largest mining sector globally in terms of gross domestic product (GDP). The mining sector contributed R361.6 billion or 8.2% to GDP, R27.2 billion in taxes to South Africa and directly employed 451 427 people in 2020 (Minerals Council; 2021). The year 2020 saw production dwindle by 10-12%, not only due to the COVID19, pandemic but also due to transport logistical limitations. Although industry measures have been on the decline, one can still see the potential the mining industry has if harnessed correctly.

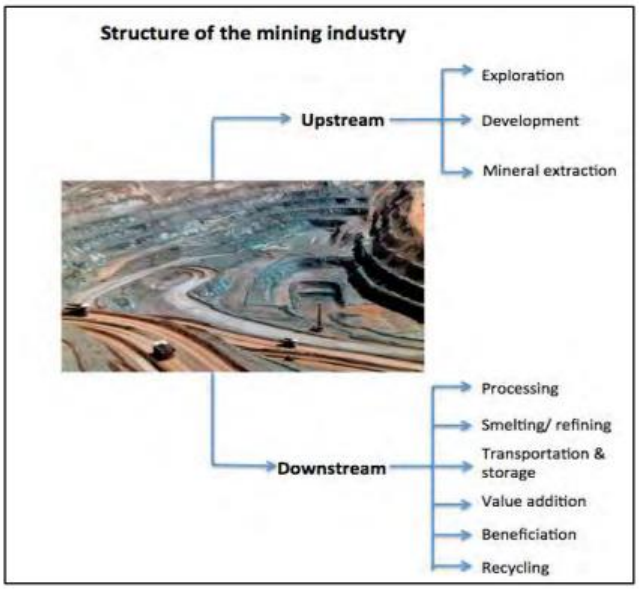
[1] The Business Dictionary http://www.businessdictionary.com/definition/sunrise-industry.html

Figure 1: Mining Gross Domestic Product



Despite its vast resource endowment, South Africa has experienced a hollowing out of industrial capabilities and entered into premature de-industrialisation. This can be attributed to the continued legacy of support for forward linkages/upstream industries and the relative ineffectiveness of interventions to alter the balance towards downstream diversified activities. Hirschman (1981) distinguishes three types of linkages in the extractive sector: Fiscal linkages are resource rents collected by governments from the commodities sectors in the form of corporate and income taxes and royalties, which have the potential to promote industrial development in other sectors of the economy. Although fiscal linkages are necessary, they are not sufficient in themselves to be transformative therefore, Hirshman (1981) proposed that fiscal linkages should be combined with production linkages. Production linkages include forward and Backward linkages. Upstream linkages – involve the processing and transforming extractive produce into manufacturing products. Backward or downstream linkages, on the other hand, involve producing inputs that will be utilised in commodity production. Lastly Hirschman (1981) identified consumption linkages which are related to the demand for outputs produced by other economic sectors resulting from the expenditures incurred by the extractive sector (Ramdoo; 2015).

Figure 2: Linkage Structure of the Mining Industry



Author: Ramdoo; 2015

Unemployment in the country for the third quarter of 2020 stood at 32, 5% using the narrow definition, and 42, 6% using the expanded definition, which includes the population of the working age who have been discouraged for searching for employment (QLFS, 2012). South Africa has the highest levels of income inequality globally, demonstrated by 55% of the population living below the poverty line who survive on less than R992 per person per month in 2015 prices (World Bank, 2018). Furthermore, 95% of assets in the country are held by the richest 10% (Orthofer, 2016). It is clear that South Africa's post-apartheid economic transformation project has not produced a "better life for all" as promised from the onset of democracy (Bell et al, 2018). South Africa has a dual economy where on the one hand, there is a small high-skilled, high-productivity economy, whilst on the other hand, there is also a large low-skilled, low-productivity one.

The dawn of democracy was born out of a political compromise in 1994, which largely entrenched the economic status quo of apartheid. The narrative that apartheid had undermined the productive potential of the economy through market interventions rendered liberalisation as necessary which informed economic policies adopted by successive South African post-apartheid governments. For the past two decades, South Africa has sought to address poverty and inequality with initiatives to support redistributive measures. Such initiatives include the Reconstruction and Development Program (RDP) in 1993. This was followed by the Growth, Employment and Redistribution Strategy (GEAR) of 1996, the National Development Plan

2030: Our Future—Make It Work (2012), to the most recent Mining Charter III of 2018 to name a few. Despite the numerous prescribed interventions, liberalisation has reinforced, rather than altered, the existing development trajectory (Plagerson, 2021).

CHAPTER TWO

Research Methodology

2.1 Research Statement

Despite Africa having a wealth of natural resources, Africa as well as South Africa has failed to use its comparative advantage as a catalyst to achieve industrialisation and its development objectives. It is clear from policy frameworks, that mining is acknowledged as a critical lever for job creation and economic development. However, the sector has been beset by problems including falling commodity prices, rising costs of production, a militant labour force, illegal mining, accessing reserves especially those lying at deep levels, poor infrastructure, poor or unsteady labour supplies, to name a few. The government however recognises the importance of the sector and its contribution to GDP, which underpinned the President's address quoted at the beginning of Chapter 1. In addition, change of ownership in the sector that will allow the emergence of a black industrialist class is a core aspiration of the Government, which can be achieved by more participation by those who have been previously disadvantaged. The government views mining as being a sunrise industry instead of a sunset industry. This study sets out to determine whether the positive view held by the government is indeed true and that the sector can transform itself to become more productive and efficient hence becoming an engine of growth and enabling equitable income distribution, or whether the industry has been beset by problems which make it a sunset industry, that is fast approaching redundancy marked by inefficient production systems and does not reflect broad ownership that can reduce inequality.

2.2 Hypotheses

- A resource-based industrialisation strategy can transform South Africa's unsustainable comparative advantage into a sustainable competitive advantage that reduces inequality and reflects the country's racial dynamics.
- South African development is possible through the deepening of backward resource linkages

2.3 Research Questions

a) Can the Mining Charter Three successfully foster a new black industrialist class through participation in backward linkages?

The local content stipulation of the Mining Charter specifically speaks to the sector that supplies the mining industry, essentially making the development of backward linkages integral. For this reason, ancillary questions around knowledge in terms of human resources and technological capabilities are important.

b) How does the Mandela Mining Precinct and Mining Charter Three facilitate investment into the sector by those who have been previously shut out of ownership in the sector?
c) Can the development of the local supplier sector as promoted by the Mining Charter Three contribute to resource-based industrialisation?

2.4 Research Methodology

The focus of this section is on the design of the research methodology. The research methodology is a significantly important part of research; it is the step by step process of the overall study. The term methodology refers to a general approach to learning about research topics, and it is influenced by the researcher's epistemological position (Willig, 2008:7). The qualitative approach is efficient in a social science and business studies as it enables the researcher to gather in-depth understanding of the problem (in this study being whether the mining charter is resulting in the creation of a black mining class), the social setting and the participant's view. According to Guba and Lincoln (1994:106) qualitative data provides insight to human behaviour, meaning and purposes attached to the manner in which people respond to their environment. Qualitative studies provide contextual information and therefore are excellent in uncovering the emic (insider) views and theories

This research utilises a case study approach, underpinned by a qualitative research method. Merriam-Websters dictionary (2009) defines a case study as 'an intensive analysis of an individual unit (as a person or community) stressing developmental factors in relation to environment". Crowe, Cresswell, Robertson, Huby, Avery and Sheikh (2014) state that a case study approach is particularly useful to employ when there is need to obtain an in-depth appreciation of an issue, event, or phenomenon of interest, in its real life context. The case study approach is thus suitable for this study as it will assist understand whether the mining charter is assisting in the creation of a black mining class, thus reducing inequality in the country.

Data for the study was collected using in-depth interviews. Triangulation was used to ensure trustworthiness and rigour of the study. Neuman (2006) regards triangulation as one of the best ways to enhance trustworthiness and rigour in qualitative research, as it can help overcome the biases associated with using one method. By triangulating data collection, an attempt is made to provide credible evidence (Eisner, 1991: 110). In line with this understanding, data was collected using three different instruments, namely: face-to-face interviews, policy document analysis as well as descriptive statistical analysis.

The study population for this research study consisted of all stakeholders in the mining charter. A study population refers to the entire group of individuals or objects that are present in the study, they have common characteristics that are required for the study (Burn and Grove, 1993:779). The study useds purposive sampling, also known as judgement sampling which is common with qualitative research. Purposive sampling refers to a non-probability sampling technique were the researcher uses their own judgement to select participants from the population whom they believe possess the required or necessary information for the study (Marshall,1996:2). Being a qualitative study, five partcipants were purposefully chosen to be interviewed for the study. The criteria for choosing the five partcipants was that they had to be representative of the different groups involved in supporting backward linkages in the mining sector. The researcher used her prior knowledge of the sector to identify and select these participants. The selected participants were:

- The Mandela Mining Precinct Management (as they are involved in the day to day operations)
- Drill Rod Specialist, a local SMME mining supplier
- Mining Equipment Manufacturers of South Africa (MEMSA) management as they are a cluster who serve as a point of liaison for the government and private sector.
- The South African Mineral Processing Equipment Cluster (SAMPEC) which is directed towards increasing opportunities for local supply to the South African mining sector and
- A local mining supply chain industry specialist

Semi-structured interviews were carried with the selected participants. Semi-structured interviews are usually one-on-one interviews where the researcher converses with the interviewee on a specific topic (Zikmund & Babin, 2010:141). The manner in which semi-

structured interviews are conducted is guided by the responses provided by the participant. As the interview is carried out, the interviewer/researcher thoroughly probes the responses provided by the interviewee and uses those replies as the basis for further questioning. The aim of these type of interviews is to probe and stimulate answers to the research questions (McDaniel & Gates, 2010:107). Babbie and Mouton (2001: 250) assert that semi-structured interviews are the best data collection method for researchers to expand on questions already provided to the interviewee's.

It should be noted that the researcher was aware of subjectivity and bias in the responses from the partcipants, as this could threaten the trustworthiness of the data. Hence in addition to the above interviews, policy documents such as the Minerals and Petroleum Resources Development Act (MPRDA), and the Mining Charter of 2002, 2010 and 2018 were analysed to gain an in-depth contextual understanding.
Furthermore, to address the shortcomings of interviews, an analysis was done to determine the extent the interim targets set in the Mining Charter Three been met and what strategies or initiatives are being undertaken to meet the full 5-year targets, namely:

Procurement of goods (within 5 years):

a) a minimum of 70% by value of mining goods must be manufactured or assembled in South Africa with a minimum local content of 60%.
b) of that, 21% must be sourced from companies owned and controlled by historically disadvantaged persons,
c) 5% from women and youth controlled companies and
d) 44% from Broad-based Economic Empowerment (BEE) compliant companies.

By using the above criteria I was able to assess the responses and evidence which assisted me in answering whether the Mining Charter Three has create a new black capitalist class.

2.5 Structure of Dissertation

Chapter one of this dissertation is the introductory chapter. Chapter two provides the research statement, the hypothesis, the research questions, and methodology used. Chapter three is the literature review, while chapter four provides a discussion of the South African policy

frameworks that informed the Mining Charter is explored in chapter five with case studies. Lastly, chapter six highlights the challenges, and ends off with the concluding notes.

CHAPTER THREE
Literature Review

This chapter consists of the literature review/Theoretical framework section of the study. It begins by discussing the New Structural Economy Theory. It then moves on to examine Global Value Chain Development theory, The resource curse debate, Rentier theory before examining industrialisation strategy. It concludes by discussing resource linkages.

3.1 New Structural Economics Theory

New Structural Economics Theory proposes to use the neoclassical economic approach to study the determinants and impacts of economic structure and its evolution, which are the nature of modern economic growth, in an economy's development (Lin 2012). The theory remains faithful to the traditional Ricardian theory of comparative advantage, which Lin (2012), prescribes for developing countries to follow their comparative advantage in order to kick start the move towards industrialisation. A country's comparative advantage is considered as a country's natural factor endowments. According to NSE, the best way for an economy to develop is to allow its factor endowments to gradually change over time through upgrading from a more labour and resource-intensive endowment structure, to one that is capital-intensive (Lin, 2012). When this is achieved, the economy will be its most competitive with large economic surplus, allowing for capital accumulation and more upgrading of its factor endowment structure.

Following this orthodoxy, Lin (2009) makes two integral points, 1) he cautions countries from following strategies that defy their comparative advantage as according to him such activities would be too capital and/ or skill intensive and 2) he calls for a facilitating state to meet the infrastructural needs of new industries as this is beyond the scope of individual firms. In essence, for economic development, a facilitating state is crucial. In a resource rich and labour-abundant economy such as South Africa, NSE calls for the country to take maximum advantage in developing resource-intensive industries, including extraction, forestry, and agriculture. In addition to this, the NSE recommends that a country like South Africa should develop its labour-intensive manufacturing industries as these industries can provide more jobs for the poor. They would also pave the basis for continuous upgrading to higher value-added industries, which will increase the wage rate (Lin, 2011).

