

# TRANSFORMATIVE MINERAL RESOURCES BENEFICIATION INTERVENTION FOSTERING LOCAL ENTREPRENEURSHIP IN SOUTH AFRICA

Peshley Thupane Kgoale, University of Limpopo  
Kola Olusola Odeku, University of Limpopo

## ABSTRACT

*South Africa is facing tremendous unemployment problem and declining economy. As part of the strategic interventions to create jobs and grow the economy, the government has resolved to use its natural mineral resources spread over the length and breadth of South Africa to foster transformation, entrepreneurship, economic growth and development particularly regarding the previously disadvantaged black people who were deprived and denied access to equal participation in the country's mineral resources during the apartheid regimes. Now that South Africa has become a constitutional democratic country in 1994, the black majority is in power and as such controls the utilization of the country's mineral resources. However, twenty-five years in power, the government has not been able to translate the use of its mineral resources into meaningful economic transformation. Most of the mineral resources are being exported unprocessed as instead of processing and converting them to higher value product in South Africa by local entrepreneurs before exportation or for use locally. Against the backdrop of this, the paper discusses the intrinsic role of mineral resources inclusiveness and beneficiation as catalyst for equal participation, economic growth, and development in South Africa.*

**Keywords:** Beneficiation, Entrepreneurship, Poverty Alleviation, Redistribution, Growth and Development, South Africa.

## INTRODUCTION

South Africa has the world's richest mineral deposits worth \$3.3 trillion (R36 trillion) in platinum, gold, iron ore and coal (Business report, economy, 2014). Deloitte's report on the 2010 financial year indicated that South Africa achieved gross revenue of \$24.5 billion from export in crude forms of all minerals but would have generated twice the revenue if they have been refined and processed as finished products locally for purposes of deriving full benefit of these resources. According to the Johannesburg Stock Exchange, the main reason for low beneficiation production is that South Africa has relatively low levels of mineral beneficiation value-added processing facilities that transform those extracted minerals into a semi-finished and more valuable end products. This article accentuates the need for paradigm shift from exporting raw extracted minerals to other countries to processing them locally (Van Dijk, 2017). By so doing, South Africans will benefit from abundance of their mineral resources, consequently leading to sustainable economic growth, increased employment rate and poverty alleviation.

South African Minerals Policy White Paper of 1998 defines beneficiation as the successive process of adding value to raw minerals from their extraction through to the sale of finished products to consumers. During the Southern Africa Development Communities (SADC) summit in 2014, the former President of Zimbabwe, Robert Mugabe said that, Southern Africa

region has abundant resources which have to be exploited in a manner that adds value to the beneficiaries (Mugabe, 2014). To add value requires the refining and processing of the mineral resources locally before exporting them abroad. With regard to South Africa, the government has taken a policy decision to use its vast mineral resources for beneficiation as a top priority for achieving inclusive economic participation, black entrepreneurs, increased job opportunities, economic growth and development, improved standard of living particularly the black majority and poverty alleviation. To this end, the government has urged that the mineral resources beneficiation should be intensified and accelerated in order to achieve these desired outcomes (Naidoo, 2012).

Therefore, this article focuses on the intrinsic role of beneficiation interventions as catalyst for the Historically Disadvantaged Black South Africans (HDBSA) to participate, manage, explore, prospect and refine mineral resources locally for improved opportunities, economic growth and development and poverty alleviation in South Africa.

It is imperative to use mineral resources to benefit the HDBSA because, prior to 1994, there was apartheid legal system and economic policy in South Africa which perpetuated unjust oppression, racism, and amongst others discriminatory laws and policies that were used to exclude HDBSA from participating in the economic and more importantly, the beneficiation of mineral resources. In 1994, South Africa became constitutional democratic and enacted the Constitution of the Republic of South Africa, 1996 which is the supreme law of the Republic. Any law or conduct inconsistent with the Constitution is invalid as it encapsulates the rights of all the people in the country and affirms democratic values, human dignity, equality and freedom. The 1994 democratic government inherited a country from apartheid repressive laws, which regulated access to and exploitation of mineral resources, which were based exclusively on a racial basis and discrimination (Mostert, 2012). The mining industry, however, continues to experience serious imbalances as far as beneficiation is concerned. Inequality played a big role in the participation process of distribution of mineral resources where majority blacks are excluded while the white minority plays dominant roles in all aspects of the sector.