Eventually, following this strategy will upgrade the country from a labour-intensive economy to an increasingly capital-intensive one. However, the NSE suffers from limitations when

applied to developing countries. Firstly, its theory defines industrial policy as both broad and specific aims without accounting for the context or the mechanisms that inform the accumulation and shift from one endowment structure to the next in each developing country Lin, 2012). Secondly, the NSE assumes that industrialisation is an automatic process, which relies on the notion that a static view in the micro context can represent the continuous and complex nature in the macro economy. However it is argued that industrialisation is not an automatic process, but that different types of industrial policies are necessary in different contexts and times (Naude & Szirmai, 2013). Thirdly, the NSE assumes that the categorisation of economic activity is possible and in response, an appropriate policy can be identified and implemented accordingly (Newman & Takala-Greenish, 2014). Furthermore, it is contended that the higher value-added equates to the higher incomes hypothesis. However, this is not necessarily the case in developing countries. Altman (2001) argues that for South Africa to form a sustainable industrial strategy it needs to support the development of higher productivity that will yield incomes high enough to support employment multipliers in low productivity, job-creating industries. In order to realise the labour-intensive downstream fabrication, investment needs to take place in the capital-intensive precursors (feed stocks, such as steel and polymers).

In addition, from the perspective of new structural economics, structuralism has been seen as a failure because it ignores the endogeneity of economic structures of a developing country and recommends an import-substitution strategy to develop industries that are too capital intensive for the country's level of development and defy the comparative advantages determined by its factor endowment. However, by virtue of the fact that local firms can participate in forward and backward linkages, this negates the need for import substitution as local firms are supported by government and the mining sector to be more efficient. The firms in the priority industries of such a strategy are then competitive and do not require state subsidies and protection.

Overall, although acknowledging the role the State has to play in industrialisation, the NSE is still essentially a market-led approach to development which assumes market forces and mechanisms operate efficiently. Given the inherent market imperfections, this theory is flawed. Furthermore, it does not take into account the diversity of economic activities across diversified sectors (Newman and Takala-Greenish, 2014).

3.2 Global Value Chain Development (GVCD)

A direct product of global value chain (GVC) analysis, is Global Value Chain Development, which can be seen as a key strategy that utilises Africa's natural resource abundance as a tool of industrial policy (Fine and Rustomjee, 1996; Morris et. al. 2012). A global value chain is described as the full range of activities that firms and workers perform to bring a product from its conception to end use and beyond (such as after-sales market). These activities generally include design, production, marketing, distribution, and support to the final consumer. The usefulness of the GVC approach is that it makes use of a top down as well as a bottom up analyses of the global economy, from understanding how lead firms "drive" their supplier networks and affiliates is a top down approach. Whilst analysing how the decisions of these lead firms affect the trajectory of economic and social "upgrading" or "downgrading" in specific countries and regions is a bottom up approach (Gereffi & Fernandez-Stark, 2011). The "up- and down-grading" of a value chain has significant implications for the workers within a chain as well as the economy at large, it can either increase social and economic benefits or decrease them (Gereffi et. al., 2005). Promoting GVCD within the context of mineral abundance can realise a successful 'resource-based industrialisation (RBI) strategy. It could do so by placing emphasis on increasing higher-value added activities which in turn would increase the knowledge base, capital surpluses and assist in moving away from low value added raw minerals to which would either end or avoid the occurrence of the resource curse in many African economies.

Concerns around whether there will be a sustained demand for resources can be quelled thanks to the metals intensity of global gross domestic product (GDP) growth. The Metals intensity can be illustrated through analysing the global steel industry as per world real GDP per capita. Tracing the trajectory of demand for steel, we observe a period of approximately thirty years of high intensity of demand for minerals to assist in reconstruction efforts of the first world after the second world war. What follows is another period of roughly thirty years of low intensity as the first world moved towards services as common for industrialised economies. However, at present starting from the year 2000, there is even a higher intensity rate than the first period caused by developing countries taking off such as Brazil, Russia, India, and China. Despite a stall in demand during the financial crisis of 2008, by the second half of 2009 demand

started increasing again (Stiglitz et al, 2013). Considering the continuing rapid growth of China and India which combined have a population nearly three times that of the minority world, one can intuitively assume that there will be a continued global high metals intensity for at least the next thirty years (Stiglitz et al, 2013).

The vulnerability of GVCD to shocks and uncertainties may not make them to be an ideal vehicle for resource based industrialisation. According to McKinsey (2020), some of these GVCD are designed for efficiency, cost, and proximity to markets, but not necessarily for transparency or resilience. The report stresses that these GVCD are not calibrated for risk and exposure, more so because they operate in a world where disruptions are regular occurrences. For example, changes in the environment and in the global economy are increasing the frequency and magnitude of shocks. In addition, there has been an upsurge in trade disputes, higher tariffs, and broader geo-political uncertainty. This makes dependence on GVCD uncertain for use in exploiting backward and forward linkages by local entrepreneurs as a means of taking a larger share of the industry.

In the context of South Africa which has been beset by electricity supply problems, the effect on GVCDs especially in the mining industry has been particularly disruptive. Tralac (2022) reports that the inability of South Africa to service its electricity needs has led to downward revisions of economic growth and investor confidence. As South Africa relies heavily on its exports of precious metals to finance its current account deficit, the impact of load shedding on mining operations has led to a strong depreciation of the rand as well as a stalling of economic growth and downward revisions in growth forecast. This then affects all aspects of the mining supply chain and may impact in participation in the forward and backward linkages by local entrepreneurs.

3.3 Resource Curse Debate

The resource curse (also known as the paradox of plenty) refers to the failure of many resource-rich countries to benefit fully from their natural resource wealth, and for governments in these countries to respond effectively to public welfare needs. While one might expect to see better development outcomes after countries discover natural resources, resource-rich countries tend to have higher rates of conflict and authoritarianism, and lower rates of economic stability and economic growth, compared to their non-resource-rich neighbors.. This argument advanced by Presbisch (1950), Sachs and Werner (1997) and Auty (1995), hypothesize that resource rich countries remain heavily dependent on primary products, thus experiencing poor growth

performance and negative developmental outcomes. Conversely, resource-poor countries are forced to diversify from primary into manufactured products therefore experience considerable economic growth (Di John, 2010).

However, empirical evidence from resource economies such as Sweden, Australia, and Botswana to name but a few suggest that resource endowment does not have to equate to a curse if managed well. According to Stiglitz et.al, (2013) the key determinant of whether a boom in minerals will be a blessing or a curse appears to be the level of governance and institutions. Good institutions are able to avoid high public and private consumption, low investment, and overvalued currency (Dutch disease) which are the ingredients of the resource curse. Conversely, in the presence of appropriate policies that efficiently allocate resource rents, resource endowments can in fact be a blessing.

According to Wright (2001) diversifying an economy by converting natural resources into finished goods of higher value added exports is able to bring about economic success. The Nordic countries progressed from a low technology and cost labour activities to highly-skilled, knowledge intensive activities. Through this process of diversification of the economy, key industrial and service sectors that are directly linked to the resource base are developed, therefore ensuring continuation of economic progress long after the natural resources have been exhausted (Walker & Jourdan, 2003). This diversification strategy provided the catalyst in generating upstream and downstream value addition in these, now, developed economies.

Lastly, this type of resource-based processes provides the stimulus for the taxation of associated profits to generate excess revenue for the state. With this excess the state should invest in a) physical infrastructure such as roads, rails, port facilities, power, and water supplies, b) social infrastructure such as schools and hospitals, and finally c) productive infrastructure, namely factories. As a result of the above there would be employment and linkage creation within the resource sector and in support industries (Heeks, 1998).

Most literature excludes South Africa when it comes to discussions of the resource curse. Elbra (2013) opines that studies of the resource curse as it affects African states abound, yet few deal with the experiences of South Africa. Elbra (2013) succinctly states that South Africa has experienced many of the symptoms outlined in the resource curse literature including relatively slow GDP growth, gross inequalities, entrenched poverty, and the creation of a rentier state.

Given these factors, it can be concluded that South Africa has failed to benefit from its natural resource wealth and can be classified as a resource cursed state. This has implications for the participation of local people in the mining industry. More black people need to be included in the sector, especially through participation in froward and backward linkages, which may result in more benefits trickling down to benefit local people.

3.4 The Rentier State

A rentier state can be understood as a state that makes excessive profits from external rents from internal endowments. The rent is controlled by a minority (government) and redistributed how it sees fit. Rentier state models try to understand why decision makers in natural resource rich countries form and sustain growth-restricting policies by supporting rent-seeking behaviour (Di John, 2021). It is argued that higher levels of mineral rents encourage corruption, as opposed to countries with lower mineral resources. On the other end, Gelb & Associates (1998) who oppose the rentier state theory argue that natural resource rents can be used to encouraging savings, foreign exchange, and relaxing fiscal constraints.

Taking South Africa as an example, its rent-seeking behaviour has led to severe misallocation of resource rents, therefore highly distorting the economy (Klasen & Woolard, 2000), which is evidenced by the country having one of the most unequal societies in the world. Mineral rents enabled the South African government to by-pass the development of labour-absorbing industries in favour of highly capital-intensive energy and chemical industries. The consequences of this have been a distorted cost structure that has isolated a mass creation of jobs specifically in labour-intensive, low productivity exports (Altman, 2001).

Another important aspect is having a cohesive state apparatus, highlighted by Chibber (2002) with reference to India and South Korea. Both countries were identical in that their governments had relatively healthy bureaucracies and worked to foster industrialisation. The divergence however was in achieving state cohesiveness which can only happen in the presence of the ability to discipline non-developmental firm behaviour. In the Indian experience, besides its policy apparatus being fragmented, it lacked the appropriate authority to enforce compliance for one overarching development agenda. Conversely, the Chinese experience shows an appropriate interaction of governance agencies, firm structures, and political settlements. Park Chung Hee forged a political settlement which allowed him to re-configure the state apparatus. The Korean Economic Planning Board (EPB) not only had the mandate to identify industrial

sectors that were crucial for economic growth and channel resources to those sectors through selective and functional industrial policies. Notably it had institutionalised power to enforce coordination and discipline amongst intra-state agencies. Korean industrialists could not capture the rents, but used it in productive ways to enhance competition, and productivity (Chibber, 2002).

In the study of African politics, the rentier effect has often been linked to the resource curse, the argument being that a state with an abundance of natural resources tends to govern in undemocratic ways, and achieve less growth than those lacking resources. mineral wealth in particular is said to bolster authoritarianism in three ways. First, there is the "taxation effect," whereby mineral-rich governments tax at low rates such that populations are less likely to demand accountability or representation. Second, there is the "spending effect" where these states spend more on patronage to dampen pressures for democracy, as well as on the military apparatus and internal security, thus stifling any demands for participation. Finally, mineral wealth is said to hinder not only the evolution of state institutions, but also "group formation," where state largesse inhibits the formation of social classes and civil society groups that could push for liberalization (Aidi, 2019) .

One of the most thorough applications of the rentier state paradigm in Africa has been by scholars Wantchekon and Jensen (2014), who, in their study "Resource Wealth and Political Regimes in Africa," assess the efforts of African states to consolidate democracy since 1975. The authors show that over the last 40 years, resource-dependent African states (Algeria, Cameroon, DRC, Gabon, Libya, and Nigeria) have struggled to consolidate democratic rule; and, aside from South Africa, the only successful transitions to democracy have occurred in the resource poor states of Benin, Mali, Senegal, and Madagascar. The authors submit that executive discretion over the distribution of resources leads simultaneously to higher levels of government spending and poor governance – in accordance with rentier state theory. Though the authors exempt South Africa from this phenomenon, the increasing unemployment and non-participation in the formal economy is an indication that South Africa may be sliding into a rentier state.

3.5 Resource-based African industrialisation

Africa's industrialisation strategy needs to go further than supplying raw material globally. In order to experience a successful resource-based industrialisation, it needs to construct critical

sector linkages into the local, regional, and sub-continental economies, along with building the necessary economic infrastructure to make the former possible. There needs to be a lateral migration of resource-dependent industrial clusters into resource-independent industrial activities (Stiglitz et.al, 2013).

Africa has a comparative advantage in establishing resource linkage industrial clusters through: 1) the immediate market offered by local and regional resource industries. Demand for inputs such as plant, machinery, consumables, and services, 2) potential technological advantage because there is a demand in the resource industries for innovation and problem solving, 3) a feedstock price advantage for downstream resource processing industries especially mineral and Agri-processing and 4) opportunities to develop the supplier industries for the extensive resource infrastructure requirements (Stiglitz et.al, 2013).