The ruling party African National Congress (ANC) has been on the mission to correct the inequality and racial imbalances of the past. Firstly, by adoption of the Freedom Charter of 1955 which envisaged that

*“The national wealth of our country, are the heritage of all South Africans, shall be restored to the people; the mineral wealth beneath the soil, shall be transferred to the ownership of the people as a whole.”*

It is clear from the Charter that at the center of the struggle is the mineral resources beneficiation for all citizens because it is common wealth of the country.

The ANC Ready to Govern document was a product which aimed at the strategy and policies to develop and integrate the mining industry with other sectors of the economy and significantly promote mineral beneficiation. Therefore, mineral beneficiation has been part of ANC's agenda even prior to taking over power. This is evidenced by the first policy adopted by the government after 1994 elections upon attainment of democracy called Reconstruction and Development Policy (RDP, 1994). The policy reiterated the need to strengthen and broaden beneficiation of mineral resources for economic growth and development in order to create job opportunities and reduce poverty.

The ANC's Ready to Govern document of 1992 which provides that the ruling party would in consultation with unions and employers, introduce a mining strategy and policies which will be developed to integrate the mining industry with other sectors of the economy by

encouraging mineral beneficiation and create progressive mining production industry. It is against this background that the Reconstruction and Development Programme (RDP) indicates that for there to be sustainable development in the mining industry, private ownership must be transferred to the government.

One of the legal tools that have been promulgated to drive and accelerate mineral resources beneficiation is the Mineral and Petroleum Resources Development Act, 2002 (MPRDA) which brought structural change of the mining industry in terms of section 3(1) of the MPRDA. The MPRDA entrenches State power, authority, responsibility and control over the mineral resources of the country. The MPRDA is a pivotal legal instrument enacted to heal racial discriminations of the past and distribute the exploitation and beneficiation of the country's mineral resources equitably. The State is currently entrusted with the sole prerogative to decide when, where and which minerals will be mined and by whom. Therefore, the promulgation of MPRDA was the first step towards socio-economic beneficiation and transformation in the mining industry. For example, Section 100 provides for the enactment of Broad-Based Socio-Economic Empowerment Charter, which aims to transform the sector for previously disadvantaged black people. Furthermore, Section 26 of MPRDA mandates the Minister for mineral resources to provide for beneficiation initiatives on mineral resources.

The unfortunate part is that minerals are not like trees because they do not grow but keep depleting with time. According to statistics South Africa, the country would exhaust its proven platinum group metal reserves in 239 years, coal reserves in 118 years and gold reserves in 38 years (SSA, 2016). This implies that there would be outright depletion in the next three centuries and this is a cause for concern. Therefore, it is paramount to utilise available mineral resources sensibly and responsibly for purposes of beneficiation to increase contribution to the GDP and create employment opportunities in the country.

According to Botha, the mining industry has always formed the backbone of South Africa's economy and development (Botha, 2004). Linda agreed with Botha by stating that without the rich mineral deposits, South Africa would be a different country, the infrastructure development would be far less and the country history would have taken different shape (Doke, 2014). Summarily, beneficiation connotes that the country's wealth benefits all (Biermann, 2001). Therefore, growth of mining industry imperatively leads to South Africa's economic growth.

## **Theoretical Framework**

The government of South Africa has drafted and implemented different interventions for purposes of fostering and implementing beneficiation of minerals resources by the black majority such as policies, strategies, initiatives and legislation that envisioned transformation of the mining industry for the benefit of the HDBSA's whereby they can actively participate as forerunners in order to address past imbalances (Rungan et al., 2005). One of these interventions is the White Paper on Minerals and Mining Policy for South Africa in 1998 (WPMMP, 1998). It deals with mineral beneficiation concept and aptly identified that there is a need to adopt a policy that will create an enabling environment for the development of the country's mineral wealth to its full potential, of which the MPRDA initiated the Mining Charter as the policy to facilitate this development (WPMMP, 1998).

It is safe to concede that inequality must be rooted out of the mining industry to advance equal economic participation. In terms of Section 9 of the Constitution, everyone is equal before the eyes of the law and has the right to equal protection and benefit of the law. Section 9 further

prohibits unfair discrimination, either directly or indirectly of race, gender and colour. However, prior the enactment of the Mineral Act (MA) 50 of 1991, there were unfair discriminations, especially of HDBSA in the mining industry. The MA repealed all the unfair discriminatory practices in the mining industry that excluded HDBSA from active participation in the extraction and ownership of mineral resources in South Africa.

The Constitution affords every citizen the right to fair labour practices in terms of Section 23(1) of the Constitution. Therefore, all employees have equal labour rights and must not be subjected to oppressive and adverse working conditions. Further, the Constitution in terms of Section 24(b) provides that everyone has the right to have their environment protected for the benefit of present and future generations. As such, processing and re-smelting of minerals has to be conducted in a manner that does not harm the environment, the health and the well-being of the workers and surrounding community areas. The segregation and discrimination in the mining industry were vigorously entrenched to the extent that majority blacks were limited to work as laborers while their white counterparts held managerial and executive positions in the sector. The apartheid laws intensified exploitation of minerals in favour of the whites. For instance, the Precious Stones Act (PSA) 73 of 1964, prohibited the blacks, Indians and coloured from owning mineral resources in South Africa. Section 48(1) of PSA specifically recognized mineral rights holders instead of mineral landowners who were the owners of means of production. Even, nowadays, the South African mining industry business operations are currently being dominated largely by European and Asian companies.

Due to massive exploitation, mining companies have made huge profits whereas, majority of black people were denied and neglected participation (Jordan, 2012). The Mining Rights Act 20 of 1967 (MRA), attempted to reverse discriminatory policies of the colonial era. Section 3 of the MRA gives general power of control and administration of all mining operations to the State. However, the Mineral Rights were still in the hands of landowners and the State was controlling entitlement flowing from it. The principal purpose of all the laws promulgated was for the State to increase revenue for the country from exploitation and sale of minerals.

Pursuant to the above, the Minerals Act 50 of 1991(MA), was enacted to repeal past discriminatory laws which excluded other races apart from the whites from mining exploitation in terms of Section 5(1) of the MA. The MA recognised specifically common law rights of landowners in relation to mining. The MA streamlined the law on mineral exploitation by doing away with the differentiation between different classes of land and minerals. The MA provided in terms of Section 20 for the expropriation of surface or mineral rights against payment of compensation to the person whose rights expropriated. The aim of the MA is that the mineral resources and petroleum must benefit the landowners which is a good initiative to compensate common law owners.

MPRDA is an important legislation because it promotes the beneficiation of mineral and petroleum resources in South Africa. It authorises the Minister in terms of Section 26 to initiate or prescribe incentives to promote the beneficiation of minerals in South Africa. The Minister may implement any legislation, which after consultation with the Minister of Trade and Industry that he/she thinks would benefit the country economically. This is paramount in order to ensure that beneficiation is legislated and conducted within the confinement of the law. However, the Minister's power to determine conditions for beneficiation in South Africa is restricted. Firstly, he/she must act on the advice of the Minerals and Mining Development Board established under Section 57 and its functions outlined in Section 58 of the MPRDA; and secondly, the beneficiation of a particular mineral must be economically viable (Wesley, 2014).

The MPRDA deals with the need for transformation in the mining industry. In terms of Section 100 of the MPRDA it provides for Broad-Based Socio-Economic Empowerment Charter (BBSEEC) that will set the framework, targets and timetable for effecting the entry of HDSA into the mining industry and allow South Africans to benefit from the exploitation of mining and minerals resources. Against the backdrop of this, the Mining Charter enacted to drive transformation agenda in the mining industry is The South African Mining Charter of 2004 specifically stipulates that mining companies will be able to offset the value of the level of beneficiation achieved by the company against its Historically Disadvantaged South Africa (HDSA) ownership commitments.

Recently, the Mining Charter of 2004 and the Mining Charter of 2010 were repealed by the new Mining Charter of 2018. The preamble of new Mining Charter of 2018 indicates that in 2014 the second assessment was conducted which highlighted the following shortcomings: that despite noticeable improvement, the overall transformation of the mining industry remains unacceptably low; the majority of mining communities continue to live in abject poverty; and amongst others lip service paid towards advancement of HDSA and BEE enterprises meaningful participation in the mining sector (Mining Charter, 2018).