3.6 Resource Linkages

Linkages can be defined quantitatively as the inputs and outputs into mining operations, and qualitatively, in terms of the relationships between sectors in the supply chain (AMV, 2018). It is argued that linkages form an integral part in the sectoral growth process of an economy. By providing economic and employment opportunities for upstream and downstream producers, it has the ability to shape the development trajectory of any economy (Wild & Schwank, 2008). According to the African Mining Vision Report, linkages force a country to consider how each participant in the market can interact with the other, and how value can be achieved by each participant at each stage of the value chain. Each stage of the mining process may have upstream, downstream, side stream and lateral linkages. However, the problem in most developing economies is such linkages are ill developed and skewed in favour of developed countries. This can be seen in South Africa where there are strong export linkages with international firms but much weaker linkages to other African markets.

According to List (1950) building up productive capabilities is important to development objectives. He identifies manufacturing as the most favourable economic approach over agricultural production because manufacturing activities lead to increases in productivity in other sectors. Manufacturing encourages institutional, infrastructural, and political progress, with each sector reinforcing the other. However, in order to harness these linkage opportunities, certain fundamental constraints need to be adequately addressed. These include

deficiencies in knowledge intensive areas, particularly, human skill development and infrastructure bottlenecks (Jourdan, 2014).

Five main resource linkages are recommended for deepening the resources sector:

1. Fiscal Linkages (Resource rents)

Should be used to improve basic physical and knowledge infrastructure of the country.

2. Spatial Linkages (Infrastructure)

Africa has a large amount of its population that is land locked, should use excess rents to establish development corridors making intra-African trade more accessible.

3. Forward Linkages (Downstream value addition)

Adding value to the commodities extracted by processing and refining into finished goods instead of exporting them in their raw state. This has been the main focus of the South African government.

4. Backward Linkages (Upstream value addition)

Refers to the inputs to oil, gas, and mining projects. As a collective, backward linkages speak of the various inter-firm relationships connecting an industry with its suppliers/supply chain. With regards to the mining industry, these links develop as a consequence of vertical, horizontal, and technological demand and supply interactions between producer firms, manufacturers, input providers and service suppliers over a long period of time (Lyndall, 2009).

5. Knowledge Linkages (Technology/product development)

The introduction of improvements or new technologies in the value chain is referred to as a knowledge linkage that consequently develop capabilities. Small improvements in one area of the production process can result in significant economic efficiencies further down the extractive value chain (Lyndall, 2009).

CHAPTER FOUR
OUTLINING THE SOUTH AFRICAN MINING POLICY FRAMEWORK

This Chapter discusses the policy framework for the transformation of the Mining sector.

4.1.1 Minerals and Mining Policy of 1998

The Minerals and Mining Policy was developed to take into account the new political dispensation of the country and addresses eight key areas:

- Business Climate;
- Mineral Development;
- Participation in ownership;
- Management;
- People issues, dealing with health and safety, housing needs, migrant labour, industrial relations, and downscaling;
- Environmental Management;
- Regional Co-operation and
- Governance.

4.1.2 Minerals and Petroleum Resources Development Act (MPRDA) of 2002

The act granted the State exclusive ownership of the country's mineral wealth from private ownership, therefore the State had greater authority in the granting of legal rights on mineral and petroleum properties.

Section 2(1) (c) explains that its aim is to "*Promote equitable access to the nation's minerals and petroleum resources to all the people of South Africa."* Section 2(1) (d) pronounces it intends to *"substantially and meaningfully expand opportunities for historically disadvantaged persons, including women, to enter the mineral and petroleum industries and to benefit…*" Section 2(1) (f) states it aims to "*promote employment and advance the socio economic welfare of all South Africans."*

Section 100(1) of the MPRDA provides the Mining Charter its legal foundation. It is the provision that gives effect to the Charter. The section states that the "*The Minister must within 5 years;*

- *Develop a housing and living conditions standard for the mineral industry;*
- *Develop a code of good practice for the mineral industry; and*

Section 100(2)

- *Develop a broad-based socio –economic empowerment Charter…framework, targets, and timetable for effecting entry of HDSA into the mining industry"*
- *the Charter must, amongst others, set out how the objects in;*
- *(c) equitable access;*
- *(d) substantial and meaningful;*
- *(e) economic growth;*
- *(f) employment and economic welfare;*
- *(i) holders' obligations.*

4.1.3 Broad Based Black Economic Empowerment

The origins of Black Economic Empowerment (BEE) was derived from the Reconstruction and Development Programme (RDP) 1994. BEE and affirmative action were introduced to redress centuries of deprivation, economic marginalisation and exploitation under colonialism and racial apartheid (Lee & Mondi, 2017). The RDP articulates the vision of BEE as *"(t)he domination of business activities by white business and the exclusion of black people and women from the mainstream of economic activity are causes for great concern for the reconstruction and development process. A central objective of the RDP is to de-racialise business ownership and control completely through focused policies of Black Economic Empowerment"* (Black Economic Empowerment Commission, 2001).

4.1.4 The Mining Charter

The Mining Charter sought to transform the industry through its power to grant licenses. The Mining Charter was important as a legal instrument because it stipulated targets that had to be achieved by the mining industry. Its companying scorecard set out the timelines for transforming the South African mining industry. The main objective of the Mining Charter was to address the imbalances of the past based on race, gender, or disability of the HDSA. The objectives of the Mining Charter are as follows:

- Make mineral resources accessible to all South Africans;

- Increase opportunities in a meaningful way for HDSAs including women in the mining and mineral industry and to benefit from the exploitation of the nation's mineral resources;
- Utilize the current skill base for the empowerment of HDSAs;
- Expand the skills base of HDSAs in order to serve the community;
- Stimulate the employment and improve the social and economic welfare of mining communities and
- Encourage the beneficiation of South Africa's mineral commodities.

With two previous versions in 2004 and 2010, the **Mining Charter III (MC3) of 2018** was established to assist in the redistribution of mineral wealth and facilitate growth in a sector that contributes R312bn to national GDP and employs hundreds of thousands of workers. The Mining Charter III articulates economic incentives, the resuscitation of exploration and black empowerment but more specifically ensure that the benefits are shared with the local communities in which it operates in. It intends to create a local black capitalist class through firstly the stipulation of *procurement of goods*: a minimum of 70% by value of mining goods must be manufactured or assembled in South Africa. Of that, 21% must be sourced from companies owned and controlled by historically disadvantaged persons, 5% from women and youth controlled companies and 44% from Broad-based Economic Empowerment (BEE) compliant companies.

Secondly, a minimum of 80% by value of *procured services* must be provided by local services providers, of which 50% of the procurement spend must be sourced from companies owned and controlled by historically disadvantaged persons, 15% from companies owned and controlled by women, 5% from youth owned companies and 10% from BEE compliant companies (MC3, 2018). This paper will only focus on the targets set on the procurement of goods. A closer analysis of the last two iterations of the charter will be discussed in chapter six.

4.1.5 2015 Mining Phakisa

Although not a policy, it is important to note the Mining Phakisa that took place in 2015 in Johannesburg. It involved 120 delegates representing the State, organised labour, industry, academia, non-governmental organisations, and community leaders. The aim of the five week workshop was for all mining stakeholders to develop plans from high-level concepts to operational actions with budget allocations. The key success of the Phakisa is in the

establishment of new relationships between entities such as the Department of Science and Innovation (DSI) previously called the Department of Science and Technology (DST), Department of Planning, Monitoring and Evaluation (DPME), National Treasury and Mining Equipment Manufacturers. This paved the way for the latest Mining Charter.

4.2 South African Capital Equipment Industry- an overview

Mining has been the driving force behind South Africa's economy for more than 130 years. Since its existence, the industry has shaped the country's socio-political and economic development (KPMG, 2013). One can say South Africa's industrial development trajectory has been based around mineral extraction industries, understood as Ben Fine (1996) labels it the Minerals-Energy Complex (MEC), which is the set of interlinked economic sectors comprising of the minerals, energy-intensive and mining-related manufacturing activities (Fine and Rustomjee, 1996). The evolution of MEC sectors, in relation to other economic sectors, is to be seen as part of the South African system of accumulation which has evolved, shaped and has been shaped by, the interaction of various public and private interests in and around the specific sectoral components of the economy.

The discovery of world-class diamonds and gold deposits catapulted South Africa's economy from a predominantly agricultural economy to one of the most industrialised nations in Africa. The discovery of these precious minerals, along with challenges of accessing them, provided the catalyst for industrialisation. Heavy equipment, power supplies and large forces of organised labour were therefore needed in order to extract and process underground ore deposits, triggering a series of spin-off activities in other sectors such as transport (railway system), power generation (coal mining), manufacturing, and commercial farming (Walker & Jourdan, 2003). Despite these opportunities, Fine and Rustomjee, (1996) and Chang (1998) argue that rapid growth and economic development in the country were hindered by direct state intervention in the economy as well as the control of import substitution policies and import parity pricing between early 1920s and early 1990s (Walker & Jourdan, 2003). Currently the South African mining industry is one of the most developed industrial clusters with extensive technology research and expertise in geosciences.

Capital equipment consists of the machinery and equipment that is used in production. Capital equipment manufacturing and its related activities present an opportunity for fostering industrialisation and regional integration due to the large scope for developing productive

capabilities through aftermarket services and strong complementarities between mining, construction, rail infrastructure and agriculture. However, capital-intensive economies such as South Africa have failed to diversify out of the core base within the minerals-energy complex and are experiencing a hollowing out of capabilities. It is important to understand the needs of the individual manufacturing industries.

From 2000-2008, the production of capital equipment grew by nearly 6%, growth then flattened after the global financial crisis of 2008/9 with production declining approximately 2.3% per year from 2012 to 2016 (Makgetla et.al, 2019). This decline is in line with the end of the metals price boom and the slowdown of the economy (Quantec; 2017). Throughout the metals boom until 2008, capital equipment lagged behind the rest of the manufacturing sector. This trajectory changed from the financial crisis, while the manufacturing industry led by metals declined, capital equipment increased from 6% in 2006 to 8% in 2010, and then levelled out despite its falling production (TIPS; 2017).

4.2.1 Contribution to GDP

Capital equipment employed approximately 140 000 workers for the fourth quarter of 2019 (StatsSA, 2020). Compared to the rest of the manufacturing industry, education levels in capital equipment are higher with 35% who did not have matric, 38% with a matric, 23% with matric and a diploma. The rest of manufacturing had 52% with no matric, 36% with matric and 9% with matric and diploma. A quarter of capital equipment workers had a university degree in contrast to just over a tenth in other manufacturing industries.

Looking at race, the share of whites in capital equipment production was almost twice that in the rest of manufacturing, while the share of African and Coloured workers was relatively low. Whites made up 30% of employment in capital equipment, compared to 14% in the rest of manufacturing. By gender, women made up less than a quarter of the labour force, compared to a third in the rest of manufacturing (Quantec; 2017).

Geographically, Gauteng is by far the largest employer in capital equipment with 59% in 2015, followed by the Western Cape with 12%. The share of Kwa-Zulu Natal dropped from 13% in 2008 to 6% in 2015. The Eastern Cape has a significantly smaller share. The location of manufacturing can be understood in how it was embedded in apartheid geography. Currently,

only a tenth of manufacturing employment is in the former "homelands' regions where around a quarter of the population lives (ibid).

4.2.2 Profitability

In 2015, employment costs accounted for three quarters of value add in capital equipment. After-tax profits were 16% compared to 26% in the rest of manufacturing. The rand value of assets in the manufacturing industry grew 67% from 2009-2015, whilst just 18% in the production of capital equipment. Therefore, the share of capital equipment total manufacturing assets dropped from 10% to 8% over this period (Makgetla et.al, 2019). Manufacturing sales in constant terms regained most of its loss in the third quarter of 2019, rising by 10%. In 2019 overall manufacturing sales decreased by 4.1%. The only growth was seen in food and beverages with an increase of 1.8% and capital equipment with an increase of 2.2%. All other subsectors saw falling sales.

4.2.3 Market Structure

The Labour market Dynamics Survey for 2015 found 5 000 formal enterprises were in capital equipment, compared to 60 000 in the rest of manufacturing, and 671 000 for the entire economy (StatsSA, 2017). South African manufacturers of capital equipment mainly produce for mining, construction, electric power generation and distribution and food processing. The top manufactures of capital equipment in South Africa are essentially all linked to foreign OEMs, as subsidiaries or through licenses. This does not mean there is no scope for smaller companies. They can be seen as ensuring a responsive, flexible capital equipment supply to industry as they play a significant part in the design and installation of capital equipment for companies in manufacturing particular products and in providing after-sales maintenance, service, and repair (Makgetla et.al, 2019).

4.2.4 Trade

South Africa imports substantially more capital equipment, and more diverse products than it exported. South African imports of capital equipment climbed through 2014 then fell sharply, which could be due to the combination of the end of the metals price boom, depreciation which increased the cost of imports in rand terms and the overall slowdown in investment. Capital goods accounted for around 15% of total imports.

South Africa imports a range of capital equipment, from plastic packaging machines to heavy earth moving equipment. However 2010 saw a growing share of electrical equipment; mostly generators which climbed from 1% to 4% in 2010 and 2016 respectively. From 2010 to 2014 earth moving equipment imports more than doubled then dropped by 45% in constant rand value (TIPS;2017). Imports of capital equipment came mainly from Europe, China, the US, and Japan. China's share climbed from nearly zero in 2000 to 17% in 2010 and to 23% on 2016.

Capital equipment exports accounted for 7% of total exports, which was dominated by machinery for mining and construction, and electrical machinery and equipment. South African capital equipment exports for 2017 were R178 billion. Only R6 billion of these exports were into the African market, thus, while Africa is a strategically important market, it is not a particularly big market.

South Africa's biggest African trade countries, are six nearby countries- Namibia, Zambia, Mozambique, Zimbabwe, and the Democratic Republic of Congo (DRC). There is potential to develop mutually beneficial industrial capabilities by leveraging South Africa's capabilities in capital equipment into the above African countries. This will require a collaborative approach to regional industrial development and policy that is structured not just around expanded market opportunities but fundamentally on developing local manufacturing capabilities and competitiveness across the region (Langa; 2018).

4.2.5 The South African Mining Supply Chain

Strengthening existing and rejuvenating lost linkages between the mines and the supplier industry is important for three main reasons. Firstly creates a 'virtuous cycle of innovation' at all levels of the cluster. Demand from the mines drive the research and development (R&D) process. This demand from purchased inputs enable producers to undertake productivity enhancements, which is only possible with the introduction of new technology in capital goods and services. This virtuous cycle creates a sophisticated and internationally competitive supplier industry (Walker, 2006).

Secondly, the supplier network has emerged as a significant generator of output, employment, skills, and foreign exchange in its own right due to the volume, scale and range of products required by mining companies. Lateral migration emerged as suppliers modified and adapted

generic technologies and products for use in other industries where commercial rewards are higher (e.g. mining conveyor systems used in construction or food processing) (Walker; 2006).

Lastly as manufacturing sectors exhibit greater learning effects than primary sectors it is argued that South Africa will only catch up with other countries if it is able to export technology based manufactures (Walker, 2006) .Therefore, the country needs to build on what it has by leveraging off our resources and resource technologies just as countries such as Finland, Sweden, and Canada. These countries successfully leveraged off the know-how required in the capital goods and services supporting resource-based industries to facilitate the transition away from low-valued primary-based activities to high-tech, knowledge-based export-oriented growth (Walker; 2006).

4.2.6 Clustering and linkage development

Literature defines a cluster as a 'concentration of expertise among closely linked industries and companies in which extensive investment in specialised factors of production catalyses a positive growth trajectory' (Walker, 2006). The group of producers, customers and competitors promote efficiency and increases specialisation which results in economies of scale and scope. Successful clusters have a vibrant entrepreneurial base of networked and interdependent firm which accelerate the pace of innovation, attract investment, stimulate job creation, and generate wealth (Walker, 2006).

The notion of linkages is at the core of the cluster concept. Economically, linkages refer to situation where a particular activity requires the use or involvement of other activities in order to be viable (Hirschman; 1958). Better analysis of how backward linkages developed in the mining sector is required in order to understand what constraints are currently hindering the development of further backward linkages within the supply chain.

Historically gold was the dominant mineral mined in South Africa which played a key role in driving growth and development in South Africa. However since the 1980s more and more foreign exchange earnings came from Platinum Group Metals (PGM) comprising of platinum, palladium, rhodium, ruthenium, iridium, and osmium. Not only is it a major source of employment but it is also currently the highest earner in the domestic mineral industry and is experiencing the most expansion, therefore opportunities for backward linkage development are significant. Furthermore, the complexities of the ore-bodies geologically, the increasing

depth of operations and the constant need to reduce costs and improve operational efficiencies at the producer level requires a high degree of technological innovation and product development (Lyndall, 2009).

There are two factors that have contributed to making PGMs the dominant contributor to industrialisation and economic growth in South Africa; namely factor conditions and demand conditions.

Factor conditions refers to the comparative advantages of the PGM industry; mineral endowments as well as local capabilities and expertise associated with extracting, processing, smelting and refining orebodies.

South Africa possesses more than 80 per cent of the world's platinum reserves, and is the world's largest PGM producer. These resources occur together with the world's largest reserves of chromium and vanadium ore in the Bushveld Complex, a geological formation that extends through the Northwest, Limpopo, and Mpumalanga provinces (Lyndall, 2009). The mineralogy of these orebodies is quite distinct and has necessitated a considerable amount of collaborative R&D and long term innovation to develop the processes and techniques to exploit them (DME, 2004).

The PGM industries success is partly attributed to the extensive foundation of accumulated knowledge and expertise in the extraction and processing of various other minerals in SA that existed prior to the exploitation of the Bushveld Complex. The fact that there were no 'off-shelf' technologies that had existed with which to process them, a considerable amount of local R&D and innovation was required. By leveraging this existing culture of entrepreneurship, innovation and manufacture of specialised products and services developed around other mining activities such as gold and diamonds, appropriate technologies and processes were developed, notable Mintek's process for the treatment of UG2 ores in 1980s.

A competitive supplier base is established if there is a strong enough demand in the local customer base. The existence of a source of domestic demands for goods and services over a long period of time has played a critical role in the evolution of the PGM industry (Lyndall, 2009). This demand has been shaped by developments both locally and internationally. Internationally, the demand for PGMs is influences by global end-user market patters and

commodity pricing trends. Russia and South Africa are the two leading producers of PGMs in the world. The principal product mined in Russia is palladium while in South Africa it is platinum. This provides South Africa with a unique comparative advantage given that the two largest markets for platinum are jewellery and auto-catalysts. Thanks to the expanding Chinese jewellery industry and increasing regulations regarding emission control in the European automobile sector, global demand for South African platinum has increased (Walker & Jourdan, 2003).

Locally however, the demand patterns have been influenced by commodity cycle and exchange rate trends. When prices have been favourable new Greenfield and expansion (brownfield) projects have been planned with spill over effects into the supplier industry. Conversely, when prices have been high projects have been put on hold resulting in uncertainty and instability within the supply chain.

Nationally, demand is influenced by three factors. Firstly, macroeconomic changes such as increased liberalisation of the South African economy in the 1990s as well as legislative changes such as the Broad-based Socio-economic Empowerment Charter facilitated new foreign entrants. Secondly, the need to improve productivity has created a positive spill over effect into the supplier chain (Lyndall, 2009). Lastly, competition amongst producers and the technical challenges associated with the geological and metallurgical nature of the orebodies have fuelled the demand for locally available goods and services industries.

Three main types of linkages have emerged between the PGM producers and mining capital goods and services cluster as a consequence of the above stated demand and factor conditions: vertical; horizontal and technological linkages.

Vertical Linkages

The most obvious linkage is where demand from the platinum producers impacts on the supplier network through the various levels of the supply chain. The greater the value offered by a firm in the supply chain to increasing operating efficiency and productivity of the end user, the greater the flow of resources. This capital transfer between the end user and the vendor in turn stimulates further exchanges, as the vendor expands, either through innovation or increased business, its dependence on other service and supplier firms in other sectors also increases. This results in new contracts with new suppliers thus broadening the supply base.

Horizontal Linkages

This is where the development of capabilities and knowledge in once firm enables other firms to attempt developments not otherwise considered possible. Given the high risks and cost involved in developing and testing a new product in the mining industry, there is often a high degree of collaboration and interaction between firms.

Technological Linkages

Linkages also arise within the individual stages of the production chain, generally technological in nature and relate to the efficient operation and productivity of a specific piece of equipment or process in the chain. Each plant/ operation are all individual systems composed of numerous high-tech components, yet are all closely linked and integrated with preceding and successive stages. The breakdown of any one component in the chain can influence the overall economic viability of the production process (Walker, 2005).

4.3 Original Equipment Manufacturers

Large capital equipment can be bought directly from an OEM or through agents during a mining companies development phase. OEMs are highly specialised and generally offer expertise/inputs in only one or two product areas (Walker, 2006).

There is a diversified base of OEMs operating in the country. Most OEMs involved in the mining and mineral processing stages of the PGM production chain are branch offices or subsidiaries of foreign multinational firms with a long history of involvement in the global minerals industry (Lyndall, 2009). Due to the small local market for large pieces of capital equipment, most bulk materials handling, underground drilling and hauling, and mineral processing equipment used in the PGM industry are foreign brands. Most local OEMs providing inputs to the extracting and processing stages are specialised in niche areas such as hauling, drilling, and crushing and have emerged and expanded through close interaction with the mining industry over a long period of time, manufacture equipment under foreign licence or act as distributors and agents or assembled products. A distinctive feature of the OEMs operating in South Africa is that most are export-oriented in nature and supply a diverse range of industries and commodity groups in addition to PGMs. Although the rate of new start-ups is low (given the high degree of foreign representation and specialised nature of the products

supplied), there has been a considerable amount of consolidation and formation of partnerships in the sector (Lyndall, 2009).

The degree of value added to the products manufactured by OEMs has increased in the past few years, however, as the core technology underpinning such products is high-tech in nature and tends to be held by the parent company based overseas, the actual value added to South Africa in terms of broadening the local technological base has been low.

CHAPTER FIVE

5.1. A comparison of Mining Charter of 2010 and 2018

As mentioned previously, the BEE Mining Charter was first developed in 2002, and amended in 2010. The Charter was developed, following the Minerals and Petroleum Resources Development Act (MPRDA), as a tool to drive transformation in the mining industry. The third instalment of the Mining Charter (the "2018 Mining Charter") was gazetted on 27 September 2018.

It introduces some new targets and measurement criteria to accelerate transformation within the industry. The Mining Charter III (MC III) is also better aligned with compliance measures and criteria used in the Department of Trade, Industry and Competition (DTIC) Broad-Based Black Economic Empowerment Codes of Good Practice (B-BBEE Codes).

5.1.2 Principal Changes

The Mining Charter III introduced a new concept by declaring Ownership and Mine Community Development as, what is termed, ring fenced elements, which requires full compliance. The DTIC's B-BBEE Codes similarly declared Ownership, Skills Training, and Enterprise and Supplier Development as priority elements which require a 40% sub-minimum compliance. Rights holders that fail to comply fully with the ring fenced elements of the MC III, are automatically deemed non-compliant, irrespective of their scoring in the weighted elements, which are weighted as follows:

30% - Employment equity

40% - Procurement, Supplier and Enterprise Development investment

30% - Human Resource Development

Housing and living conditions is neither weighted nor ring-fenced but does form part of the scorecard.

Although there is more alignment between the MC III and the DTIC's B-BBEE scorecard, it would be beneficial if the charters compliance gave rights holders a corresponding DTIC B-BBEE recognition level. Without this, it will lead to additional costs in reporting (twice), monitoring and compliance. A mining rights holder that fails to meet a 50% compliance which is level 5 and lower, or does not reach full compliance with the ring fenced elements is deemed to be in breach of the MPRDA, and non-compliant.

Figure 3 DTIC Ring Fenced Scorecard

DTI Levels	DMR Scorecard	Ring Fenced Elements + Percentage Weighting
Level 1	Ring fenced elements + 100%	**Compliant**
Level 2	Ring fenced elements + 80 - 100%	
Level 3	Ring fenced elements + 70 - 80%	
Level 4	Ring fenced elements + 60 - 70%	
Level 5	Ring fenced elements + 50 - 60%	
Level 6	Ring fenced elements + 40 - 50%	**Non-compliant**
Level 7	Ring fenced elements + 30 - 40%	
Level 8	Ring fenced elements + 20 - 30%	
Non-compliant	Ring fenced elements + <20%	
Non-compliant	Ring fenced elements not met + weighted element score	

Source: The Department of Mineral Resources, 2018a

5.1.3Transition period

Rights holders must progressively align with existing targets. The MC III came into effect on 1 March 2019 with the first annual reporting scheduled before/on 31 March 2020. Ownership grants a five-year transition period to pending applications to comply with the new 30% Black Economic Empowerment (BEE) shareholding target. New mining rights must have a minimum of 30% BEE shareholding, i.e. host community, qualifying employees, and BEE entrepreneurs. Pending applications need to comply with the 2010 Mining Charter's (MC II) 26% shareholding, but will have to increase their minimum BEE shareholding to 30% within five years. Existing mining rights which have achieved the MC II 26% shareholding requirement – also if the BEE partner(s) has since exited – are recognised as compliant for the remainder of the right. However, upon renewal or transfer, the rights holders would have to comply with the minimum 30% BEE shareholding.