Against this backdrop, the new Mining Charter seeks to impute transformation in the mining industry. With regard to ownership, paragraph 2.1.1, state that the holders of new prospecting and mining rights must have minimum of 30% BEE shareholding economic interest which shall include voting rights. (mining charter, 2018) the charter quantifies, how the 30% must be achieved, such as minimum of 5% non -transferrable carried interest or a minimum 5% equity equivalent benefit to host communities from the effective date of a mining right; and others a minimum of 20% effective ownership in the form of shares to a BEE Entrepreneur, 5% of which must preferably be for women. (Mining Charter, 2018)

The existing mining companies required to maintain 26% of BEE shareholding for during of such mining right which shall not apply upon renewal. However, for pending applicants' prior the enactment of the charter, required to have minimum of 26% BEE shareholding as per the 2010 mining charter. However, within five years upon granting of the rights must increase the BEE shareholding to 30%. (Mining Charter, 2018)

Transformation is inevitable and it has to be fast-tracked within the confinement of the law. In order to foster equitable distribution of wealth, the previously advantaged individuals would have to be fairly discriminated in favour of previously disadvantaged South Africans, which are black majority, Indians and coloureds. As part of the solution to correct past injustices, government has enacted various policies to address and undo the historical imbalances as transformation initiatives, interventions such as affirmative action policy and black economic empowerment policy enshrined in section 9(2) of the Constitution of the Republic of South Africa which allows for subjective transformation is currently being used to achieve these feats.

The other pieces of beneficiation legislation enacted to accelerate transformation and beneficiation of mineral and petroleum resources in South Africa, is the Diamonds Amendment Acts, 2005 and the Diamonds Second Amendment Act 30 of 2005. These Acts amended the Diamonds Act of 1986 to increase access to rough diamonds for jewellery manufacturing in South Africa; maintain security of supply of rough diamonds; promote the beneficiation industry in South Africa thus creating jobs; and increase participation throughout the diamond value chain. There is also Precious Metals Act 2005 enacted to provide for acquisition, possession, smelting, refining, beneficiation, use, disposal of precious metals, local beneficiation and sound development for equitable access to the wealth of the Republic. The Act is significant to

facilitate the equitable access to precious metals in South Africa for mineral beneficiation purposes.

The New Growth Path Policy of 2010 (NGPP, 2010) stated that the government would accelerate exploitation of mineral resources and intends to set-up state owned mining company, which would be a competitor with private mining companies to promote beneficiation and greater utilisation of mineral resources for developmental purposes. It envisioned that the government is to refocus the beneficiation strategy to support fabrication stage rather than only smelting and refining. This is with the aim of promoting local beneficiation and development of the South Africa mining industry in the interests of the communities and employees.

The National Development Plan (NDP) also aims to accelerate beneficiation by targeting identified opportunities as the vision to increase economic growth and alleviate poverty in South Africa by 2030. It aims to decrease high unemployment rate in South Africa from 24.9% in June 2012 when it initiated the policy to 14% by 2020 and ultimately 6% by 2030. Unfortunately, the government is failing in all aspects to meet the envisaged target moreover, unemployment continues to increase and economic growth decline. The plan also aims to increase mineral resources beneficiation in South Africa through giving clear certainty over property rights. It aims to increase rail, water and energy infrastructure development in order to facilitate smooth running of beneficiation. However, it must be pointed out that these programmes are being delivered at a very slow pace than expected. The plan aims to structure a taxation regime that is fair, equitable and predictable that recognises the non-renewable nature of mineral resources thus combats export of unfinished raw materials and promotes local beneficiation.

The proper implementation of NDPP would usher smooth implementation of local beneficiation as it envisages to create massive infrastructure development and skills development this being major hindrances for effective implementation of beneficiation of mineral resources in South Africa mining communities. As it stands, the policy is implemented on the low scale.

The Department of Mineral Resources drafted beneficiation strategy for the minerals industry of South Africa, adopted by the cabinet aimed at providing a strategic focus for South Africa's minerals industry in terms of developing to highlight the need to address the problem of beneficiation on mineral resources facing the HDSA by ensuring that they are included in extraction of mineral, refining, processing to finished products and sell locally and also export to overseas countries instead of the practice of merely extracting and out rightly exporting to abroad for processing and resold at exorbitant price back to South Africa.

## **Problem Statement**

In South Africa, mineral resources are common heritage of all the people of South Africa and the State is the custodian thereof for the benefit of all South Africans. This however seems not to be the case because the reality is that the black majority in South Africa still remain destitute, vulnerable, marginalized, and subjected to unemployment even despite the demised of the apartheid regime. Still, these days, South Africa remains an unequal society, to this end, it has been reported that there is problem of

*“Very low labour absorption rate particularly among black South Africans. Only 36.8% of black South Africans between the ages of 15 and 64 are in employment compared with 63.2% among whites.”*

(Global Education Magazine, 2012). The World Bank recently reported that since the dawn of democracy in 1994, social assistance and fiscal redistribution fundamentally contributes towards continuous rise in inequality in South Africa. (World Bank report, 2018) South Africa records highest inequalities in the world, thus requiring rapid transformation measures. The main reason being that even though the black majority are now in power, the means of production are still mostly in the hands of the white minority. Mineral resources and the attendant mining enterprises are the economic backbone of South Africa's, most of the HDBSA's have been excluded from these feats hence not been able to participate and benefit broadly.