5.1.4Application to precious metals

The application of the MC III targets and elements to the diamonds and precious metals licensees will be as per their status as exempt micro enterprises, qualifying small and micro enterprises and medium to large entities respectively (administered under the regulator for the Diamonds and Precious Metals Acts).

5.1.5 Inclusive Procurement, Supplier and Enterprise Development (IPSED)

Inclusive procurement, supplier, and enterprise development (IPSED) or Enterprise and Supplier Development (ESD) has formally been included in the procurement element in the MC III, having previously formed part of Mine Community Development. The objective of ESD aligns with the DTIC B-BBEE Codes in creating a local industrial base. These objectives according to the DTIC B-BBEE Codes, are:

1. *To **strengthen local procurement** in order to help build South Africa's industrial base in critical sectors of production and value adding manufacturing, which are largely labour-intensive industries.*

2. *To **increase local procurement** through capacity building, achieved by incentivising appropriate local supplier development programmes by businesses supplying imported goods and services.*

3. *To **actively support procurement** from black owned Qualifying Small Enterprises (QSE) and Exempted Micro Enterprises (EME) by identifying opportunities to increase procurement from local suppliers in order to support employment creation.*

"Up to 30% of the total procurement budget on mining goods excluding non-discretionary expenditure may be offset against supplier development." ESD can only be done for; 50% + 1 vote or more HDP owned and controlled companies with the company turnover of less than R50 million.

MC III allows supplier development through Original Equipment Manufacturers (OEMs), creating collaboration opportunities between rights holders and their OEMs. The implementation guidelines have a section on the collaboration, which allows for supplier development of HDP, women, or youth owned and controlled companies or B-BBEE compliant companies with a minimum of 25% + 1 HDP ownership and level 4 B-BBEE recognition. Importantly, supplier development through OEMs is only allowed if the particular supplier development project does not already form part of the OEM's equity equivalence programme.

The MC III places high importance on local procurement, with the IPSED element the highest weighted contributor to the overall compliance scorecard with 40% out of the 100%. Where capital goods and consumables spend was a category on its own in the MCII, the MCIII have consolidated them into a mining goods spend category. The mining goods are also required to

be proportionately made up of South African manufactured goods, which only qualify if at least 60% of the content is local, as certified by the South African Bureau of Standards (SABS). The specified percentage of mining goods needs to be distributed in a specific manner between the following categories: Historically Disadvantaged Persons (HDP) owned and controlled entities, women owned, and youth owned and controlled companies, as well as BEE compliant entities.

Figure 5 IPSED Procurement Budget Score Card

SCORECARD

Element Description	Compliance Target (%)	Measure	Weight (%)
Total procurement budget spend on goods and services	Procure 70% locally manufactured mining goods with a 60% local content	21% of total mining goods procurement budget must be spent on South African manufactured goods produced by HDP owned and controlled company	5%
		5% of total mining goods procurement budget must be spent on South African manufactured goods produced by women owned and controlled company or youth owned and controlled company	5%
		44% of total mining goods procurement budget must be spent on South African manufactured goods produced by BEE compliant company	5%

5.1.6 Application to DTIC B-BBEE Codes

The MC III aligns more, with the DTIC B-BBEE Codes. This is evident from the inclusion of women and youth owned companies, as well as BEE compliant companies, which must have both equity empowerment credentials, and level 4 B-BBEE recognition. This measure incentivises BEE compliant companies to drive transformation and socio-economic impact through their own compliance with various elements of the B-BBEE Codes. The MC III IPSED element is thus in line with the evolving South African preferential procurement landscape, as highlighted by the ongoing amendments to the B-BBEE Act and Codes of Good Practice since 2007.

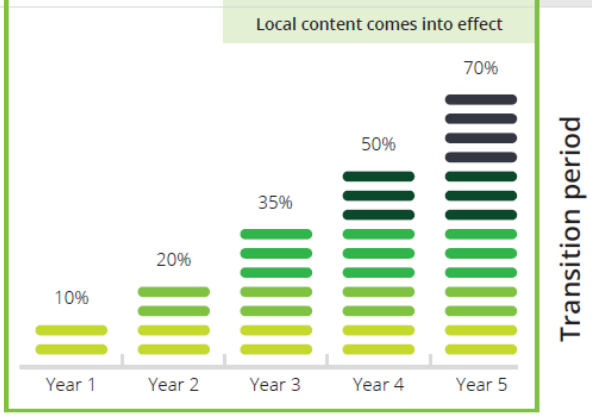
5.1.7 Mining goods

A 70% minimum of the total mining goods budget needs to be spent on South African manufactured goods, and spent with HDP, women and youth owned and controlled companies, as well as BEE compliant companies. This excludes non-discretionary expenditure, which also eliminates buildings, lubricants, roads, and fuel as stated in the Implementation Guidelines.

A five-year transitional period is permitted, with the first year set at 10% of the procurement budget, increasing progressively from there. Furthermore, rights holders must submit a five-year plan indicating their progressive implementation within six months from the MC III publication date.

Figure 6 Mining Good Procurement

Mining Goods Procurement							
Measure	Transition Period					Compliance Target (%)	Weight (%)
	Year 1	Year 2	Year 3	Year 4	Year 5		
% of total mining goods procurement budget must be spent on South African manufactured goods produced by HDP owned and controlled companies	3%	6%	10.5%	15%	21%	21%	5%
% of total mining goods procurement budget must be spent on South African manufactured goods produced by women owned and controlled companies or youth owned and controlled companies	0.71%	1.43%	2.50%	3.57%	5%	5%	5%
% of total mining goods procurement budget must be spent on South African manufactured goods produced by BEE compliant companies.	6.29%	12.57%	22%	31.43%	44%	44%	5%



Author: Minerals Council 2018

Lastly, the procured mining goods' local content verification needs to be done by the SABS or another entity as chosen by the Minister. The SABS certificates are not required for the first two transition years. In order to determine if a mining good can be labelled local or not, two elements need to be considered; the intrinsic local content value of the mining goods and the ownership profile of the supplier. Local content is defined by gaining a detailed understanding of the mining good, including the origins of its subcomponents and other inputs, from basic components to materials, labour, assembly, and other costs, such as logistics. The local content levels of these various inputs results in a composite local content level score for the final mining good.

The Mining Charter III has provided a guiding formula for how the basic local content level should be determined.

LC = [(B – C) /B] X 100

- *LC – Local content percentage*
- *B – Sales price of the mining good*
- *C – Value of the imported inputs/components used in the assembly or manufacturing of the mining good*

The local content formula for mining goods essentially determines the difference between the sales price of a capital good, component, or consumable and the related import costs.

5.2 Has the Mining Industry Transformed?

Despite the South African mining industry being a critical component of the economy, there is a commonly held perception that mining companies are not compliant and in fact are resistant to the Mining Charter. The Minerals Council of South Africa assessed the progress made by its member companies based on the 2018 compliance report submissions to the Department of Minerals, Resources and Energy. It focused on five fundamental elements of transformation, namely *Ownership*, *Procurement*, *Employment Equity*, *Human Resource Development* and *Mine Community Development*. These results are based on the Mining Charter of 2010 compliance. Of the seventy-eight (78) Minerals Council members in 2018 (membership increased to 84 in 2020), thirty-two (32) provided their reports for analysis. These 32 members collectively hold ninety-seven (97) mining rights which represented 93% of the employee base

of members of the Minerals Council. Therefore, whilst the majority of companies did not supply their reports, those that did are generally the larger companies.

The aggregate industry and commodity-based results are presented on the following basis:

- Percentage compliance: Calculated as the proportion of the sample companies that met the minimum targets for each element,
- Weighted average: Calculated as the achievement score weighted against the employee headcount (Ownership and Employment Equity) or the proportional contribution to the total industry value (Procurement, Human Resource Development and Mine Community Development) and,
- Simple average: Calculated as the cumulative sum divided by the number of mining rights, without giving weight to the varying sizes

5.2.1 Ownership

Based on 93 mining right holders, who represent approximately 83% of the mining industry based on total employee numbers. The industry achieved 39,2% Historically Disadvantaged South African (HDSA) ownership which comprised of 22.3% BEE entrepreneurs, 9.4% communities and 7.5% Employee Share Ownership Plan (ESOP). HDSA ownership increased to 38%. 80 out of 93 individual mining right holders achieved at least 26% HDSA ownership which represented 1% of the overall sample. The remaining 13 holders did not meet the minimum Mining Charter ownership target. Meaningful economic participation is achieved when i) a minimum of 26% BEE ownership, ii) clearly identifiable BEE shareholders, iii) trickle cash flow in the form of dividends and iv) voting rights are met. Only 22 out of the 93 mining right holders created meaningful economic participation, which is 23.7%.

In 2018 these 32 members who submitted reports, generated a net value of R132 billion through BBBEE transactions, representing a decline of 16.8% in comparison to the R159 billion generated in 2016. Overall, for the periods between 2002 and 2010 just before the introduction of the Mining Charter, a total of 168 BBBEE transactions were performed with a value of R113 billion. After 2010, however, this number was significantly lower with 67 total BBBEE transactions valued at R30 billion.

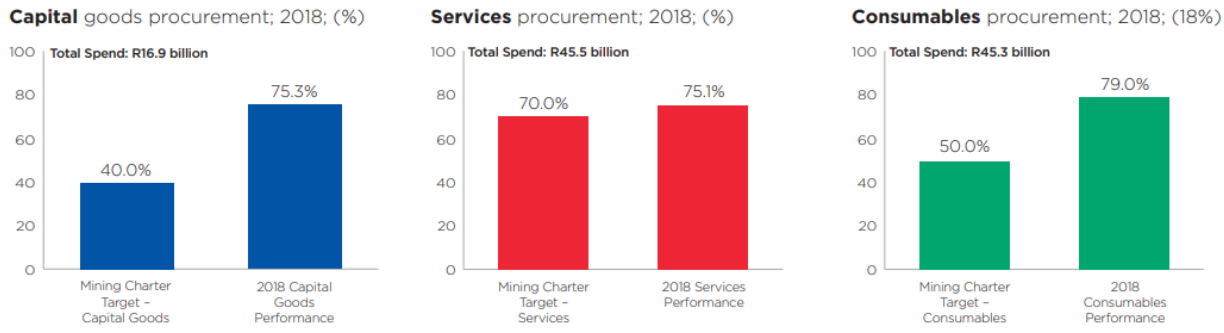
On the commodity front, manganese miners had the highest BEE shareholding with 74.8% followed by the PGMs with 52.2% HDSA ownership (on the industry weighted average basis).

"Other resources" represented 21.4% HDSA owned, falling below the 26% Mining Charter 2010 ownership target. BEE entrepreneurs own a majority of shareholding compared to mining communities and employees. Only manganese, PGMs and iron ore have significant community shareholding while other commodities have limited community representation.

5.2.2 Procurement

Based on eighty-seven (87) mining right holders which represent approximately 80.3% of the mining industry based on total employee numbers, the overall percentage of procurement from BBBEE entities exceeded targets in the three reporting categories of capital goods, services, and consumable goods. Whereas the Mining Charter of 2010 target was 40%; BBBEE entities incurred 75.4% of expenditure on capital goods. This equated to the amount of R16.9 billion spent on the procurement of capital goods from BBBEE entities in 2018. Furthermore, 79.0% of consumable goods were procured from BBBEE entities at a cost of R45.3 billion. The Mining Charter 2010 target was 50%. Concerning procurement of capital goods, all commodities met the 40% Mining Charter 2010 requirement except from Clay miners who achieved 5.9%. The top three commodities (Coal, PGMs and Gold) by rand value have a cumulative discretionary procurement spend on capital goods of R16.8 billion, of which R12.6 billion is spent on BEE companies.

Figure 7 Capital goods, Services and Consumables Procurement



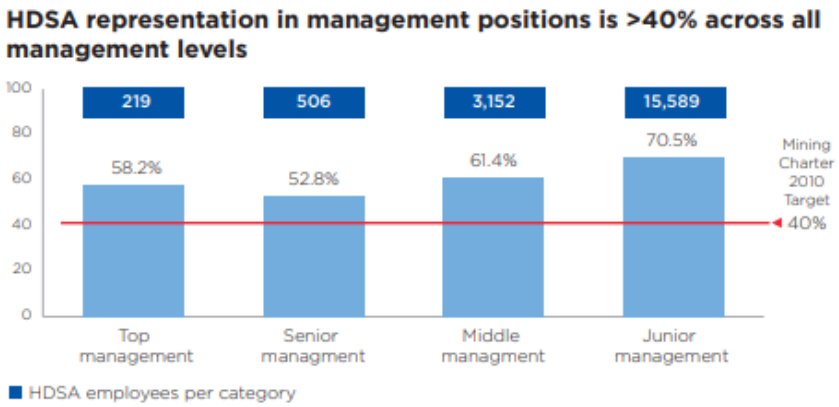
Author: Mineral Council 2018

Regarding the contribution to the Social Fund, only 32 mining right holders reported amounts incurred from procuring capital goods from multinational suppliers. Therefore the weighted average industry percentage contribution to the Social Fund is 1.36% and exceeds the Mining Charter 2010 target of 0.5%.

5.2.3 Employment Equity

Ninety-two (92) mining right holders represents approximately 81.3% of the mining industry based on total employee numbers. Looking at management representation: in 2018, 58.2% made up top management as opposed to 49.3% in 2016. Middle management comprised of 61.4% compared to 49.8% in 2016. Finally, 70.5% of junior management were HDSA's compared to 2016s 58.0%. The average rate of women representation is 19.8%, an increase from 13.0% observed in the 2016 analysis of employment equity.

Figure 8 HSDA Representation in Management



Author: Minerals Council, 2018

5.2.4 Human Resources Development

Eighty-eight (88) mining right holders represented approximately 81.6% of the mining industry. In addition to the 1% of payroll skills development levy, the Mining Charter 2010 required mining right holders to spend 5% of their annual payroll on Human Resource Development (HRD). In 2018, mining right holders spent 4.8% of their annual payroll on HRD, with an expenditure of R3.3 billion plus a skills levy payment of R0.7 billion. There was a 13% reduction in the HRD spend between 2016 and 2018, with mining right holders spending 5.5% of their annual payroll in 2016.

Other training initiatives such as work placement programmes, vacation work programmes, short courses accounted for 48.9%, the most significant share of HRD spend. Learnerships accounted for 17.1% while artisans and apprentices accounted for 11.5%. Diamond mining companies had the highest percentage HRD expenditure at 7.8%, followed by chrome at 7.2%

and other commodities, comprising of silica, vanadium, and limestone at 6.8%. However, PGMs, coal and clay failed to meet the minimum requirement of 5% HRD expenditure.

5.2.5 Mine Community Development

Eighty-five (85) mining right holders represented approximately 80% of the mining industry. The Mining Charter of 2010 did not set universal spending targets on mining community development (MCD). However, locally, and internationally, a target of one percent net profit after tax (NPAT) is considered a reasonable target for corporate social investment. Of the 488 programmes in 2018, 432 went through consultation processes with communities. 374 out of 482 programmes were aligned with community needs thus representing 73% of the total programmes. R1.32 billion was spent on MCD programmes representing 7.4% of NPAT. (Minerals Council SA; 2019).

Mining companies focused mainly on infrastructure programmes to the tune of R576 million or 43.7% of total spend. Conversely, job creation, health, environmental, and recreational programmes received the least expenditure, each representing less than 2% of total spend. MCD spend should prioritise programmes that foster long-term sustainable job opportunities, considering that the majority of community protests are due to lack of jobs and other economic opportunities within the industry value chain.

5.2.6 Challenges Identified

With regards to ownership, the financial impact of these changes on the rights holders, considering the current economic climate, is uncertain. This especially applies to financial costs relating to the supplementing of BBBEE shareholding, the carried interest for host communities and qualifying employee shareholders. In respect to the definition of qualifying employees, the question arises whether one can legally differentiate between employees with regard to who can and cannot participate in the shareholding. It is uncertain how existing mining rights which have not met the 26% BBBEE shareholding will be treated. On the employment equity front, the department of Mineral Resources and Energy communications which refer to black employees can create interpretational uncertainty. For some reason, the disabilities target of 1.5% in the 2018 Charter is lower than the 2% target stated in the DTI B-BBEE Codes. Furthermore, it also includes an EAP overlap with no clear rationale.

In respect to human resource development, the misalignment with the DTI B-BBEE Codes undermines the importance of implementing training according to the learning programme matrix. The Mining Charter is silent on emphasising portable skills training that offers trainees alternate employment opportunities. This is a critical consideration in a cyclical industry that is affected by ongoing digitisation and automation. When R&D investment is spent on entities rather than individuals, it remains uncertain how it should reflect demographically. If it refers to historically black institutions, the definition is unclear as many historically black or white institutions have merged. As a result, ensuring and proving that investment reflects demographics would be difficult, which exacerbates the already challenging compliance reporting landscape.

It is uncertain whether SABS has the capacity to administrate additional duties. This could result in administrative and financial burdens for stakeholders in the mining goods value chain, when trying to implement inclusive procurement, supplier, and enterprise development. The local content requirement may pose a problem – only a few South African companies have the capacity to produce sophisticated capital goods required in the mining sector. New procurement exclusions, such as buildings and roads, are broad and it is unclear as to which items are excluded and which are included. Although the Charter refers to women owned companies, there are areas in the implementation guidelines which specifically refer to black women and not just women.

The absence of an explicit and financially measurable mining community development targets, creates uncertainty around compliance expectations and the magnitude of MCD efforts required by rights holders. Even with the 2018 Charter identifying the publically available SLPs as the main driver of MCD requirements, uncertainty remains around the targets, timelines, and expectations that will be accepted by the DMRE.

5.3 Conclusion

86% of the sample, accounting for a total of 80 out of 93 mining right holders met the minimum 26% HDSA ownership requirement. That said, the 13 mining companies that did not meet the target account for one percent of the sample data. Although, BBBEE entrepreneurs hold the majority of HDSA ownership, the majority of the BBBEE transactions hjx;d as outlined in the

Mining Charters definition. In line with the definition, only 22 mining right holders, that is 23.7% of the sample, created meaningful economic participation.

The sampled mining right holders exceeded the minimum HDSA representation thresholds outlined in the Mining Charter 2010. However, across the different management levels, HDSA representation in crucial decision-making positions, top and senior management levels, is still relatively low, and women are still under-represented across all management levels. The sampled mining right holders spent 4.8% of their annual payroll on HRD which does not meet the minimum Mining Charter 2010 compliance target of 5%. In 2018, 89% of Mining companies consulted communities regarding their development programmes, which reflects the gap in consultation as the aim is to have 100% of all projects implemented go through the required community consultation processes, which will ensure that all programmes are aligned to the community's needs (Minerals Council SA; 2019).

CHAPTER SIX

6 Local Johannesburg Case Studies

This section presents the findings from the analysed data that was collected from the five partcipants who took part in the study. The manager or senior director of the specific firm was requested for a few minutes of their time to answer the survey questions. The collected data was transcribed, and the descriptions and information are provided in a narrative form below

6.1 Case Study 1: Isidingo Drill Design Challenge

The senior manager at Isidingo Drill Design agreed to participate in the study. The Mandela Mining Precinct is a public-private collaboration between the Department of Science and Innovation (DSI) and the Minerals Council of South Africa, and was launched on 14 September 2018. As mentioned earlier, the Mandela Mining Precinct (MMP) mandate is to facilitate the development towards modernisation of mining through research and development and developing South African mining equipment manufacturing capability. The rationale behind this is that modernisation is often seen as mechanisation, while in essence it comprises a broad array of activities. Mechanisation is a subset of modernisation. But it does require development of technologies, systems, processes that can lead to commercial opportunities.

If South Africans do not take the opportunities, then foreign OEMs come into the market and dominate, they do not have the intellectual property registered in South Africa so when they leave they take all of that with them. Therefore, as a result where there is potential job displacement due to technological advances and it is not taken up by South Africans then it is a lose-lose situation, because foreign OEMs are coming in, jobs are displaced. If you have local manufacturers taking up those opportunities, then wherever there is displacement in mining you are creating a counter in the manufacturing space. This however is not a one-for-one, if you have one job lost in mining it is not a guarantee that one job will be created in manufacturing, nor is it guaranteed that that person who loses a job moves into the manufacturing space.

The Mandela Mining Precinct engages with the client which are mining companies, they identify the problem and come up with the research and development solution. The Precinct then partners with the OEMs providing them the opportunity to develop into a commercial product in order to supply the mines. If that solution is deemed viable, then there is already a market for it. So in essence the Mandela Mining Precinct has already done a market assessment

for any technology that is needed. Thus making it easy for the local OEM to come in and say I can make the product and they start that relationship within the commercial process.

Although the MMP was launched in 2018, the research part of identifying the gaps and challenges took longer than expected due to the history of where South African mining research and development (R&D) capability is the moment. Historically, South African Mining R&D was strong; the building they are currently in employed 700-800 people strong but by 2015 there were a mere seven people. Therefore, the entire building was shut down, and the seven staff members were moved to Craighall Park save for a caretaker and cleaner.

The Isidingo Drill Design Challenge was an open-innovation concept aimed at attracting innovative thinkers to design and develop a new-age rock drill. The current machines use too much energy, are too loud and heavy, and prone to large vibration resulting in fatigue, noise-induced hearing loss and white-knuckle syndrome, directly impacting the quality of life of rock-drill operators. Entrants of this challenge needed to design a drill that reduced the weight of the drill from between 28 kg and 32 kg to no more than 16 kgs. It needed to be quieter with noise levels of less than 85 decibels. It also needed to be easier to use with set-up and take-apart time of between 10-15 minutes. It needed to utilise an alternative source of energy other than compressed air, have the ability to drill parallel holes and reduce operator danger. The challenge was open from 20 August – 18 August 2018.

Phase 1 of the competition received 11 submissions of the concept designs from GST, Drill Rod Specialist, Fermal, Isithelo Mining, Engineering Design Lab, HPE, University of Pretoria, Novatek, Fabchem Mining, Shaw Equipment and HI Mining. After a rigorous evaluation process, three local original equipment manufacturers, advanced to the 2nd phase of the competition, which required them to develop the proof-of-concepts. Unfortunately one OEM said they would not be able to meet the deadline. The 3rd and final phase of the challenge comprised of the prototypes being delivered to the Mandela Mining Precinct in October 2019. Both HPE and Novatek prototypes were successfully tested and met the primary criteria that will enhance the performance of the drill, reduce the exposure of operators to dangerous conditions and immediately contribute to zero harm. After extensive underground testing, it will move into the commercial stage.

One can see how the Mining Charter Three fits in with the Mandela Mining Precinct. The charter calls for high level of localisation and local equipment to be brought into the mining

space. MMP identifies the technological advancements that can be used in mining as well as the local manufacturers who can do it. Mining houses have readily used the excuse that they did not know a local company had the capability. The Mandela Mining Precinct and Mining Equipment Manufacturers of South Africa (MEMSA) launched the *Technology Availability and Readiness Atlas* (TARA) on 12 November 2020 as part of the Council for Scientific and Industrial Research (CSIR)'s 7th biennial conference held in Pretoria. The objective of Mining TARA is to make information on South African mining equipment and technology directly available, via a central portal, to the South African and international mining companies. The *availability* part talks to what is commercially available off the shelf that you can buy and implement. The *readiness* part is linked to the NASA system of technology developments, it's called technology readiness levels (TRL), TRL1 is when you have an idea, TRL3 is when you have drawings to explain your idea and what materials it will consist of, TRL6 is a prototype and TRL9 is where you can sell it.

TARA, tracks a developing piece of equipment and where they are on the level of readiness. We have created this database that now allows local manufacturers to demonstrate and advertise what they want. Similarly to Auto trader, you put in your specifications, the database pulls out all those manufacturers, the datasheet then provides all the specifications of what that piece of equipment can do.

The Mandela Mining Precinct offers to validate that the equipment does in fact do what the OEM says. Furthermore MEMSA also provides a stamp in which it states the OEM meets the local content and black ownership criteria, resulting in that piece of equipment being visible, verified and certified as to what the local content is. That process has never been in place for South African companies. Now mining companies do not have an excuse not to use local, they would have to provide valid reasons why they chose to do business with an overseas company over local.

6.2 Case Study 2: Drill Rod Specialists

Christina Zondi is a black South African female who started in the industry as a metallurgist working for Hullet Aluminium Pty (Ltd). In 2010 she became a Quality Manager at Sandvik, a multinational engineering company with operations within tooling systems for metal cutting, additive manufacturing, equipment, and tools, as well as services and technical solutions for

the mining and construction industries. As Sandvik was leaving South Africa, she and her business partner were offered an opportunity to exclusively supply Sandvik. In 2014 she started working for Drill Rod Specialist (Pty) Ltd where she is a Director and holds 25% shares of the company. Sandvik ensured her business had the minimum order to keep their operation sustainable. Their exclusivity contract with Sandvik came to an end in 2020, with 2021 being the first year for them being able to supply other customers. This exchange would not have been possible if it were not for the Mining Charter, incentivising the multinational Sandvik to "think local".