Participation connotes that South Africans must be part and parcel of processes that extract, process and refine mineral resources locally for purposes of exporting them as finished products. It is against the backdrop of the black exclusion that this article accentuates the need to ensure that these mineral resources are utilised appropriately and adequately to unblock and unlock their economic potentials in order to mainstream and benefit the majority of the HDBSA's. By so doing, there will be massive and remarkable changes in the lives and well-beings of the citizens especially the HDBSA's. This could be possible and realizable only if there are strong political and administrative wills on the part of the government and the role players to strengthen participation and beneficiation interventions that have been introduced to foster and deliver transformation in the mining industry. One progressive way of doing this is to redirect the strategy of exporting extracted minerals for processing in abroad by creating conducive environment for the extracted minerals to be processed locally by adding value before being exported as finished products to overseas.

## **LITERATURE REVIEW**

One of the potent interventions introduced to act as catalyst for mineral resources beneficiation for the black majority is the MPRDA. In terms of Section 1(b) of the MPRDAA 'beneficiation' in relation to any mineral resource, is outlined in four stages as follows:

1. Primary stage, which includes any process of the winning, recovering, extracting, concentrating, refining, calcining, classifying, crushing, screening, washing, reduction, smelting or gasification thereof in terms of Section 1(b)(a) of the MPRDAA. This involves the actual extraction of the ore, the concentration of the particular mineral into concentrates and the further beneficiation of the mineral into a saleable product typically defined by industry standards - examples include gold ore (22+ carats) and platinum bars (99,99% Pt).
2. Secondary stage: This includes any action of converting a concentrate or mineral resource into an intermediate product in terms of Section 1(b)(b) of the MPRDAA. The mineral is enhanced by the addition of other metals to create a metal alloy. This is usually also done to meet defined industry standards.
3. Tertiary stage: This includes any action of further converting that product into a refined product suitable for purchase by minerals-based industries and enterprises in terms of Section 1(b)(c) of the MPRDAA. The tertiary stage involves the production process of mineral resources to a saleable product - examples include the production of vehicle exhaust systems and jewellery design and manufacturing. There may be more than one value-enhancing step in this stage.
4. Final stage: This stage involves the action of producing properly processed, cut, polished or manufactured products or articles from minerals accepted in the industry and trade as fully and finally processed or manufactured and value added products or articles in terms of Section 1(b)(d) of the MPRDA.

The Department of Mineral Resources has released the beneficiation strategy for minerals industry in South Africa. This strategy is aimed at providing a strategic focus for South Africa's minerals industry in terms of developing mineral value chains and facilitating the expansion of beneficiation initiatives in the country, up to the last stages of the value chain. According to

Beech and Veltman (2011) strategy seeks paradigm shift in mineral development and strategic investment in assets to drive growth in beneficiation projects. However, successful implementation depends largely on teamwork between government, business and organised labour. Unfortunately, in the mining industry, there is no cooperative teamwork. This is evident in the traumatic Marikana massacre of mine workers and numerous protests in South Africa by organised labour unions against businesses and the government.

In order for beneficiation to work, cooperation of various stakeholders is required. For instance, in Northern Cape Province, South Africa, the Department of Trade and Industry, Mintek, the Department of Mineral Resources, the Small Enterprise Development Agency, and the Pixley ka Seme District Municipality successfully collaborated to develop the Griekwastad community. The main vision is to mainstream the community into mineral resources employment opportunities, provide state funds for equipment, training, and marketing of products with Department of Trade and Industry and importantly assist the communities to apply for mining permits through Department of Mineral Resources in order encourage communities and companies to mine their own minerals, process them locally and export as part of beneficiation strategy (Mahumapelo & Magaseng, 2014).

Mapungubwe Institute for Strategic Reflection (MISTRA) indicates that beneficiation is the most significant options for socio-economic transformation in South Africa and Africa. Beneficiation leads to sustainable job creation, social development and economic growth, as currently happening in resource rich country like Botswana (Montja, 2014). However, for an effective and efficient provision of mineral and petroleum resources beneficiation there should be availability of human capital (well trained and fully equipped labour together with enabling institutions and networks), to drive healthy competitiveness.