Drill Rod Specialist became a member of Mining Equipment Manufacturers of South Africa (MEMSA) which is a manufacturing industry cluster organisation. MEMSA's vision is to position South African mining capital goods, components & product manufacturers as a cost competitive, innovative, and transformative industrial cluster which will then become the preferred supplier to the local, regional and global markets. MEMSA is housed in the same premises of the Mandela Mining Precinct (MMP) which facilitates interaction between MEMSA and the MMP working on supply chain projects for the mining industry.

The role of the Mandela Mining Precinct is to facilitate the development towards modernisation of mining, through two parts:

1) Research and Development of processes, technologies, to increase efficiency gains so as to increase the life of mines, keep it sustainable for a lot longer and develop alternative techniques to mine the ore body.

2) Development of South African mining equipment manufacturing capability. So that whatever technologies are developed are absorbed by local manufacturers.

As one can see these two entities mandates are in line with the aims of the Mining Charter, to promote and facilitate local mining and manufacturing capabilities. According to Ms Zondi, thanks to the launch of the Mandela Mining Precinct, MEMSA members have received a lot of exposure they previously did not have.

The *Technology Availability and Readiness Atlas* (TARA) is an online portal of locally manufactured mining equipment designed to assist the industry in achieving increased local content and manufacturing. It also allows Original Equipment Manufacturers (OEMs) and mining component suppliers to demonstrate their current commercially available technologies.

Drill Rod Specialists products are on the TARA database which provide yet another opportunity for exposure.

Lastly, as a result of the local content stipulations put on the mining industry in order for Sandvik to sign a five year contract to supplying Harmony Gold Mines they had to do a community development project. Through this, Sandvik approached Drill Rod Specialists to open up a branch in Welkom. This project needed to benefit the Welkom community, as there are many Harmony mines in Welkom. In 2021 the project was nearing its final stages where Drill Rod had identified a warehouse and employed two people from Welkom. They were recruiting for two senior positions who will run the company and make sure that the branch is sustainable. This initiative benefits not only Sandvik, Drill Rod and Harmony Gold but more importantly, the people of Welkom get to benefit and have shares in a company that is going to work with Harmony mines, providing employment and profit. If it were not for the Mining Charter, this would not have taken place. The Charter forced the Mine, who forced Sandvik, who approached Drill Rod who now has a branch in Welkom, employing local.

Although there has been a general negative reception of the Mining Charters, looking at the above case of Drill Rod Specialists, one can see it provided a virtuous opportunity for local suppliers. Historically, only the large companies such as Sandvik got the opportunity to showcase mining houses their products, whilst small local suppliers would never get that same opportunity, or even be in a position to compete. With the Mining charter local content and local manufacturing targets, it compels large companies to work with small companies, driving transformation and assisting them in having a footprint in the mining industry. Drill Rod meets the minimum requirements set out in the Mining Charter which has given them an opportunity to compete with those foreign OEMS who still need to meet those requirements. Drill Rod is advantaged as they meet the minimum requirements of the Charter, however to those local suppliers who do not meet the requirements it is a huge, missed opportunity.

Although one can say Drill Rod Specialists is a success story, it does not come without its problems. Gender transformation within the Mining industry as a whole has been slow, within the organisation there are more woman who are artisans that will slowly take up senior positions. There is still the challenge of knowledge/ skills transfer from the men to the women. "*I'm not trying to discriminate against woman but in the work environment there are heavy*

items that need to be carried, automatically the male will be the one to pick it up and the female will be given a task that is less labour intensive. Without realising, you are actually robbing her" (Zondi; 2021). The lack of modern technology is another stumbling block to some of the females training because the machines are old and assumed too heavy for a female. Therefore based purely on physical strength, males get more technical exposure than the female artisan does. Although that is not intentional, it is a consequence. Once the technology gets smarter, woman stand to benefit as it will not be reliant only on physicality but on intellectual understanding on how to use the technology.

6.3 Challenges identified

Black industrialists can participate in the mining sector by utilising the forward and backward linkages. The interview with MEMSA revealed that the mining sector has over 200 billion rand in finances for spending in the forward and backward linkages. An interesting aspect that emerged from the interview with MEMSA is that although there is a policy to foster an emergent black class that will participate in the mining sector, the policy remains unworkable as the minimum recommended funding is way below what a company really needs to begin to participate in the forward and backward linkages.

My participant stated that

"The DTI has a black industrialist policy, fantastic idea but silly approach. They have a huge fund for Black industrialists, with the intent to develop and provide incentives to the sector. The lower limit of the fund is R60 million, if you know about income statements then already you see there is an issue. If I get money to buy a business, R60 mil, there are many ways to buy a business, but the typical way is looking at if the business is profitable. In this instance it works on a P.E ratio of between 3 and 5. Working back from R60 mil, that means my NPAT (pays instalments) needs to be about R15 mil (x4= 60). In the manufacturing industry, if you have an EBIT ratio of between 12 and 15, you are a master. That's translates to an NPAT ratio of 8. Looking at your NPAT ratio, my business needs to have a revenue of R120m. And that is the problem, you show me any business around here in the manufacturing industry that's exceeding that".

The participant suggested that it was better if the black industrialists bought businesses that were going concerns instead of trying to establish new ones from scratch. Such businesses are available for sale.

The participant stated that:

"Now for black industrialists to get into the market by pulling in that amount to go and buy a business, because we don't want them to start up a business, they need to buy a going concern so they can start at full speed. For you to start a business, it will take 3 to 5 years to gain traction, no income. From year 5 to 6, you're building reputation, from year 7 to 8 you start earning real money. How do you make repayments during that period."

The participant pointed that such established businesses were available, especially where the original white owners have become old and have no succession plans. The participant indicated that:

" The people operating in the sphere of R120 million revenue, they know what they want and very seldom want to sell except if you're 75 years old and there is no succession plan, second generation not interested. Only then you might sell, and you don't necessarily sell to black industrialists, you sell to the white old money circles".

In addition to policy and financial issues, other challenges identified that prevent black industrialist from participating in the sector included a lack of clear definition of local, ecosystem complexity, lack of awareness around local content requirements and verification (within the mining organisation supply chain and management, as well as among suppliers), and a lack of standardisation across the sector in terms of describing goods and services, and capturing data for local content reporting:

Local content definition ambiguity: The Mining Charter creates an expectation that a when a mining company is audited, it will be able to show what products they used that were manufactured in South Africa compared to what is internationally manufactured

Supplier ecosystem complexity: Mining rights holders' supplier networks consist of hundreds of service and mining goods suppliers. One mining client may own multiple mining rights with unique and/or shared suppliers, and some of these suppliers may provide both services and goods. The reporting requirement for mining subcontractors further exacerbates complexity.

Supplier contracting and categorisation: Often supplier contracts do not differentiate between pure services and mining goods. On the slim chance supplier categorisation is present, it has limited visibility of the various mining goods groupings, such as capital assets, consumables, materials, etc. While some mining clients have begun to develop an in-house categorisation of mining goods, not all have, thus the need for a standardised taxonomy for the industry is therefore urgent.

Data capturing for local content spend. ERP systems are not optimised for tracking mining goods spend. This leads to onerous manual manipulations during the local content assessment process. And, as there is no product naming standardisation, mining rights holders capture data using free text. The Department of Trade and Industry (DTI) has determined that "free text" purchases make up approximately 70 percent of the value of total procurement. This makes it difficult to achieve any level of standardisation or control, stifling the opportunity for industry localisation of high volume mining goods.

*Local content requirements awareness***.** While supply chain and management teams are aware of empowerment requirements from an Enterprise Supplier Development (ESD) perspective, outside of memberships to MEMSA they are not fully aware of localisation requirements for mining goods, DMRE local content reporting requirements and the implications of non-compliance. The expectation of mining rights holders with regards to local content procurement thus needs to be made clear, and that awareness needs to be extended to their teams and supplier base.

*Development of a standardised coding and product identification system by the DTI***.** The DTI is collaborating with the DMRE in the five-year strategy to encourage more local procurement of mining goods. Its creation of a standardised identification system for mining goods for mining rights holders will provide the industry with a catalogue of all components, products, and services, making it easier to track local and imported purchases. Until this process is done, it is difficult to implement the Mining Charter

Finally, *duplication of mining goods verification:* As mining rights holders procure the same mining goods from the same service providers, duplication of verification is inevitable. With no standard industry taxonomy in place, the issue is exacerbated. Regulatory bodies that verify local content need strategies to prevent duplication of verification efforts.

6.4 A spanner in the works?

The mining charter calls for high level of localisation and local equipment and local content to be brought into the mining space. It identifies the technological advancements that can be used in mining and have already identified local manufacturers who can do it. However, September 2021 saw a judgement by the Pretoria High Court which set aside certain aspects of the Mining Charter III, relegating to a mere policy and not a law. It also confirmed the 'once empowered, always empowered principal' which means once mining companies reach BBBEEE targets of 2014, they will not be forced to top up their minimum black ownership requirement to the targets stipulated in the 2018 iteration of the charter. Furthermore, it dismissed the provisions that compel mining companies to meet procurement targets of allocating 21% of their expenditure on goods produced by companies owned by historically disadvantaged South Africans.

The mining industry welcomed the judgement on the basis that it will restore the regulatory certainty needed to incentivise investment into the industry. The Minerals Council South Africa argued that by forcing companies to top up their targets would dilute shareholder and depress investment. While on the contrary, organisations such as the Black Business Council are concerned it will negatively affect the BBBEE efforts especially with regard to ownership. In essence the judgement means the charter is a guideline, giving the mining houses freedom to interpret and decide to what extent they will implement the recommendations given in the charter.

Economist and founding director at the Centre for Economic Development and Transformation, Duma Gqubule found very little value in the original mining charter of 2002 finding the BEE codes a better litmus test for transformation in the mining sector. However, the latest charter has come a long way in articulating meaningful targets, in his opinion the judgement signals the end of empowerment, reverting to what the status quo was before BEE was introduced. Gwede Mantashe, the current Minister of Mineral Resources believes that transformation of the mining sector has been ineffective. He has found very little voluntary engagement with transformation by the industry.

Tabello Chabana, the Mineral Councils head of public affairs disagreed that the high court judgement is a setback for transformation, it merely what is law and what is not. According to him because mining houses have committed billions of rands to transformation; the high court's

judgement and the mining industry is not anti-transformation. This paper takes the view that without 'teeth' - the ability to insist on compliance or be dealt with decisively is a huge nock for transformation (M&G; 2021).

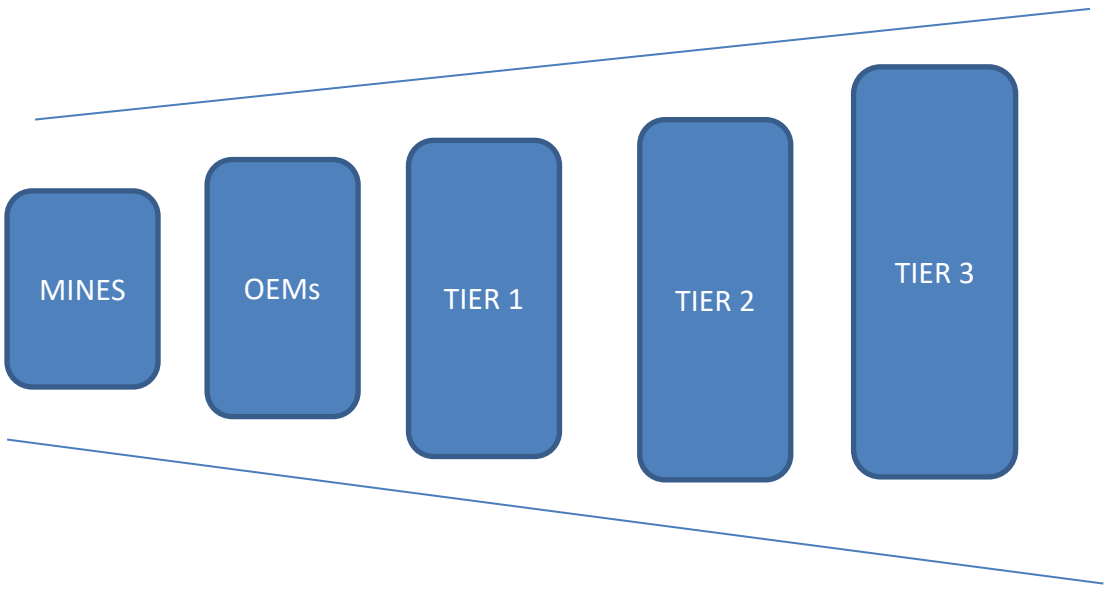
6.5 Research Findings and Final Concluding Remarks

From the data collected, it is possible to foster a black industrial class that will take part in the mining sector. As one of my participants suggested, you need black entrepreneurs to take over successful going concerns to feed into the purchase side of the mining sector. The participant indicated that:

"The idea is to stir the manufacturing economy, it's not to say, "you will" and "you must", the real intent is about how do you make it grow, resurrect it. So if you force the people to buy black owned local, you need all the other components to make it work. So you need black entrepreneurs to take over successful going concerns to feed into the purchase side of the mining sector, and we are only really concerned about the OEMS, tier 1, 2 and 3".

The participant suggested that the DTI and other stakeholders in the mining sector should adopt the funnel approach to enable black industrialist to enter the sector. Progression should be to get a slightly bigger portion Tier 1s who supply to the OEMS, then you get Tier 2 and 3 who supply to others outside of this supply chain, and Tier 4 who supply to the whole world.

Figure 9: The funnel approach



This means that black industrialists need to enter through tier 1 and move on gradually to supplying OEMs. This is because OEMs only supply to the mines, that's their market. Hence the target should be taking advantage of the linkages to supply OEMs with components and gradually advance through the funnel. If we want to make black local procurement, you need to be cognisant of this funnel.

It is clear from the reports submitted by mining rights holders in 2018 as well as the two case studies conducted in 2021 that there has been transformation in the mining industry. The improvements echo the sentiments of President Cyril Rampahosa's New Dawn sentiments. However, the word transformation by itself just speaks of change. The more important question would be: Has there been enough quantifiable change to the mining industry that provides substantial economic benefits for the vast amount of South Africans that fall within the historically disadvantaged category.

This paper recognizes the transformation progress made by mining companies, and discounts the hypothesis that mining companies are not committed to transformation. Although, much transformation still needs to happen, it is envisaged that new Mining Charter targets, if set, would be taken seriously by mining companies provided a licence to operate is issued based on the substantial progress shown in transformation activities. This brings to the conclusion that with the mining sector, annual monitoring of each mining company is encouraged and for non-compliant mining companies, mining licenses should be revoked.

This research was motivated by the State of the Nation Address on the 16 February 2018 given by the current President of South Africa Cyril Ramaphosa. It spoke of the fundamental link between national liberation and gender emancipation and prosperity for all. It also spoke of the government taking action to re-industrialise underpinned by transformation using the mining and manufacturing sectors as a catalyst. In essence he insisted that we as a country must not see the mining industry as a sunset industry, but rather as a sunrise industry. He highlighted the critical role the Mining Charter Three would play as a "truly an effective instrument to sustainable transform the face of mining in South Africa.

This informed the research objective, to assess whether the Mining Charter Three can successfully foster a new black industrialist class. Furthermore, how an organisation such as the Mandela Mining Precinct facilitate investment in local mining suppliers. Lastly, whether resource-based industrialisation is possible for South Africa.

This papers finding points to the Mining Charter having the potential to create a black industrialist class, however, without legal recourse for non-compliant companies, at best it will create a meagre amount of black industrialists, but fail at substantial transformation. Secondly the Mandela Mining Precinct is an invaluable middleman linking large mining corporations with small local mining equipment suppliers. Lastly, resource-based industrialisation is possible for South Africa, but will continue to fail without the backing of relevant stakeholders and better articulation and implementation from role players.

According to the New Structural Economics (NSE) of Justin Lin (2009), developing countries should follow their comparative advantage, for South Africa that is natural resources to kick start industrialisation by moving up the ladder from resource-intensive structures to one that is more capital-intensive. It is easy to see why the mining sector is an ideal starting point. Hirshman correctly states the knock-on benefits in other industries, when successfully making use of the clusters and linkages that arise from mining activities. The key to NSE theory is the need for a facilitating state to meet the infrastructure needs of new industries. This is why the South African government needs to play a decisive and facilitating state in order for the mining charter and resource-based industrialisation to be successful.

The Mandela Mining Precinct has had initial success in assisting local South African equipment suppliers move from low to higher technology as witnessed in the Isidingo Drill Design case study where local suppliers had the opportunity to improve on outdated drilling technology, to more modern, higher technological drills. This corroborated the literature around supply value chains which have significant implications for the workers within a supply chain, for miners using the lighter, faster, and modern drill, their health and wellbeing is improved as well as making their daily tasks easier. Without the platform provided by the Mandela Mining Precinct, those local suppliers would have never had the opportunity to show case their ability and products to large mining houses, who typically make use of international suppliers.

Chapter Four outlined the mining policy frameworks noting the minerals and petroleum resources development Act (MPRDA) of 2002 which grants the State exclusive ownership of the country’s mineral wealth, thus giving the state greater authority in granting of legal rights

on mineral and petroleum properties. Unfortunately the Mining Charter does not have the same legal authority which is discussed in section 7.4. Although the Minerals Council South Africa insists that it does not disadvantage the aims of the Mining Charter, this paper unequivocally says that without the authority to enforce compliance for a specific overarching development agenda, any policy will fall flat at implementation. Looking at the examples in India and South Korea that had similar governments with healthy bureaucracies which worked towards industrialisation. The differentiating factor was the presence (or lack) of a cohesive state apparatus able to discipline non-developmental firm behaviour. The Korean Economic Planning Board had the mandate to identify industrial sectors crucial for economic growth and channel resources to them through selective and functional industrial policies. Additionally and crucially, it had institutionalised power to enforce coordination and discipline amongst state agencies and corporate firms (Chibber; 2002). This is a crucial aspect missing in the South African mining policy landscape. This is specifically prevalent in the fragmentation between organisations such as the South African government, Minerals Council South Africa, Mandela Mining Precinct, and the Mining Equipment Manufacturers of South Africa.

Looking at capital equipment contribution to the economy, one can see there is an overall downward trend with regards to revenue and total percentage of the South African population it employs, which necessitates the need for strengthening existing and rejuvenating lost linkages between the mines and the suppliers. This is concerning as South Africa's industrial development path has been centred around mineral extraction industries, known as the Minerals-Energy Complex (MEC) which is the intertwined economic sectors consisting of the minerals, energy-intensive and mining-related manufacturing activities (Fine and Rustomjee, 1996). Despite the downward trend, the manufacturing sectors display greater learning effects than primary sectors, if South Africa leverages this correctly, the country can start to export technology based manufactures slowly moving towards what Write (2001) advocates about diversifying an economy to achieve economic success. Africa as a whole has been seen to prove the resource curse debate by Prebisch (1950) correct. However, current developed economies such as Australia, or Botswana which is closer to home proves that a resource rich economy does not have to be 'cursed if it is management effectively. This is also echoed by the literature around resource linkages. The strategy of diversifying can act as a catalyst in generating upstream and downstream value addition.

It must be mentioned that it is not simple to not fall into the resource curse because there are supply and demand factors affecting the industry which are influenced by commodity cycles and exchange rate trends. We have seen in the discussions of this paper that there is a local supplier base who are willing and able to do business with the mining industry. However, there needs to be a demand for specifically for local suppliers. Factors influencing demand nationally are the macroeconomic changes as well as legislative changes such as BBBEE and associated scorecards. The impetus to improve productivity and operational efficiency at the producer level also drives demand, which has created a positive spill over effect into the supplier chain. Finally, competition amongst producers and the technical challenges associated with the industry has fuelled the demand for locally available goods and services. This is proved true in light of the Isidingo Drill Design, that challenged local producers to modernise an existing drill machine, it spurred competition and resulted in two local mining companies winning the challenge and having the opportunity to show case their product to large mining houses.

Chapter five took a deep dive into the components and changes in the Mining Charters of 2010 and 2018. It was informed by the broad-based black socio-economic empowerment objectives to create meaningful transformation within the mining industry. The Charter has the objective of creating a local black capitalist class through local content targets for the procurement of goods and services by mining companies. Targets such as a minimum of 70% by value of mining goods must be manufactured or assembled in South Africa. Of that, 21% must be sourced from companies owned and controlled by historically disadvantaged persons, 5% from women and youth controlled companies and 44% from Broad-based Economic Empowerment (BEE) compliant companies. Similarly, with regards to services the targets are a minimum of 80% by value must be provided by local services providers, of which 50% of the procurement spend must be sourced from companies owned and controlled by historically disadvantaged persons, 15% from companies owned and controlled by women, 5% from youth owned companies and 10% from BEE compliant companies.

The Minerals Council of South Africa analysed the compliance reports submitted to the Department of Minerals, Resources and Energy by mining rights holders at the end of 2018, based on achieving the 2010 mining charter targets. Of the 78 members of the Minerals council, only 32 members provided their reports. That in itself should be telling with regards to how the Mining Charter is received by the majority of its members. However, those 32 members collectively hold 97 mining rights, accounting for 93% of the total employee base of members of the Minerals Council. The unequal share of individual members to mining rights speaks to

how concentrated and imbalanced the mining industry is. Highlighting the need to transform the sector. It measured 5 categories namely *Ownership*, *Procurement*, *Employment Equity*, *Human Resource Development* and *Mine Community Development*. The results are conflicting, on one hand the majority of the mining rights holders successfully met the historically disadvantaged South African ownership and levels of management requirements, however, on the other hand the majority of the BBBEE transactions did not create meaningful economic participation. Furthermore, HDSA and women remain under-represented in top and senior management levels. There is no point in meeting targets just to tick boxes, if it does not equate to real time economic benefits for women, and HDSAs. If this continues to be the case, then the project of transformation and promises of addressing inequality and poverty in our society will continue to fail, widening the inequality gap. This result unfortunately indicates that the Mining Charter has not been able to not create a black industrialist class.

This paper identified two local case studies in chapter six, namely Isidingo Drill Design Challenge and Drill Rod Specialists that reflect the possible successes the mining charter could have when implemented on a larger scale. The first case study shows the positive effects of a cohesive state apparatus; the partnership between the Department of Science and Innovation (DSI) and the Minerals Council of South Africa culminated in the Mandela Mining Precinct. The precinct has been a driver of transformation and technological advancement in the industry by placing priority in investing in local mining suppliers. The Isidingo Drill Design challenge showcased local talent and capabilities, an opportunity that was never there before. Through membership of the Mining Equipment Manufacturers of South Africa (MEMSA), which is housed at the Mandela Mining Precinct, Drill Rod Specialists has received invaluable exposure to local and international markets. Exposure and access have always been a major hindrance for small to medium and new local suppliers. With the assistance of the online portal TARA, commercially available off the shelf products can be viewed and bought by South African and international mining companies. It provides far reaching marketing of their products which yet again was not possible previously. These new positive developments would not have materialised if it were not for the Mining Charter prioritising local content, which has been the driving force behind the renewed investment in local manufacturing human resource capabilities and knowledge systems that has been missing from the local mining industry.

Incentive structures are integral in conditioning firm behaviour. The mining charter makes an attempt in the right direction by incentivising mining companies to think local. This is evidenced in the second case study of chapter seven where Sandvik, a multinational

organisation in the mining and construction industries was seeking to secure a five-year contract deal with Harmony Gold, a mining and exploration company. In order to meet the local content targets of the mining charter they had to be involved in mine community development (MCD). This led to Sandvik approaching Drill Rod Specialist to open up a branch in Welkom, gainfully employing the community members of Welkom. This is a clear example of influencing firm behaviour to benefit not only the economy but the people on the ground.

This paper advocates for more industrialisation state intervention, this could be done by putting tariffs on certain imports in the mining sector if such product is readily available in South Africa. This would disincentive mining companies from using foreign imports, providing a more favourable environment for local competitors. However as stated before, the mining charter lacks the 'teeth' afforded by legal authority status to incentivise or influence large mining companies purchasing behaviour.

There are numerous challenges presented by the mining charters targets and definitions. The sheer complexity of the mining supplier ecosystem can be said to be a key hindrance to the effective implementation of the local content stipulations. Mining rights holders' supplier networks consist of copious service and mining goods suppliers making it incredibly difficult to track each and every item local content making reporting challenging. Once there is a foundation and all items are verified it becomes much simpler, but the initial process of tracking items and indexing them is a massive task.

However, before one even starts to unpack the complex supplier ecosystem, the first step would be to clearly define what the mining sector considers as a South African manufactured good. The definition provided by the mining charter is too broad, leaving space for interpretation which makes it difficult to implement and evaluate. In order for the mining charter to be more comprehensive it would benefit from identifying what the unit of analysis is. It should specify a focus on selected mining goods say, drills or pumps or buckets need to be locally manufactured giving parameters, so it is easier to successfully implement and measure compliance.

Finally, there is a need for a uniform qualification standard, it should not be that the mining industry has their own sets of codes and verification standards. This again speaks to why it is imperative that there not only are cohesive state organs, but cohesive policies that articulate one overarching objective of transformation.

In conclusion, to date the mining charters results have not produced enough transformation to create a black industrial class. However, this paper asked the question *can* it create a black capitalist class? From the evidence presented herein, the simple answer is yes. The more nuanced answer is yes, but not without the complimenting factors discussed in the preceding chapters, such as cohesive state organs that are actively committed to industrialisation.

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