MISTRA categorised, beneficiation into four stages: Firstly, there is the extraction of raw ore and turning it into a highly concentrated product. Secondly, production or fabrication of metal alloys is the first process of manufacturing. The third stage is a crucial one where various skills are applied in enhancing the minerals to meet the requirements of the end user. The last and fourth stage is the selling and consumption stage where the final product is ready to hit the market. To illustrate this, in case of gold mineral resource, first stage the metal is extracted from the ore in South Africa mines, smelted, and refined in South Africa; second stage then be alloyed with other metals, for example copper, to produce fabrication alloys suitable for jewellery manufacture; third stage then semi-manufacture articles that may then be produced, e.g. in the form of granules of specified carat; and, finally, gold alloys are fabricated into gold jewellery that can be sold in value added price locally and, or internationally. (Robinson & Von Below, 1990).

Whereas the first stage of beneficiation entails a process where, production and labour costs are involved in turning the raw ores into final products, it is a mechanism for job creation because every stage creates employment and ultimately contributes fruitfully towards economic growth and poverty alleviation in South Africa.

It is pertinent to point out that even though beneficiation creates job opportunities, most of the mining companies are foreign owned thus reducing the positive impact of beneficiation in South `Africa. For there to be absolute beneficiation, there is a need to create black owned South African mining companies that would participate in all the aspects of beneficiation processes.

According to Tukor (2014), South Africa has to use its natural resources to develop skills, create jobs and economic growth. As such, the main objective of local beneficiation according to Speight (2015), is for raw materials to be processed in the country in which they are mined rather

than exported overseas where they are processed. The processing of raw materials locally can bring economic benefits, such as increased income from taxation and increased profits once the processed materials are exported. It can also improve the quality of life of those living locally by creating jobs, providing opportunities to develop a skilled workforce and generating more money to reinvest in local communities (Speight, 2015).

According to Matlou (2014), the aim of beneficiation strategy is to “increase employment by requiring that mining companies provide a government set quantity of ore to local producers for beneficiation and allows for exports only with specific government consent.” Matlou (2014), points out that the gold industry has the right idea: “*We mine it and refine it.*” Also the Rand Refinery in the Gauteng province within the area called Germiston is the largest gold refinery in the world (Doke, 2014). South Africa has the largest share of minerals in the world, and South Africans should benefit more by creating more manufacturing facilities to accelerate beneficiation. Collier (2014) asserted that creation of employment and economic growth that would be sustainable is through creation of adequate infrastructure such as good roads, railways lines, power electricity and water supply to the mines and community around the mines. These contribute adequately toward sustainable development, massive infrastructure upgrading, job creation and poverty alleviation within mining communities and ultimately contributing positively to the economic growth of South Africa.

## METHODOLOGY

This article extensively and intensively utilised contemporary qualitative literature review research approach to address the problem of HDBSA exclusion from mineral resources enterprises and beneficiation. In offering solutions, mineral resources participation and beneficiation interventions that have been introduced by the government were considered as effective mechanisms that have the potentials to mainstream the HDBSA into the industry. It is against the backdrop of these progressive interventions that the article showcases the overall benefits of the mineral resources enterprises inclusiveness to the black majority. It also showcases how the extracted resources should be processed and refined locally in order to maximize their value in terms of creating job opportunities and poverty alleviation.

The Department of Trade and Industry portfolio committee indicates that beneficiation creates pivotal opportunities unlocking South Africa’s comparative advantage to drive industrial development and create jobs (PCTI, 2014). The Chambers of Mines indicates that beneficiation is the right path for socio-economic transformation and poverty alleviation in South Africa. According to Chamber of Mines response to the Economic Freedom Fighters (EFF) Memorandum, they agreed that beneficiation is an important subject for the country and the mining industry (Teke & Baxter, 2015). The chamber claimed that there is a significant industrial base supplies goods and services into the South African mining industry that has made serious in-routes within South Africa creating employment and economic growth. This has contributed tremendously to the said the downstream of the mining sector contributes R300 Billion in economic activity and 200 000 jobs creation (Teke & Baxter, 2015). This clearly implies that implementation of beneficiation bears the fruits of jobs creation and economic growth thus illustrating, clearly that if beneficiation is adequately and effectively championed, it would definitely contribute positively towards improving the standard of living for majority South Africans.

Currently, 98% of South Africa’s cement, 80% of the steel, 50% of the chemical feed stocks and 30% of liquid fuel requirements are produced locally by industries using South

African mined products (Teke & Baxter, 2015). South Africa also accounts for the fabrication of 9% of the world's platinum catalytic converters and produces a wide array of beneficiated products for exports to global markets. The upstream and downstream mining industries cluster created around 1.3 million jobs (495 000 direct and 800 000 indirect), with significant contributions to the economy and to the fiscus (Teke & Baxter, 2015). The Chamber of Mines indicated that all stakeholders need to collaborate more effectively to create a better investment environment to grow the beneficiation base in South Africa.

COEGA Development Corporation, (CDC) is a State owned Company (SoC) established to develop and operate industrial land of the Developmental Zones. It recently announced that its ambitious plans is for the expansion of metals beneficiation initiatives and metal sector investments in South Africa over the next decade (Mogamad, 2014). The CDC's target is to bring R28 billion in local and foreign investments to the Industrial Development Zone (IDZ), according to its newly unveiled 2014-2024 metals cluster strategy over the next 10 years. An estimated 8 198 direct and 19 853 indirect jobs for the economy can potentially be created based on this strategy, according to CDC projections. Furthermore, approximately 2 000 hectares, or 20% of the total IDZ land surface will be dedicated to ferrous and nonferrous metal industrial activity (Mining News, 2014). According to Sadick, several metal and mineral beneficiation projects are progressing well in the Coega IDZ with a "*Healthy investment pipeline*" (Mining News, 2014).

In addition, recently De Beers, a company that supplies by value 40% of its local diamond production for beneficiating in South Africa, confirmed its desire to continue to facilitate the growth and competitive sustainability of the local diamond beneficiation industry and to achieve national transformation goals, as a result, it has launched beneficiation project in partnership with government and Anglo American Zimele, (Cleaver, 2016). The company, emphasized the significance of the project, by stating that beneficiation is the right thing for De Beers commercially and strategically to be involved with, for their benefit, that of the industry and for South Africa. Cleaver (2016) indicates that South Africa diamond cutting and polishing industry employment has declined from peak of 5000 employees to 400 employees in 2016, as developing countries with finished diamonds dominated the market. Henceforth, it is imperative that South Africa increase the refining and production of finished value added products from its abundance of diamonds. The intention is to compete in an advanced level at the international markets.

Therefore, the project called Diamond Enterprise Development Project for South Africa is being mounted in order to facilitate growth and transformation and create employment in the diamond beneficiation industry against the declining employment. Makhura (2016) congratulated the initiator of the project for advancing the country's mineral resource beneficiation agenda. Makhura (2016) asserted that

*"The mining industry in the Gauteng province employs over 35 000 people, and it contributes R40 billion to the province's economy. Therefore, we have to ensure that the black majority who have suffered prolonged exclusion benefit from the country mineral resources substantially"*

It is pertinent to point out that African mineral resources are mined and exported as raw materials, which are turned into "*Beautiful things*", often unaffordable to buy back (Makhura, 2016). Over and above, the majority black need to get the best out of the bequeathed natural mineral resources in South Africa (Omarjee, 2016).

Further recently the Minister of Trade and Industry launched a R4 Billion Titanium beneficiation project for manufacturing titanium at Richards Bay as a step towards implementation of maximum beneficiation from the country's rich mineral and petroleum resources (South African News, 2017). The project is estimated to create more than 2000 jobs. Taking into account that South Africa is the second largest country with titanium reserves therefore, it is judicious to use it profitably than to be exported raw (The New Age, 2017). It is evident that South Africa has vast minerals deposits; as such, it is important to drive sustainable local beneficiation of its mineral wealth. According to Netshitenzhe & Tukor, (2014),

*“South Africa should be in the forefront to affecting the market price of commodities in order to drive its emergent beneficiation industry.”*

South Africa should utilize the opportunity of being blessed with large reserves of mineral resources and ensure that it benefits from foreign investors, international trade and infrastructure investment.

## **RESULTS AND DISCUSSION**

MINTEK, an autonomous research and development organisation specialising in all aspects of mineral processing, extractive metallurgy and related technology has created Small Scale Mining & Beneficiation Division. This division contribute towards poverty alleviation, job creation, and upliftment of historically marginalised South Africans through the exploitation of the country's mineral wealth and beneficiates mineral resources into commercial products to ensure long-term sustainability (Lydall, 2011). One of its launched projects is Kgabane Jewellery Project which is founded to develop, position and market South Africa's emerging informal precious metal jewellery craft sector. The project is a strategic component of the country's minerals beneficiation programme, and since its operations it has contributed significantly to economic growth by alleviating poverty and empowering HDBSA's (Lydall, 2011).

However, it is pertinent to point out that there are five main constraints for effective implementation of local beneficiation. Firstly, is the limited access to raw materials for implementation of local beneficiation. As a result of structural arrangements in the mining industry which is raw material export orientated, many producers have long-term contracts with international clients (DMR, 2011). In addition, pricing mechanisms used by some raw and intermediate material producers also hamper beneficiation to the final stages of the value and derail local beneficiation. Therefore, the government as the custodian of the country's minerals has to take full control of the industry and restructure it to facilitate downstream beneficiation and impose prices and taxes that would promote local beneficiation.

Secondly, the shortage of critical infrastructure such as rail, water, ports, and electricity is a constraint. The government must ensure that existing infrastructure planning mechanisms and programmes properly consider infrastructure requirements for mineral beneficiation and the business sector have to assist in infrastructure development to facilitate local beneficiation and embrace energy efficiency.

The third constraint is that South Africa has limited exposure to break-through research and development programmes. The government especially, the department of Science and Technology, in partnership with mining companies must support research and development through programmes such as scholarship, bursaries, mentorship and internships which would assist the HDSA to generate strategies which can be used for effective and sustainable local

beneficiation. In addition, there is need for skills development to use competitive technologies. This would ultimately be the solution to the constraint of lack of skills sought for expediting local beneficiation. The government must align the beneficiation skills pipeline to the National Skills Development Strategy and the Sector Skills Plans for required skills. The mining industry must also amongst others cooperate with the government and Invest in Human Capital Development.

Lastly, there is limited access to international markets for produced processed products. This is because South Africa has international trade obligations and bilateral investment treaties with more than 100 countries, which was entered into long time ago (DMR, 2011). Therefore, these make beneficiation difficult to be achieved equitably and drive socio-economic transformation in the country (Doke, 2014). The government must take advantage of the comprehensive strategic partnership with Brazil, India, China and Russia known as (BRICS) to support investment in beneficiation in South Africa as well as access to markets and amend their international trade treaties to support beneficiation.

Recently, in 2017 mining Indaba, the President of South Africa Mining Chamber, indicated that other challenges faced by mining industry in South Africa are firstly, wage inequality in the sector between the employees and executive (Teke, 2017). For example, there was a wonderful boom in commodities such as platinum group metals, iron ore and coal, which resulted in more production but the reality is that only shareholders and executives and not the workers benefited significantly.

Secondly, the health and safety of employees and communities in which mining companies operate are still serious challenges (Teke, 2017). The painful and fatal accidents, serious injuries and illness continuously occurring in the sector is evident that much need to be done for the benefit of employees and affected communities. The Chamber of Mine, mining companies and government enacted polices and legislation such as the Mine, Health and Safety Act 29 of 1996 to curb these challenges. However, these policies and laws are not being adequately utilised or implemented as numerous number of employees continue to lose their lives daily (Teke, 2017). Already, from January through November 2018, there were 81 fatalities recorded. Therefore, maximum precautionary and preventative measures must be employed to protect the lives of ordinary miners.

Thirdly, the communities raised grievances such as that mining creates pollutions which contaminate water and causes environmental harm; mining causes noises and amongst others loss of agricultural land. In the case of *Baleni and Others v Minister of Mineral Resources and Others*, (73768/2016) [2018] ZAGPPHC 829; [2019] 1 All SA 358 (GP) (22 November 2018) the high court ruled in favour of Xolobeni community that has the right to decide what happens with their land, including to say no to mining. Thus is victory to most mining communities vulnerable to hazardous social ills caused by mining and ventilates their right to be consulted prior to authorisation of mining right by the State. Fundamentally this stimulates maximum community participation towards mining operations in South Africa, and the State remains the custodian at their behest.

Fourthly, there is a need to strengthen the State's involvement in the mining industry for the efficient and sustainable exploitation of mineral and petroleum resources. Recently the State has established a state owned mining company called African Exploration Mining Finance Corporation (AEMFC) to secure the resources that would supply energy for the future and champion beneficiation in the energy and steel value chain. Zuma (2011) said,

*“The role of the state cannot merely be confined to that of a regulator however it must actively participate in the mining industry to ensure that our national interest is protected and advanced.”*

This is the first step, however the government of South Africa has to take full control of management of mining sector as the custodian and ensure sustainability of beneficiation of mineral resources.

It is imperative that mineral resources extracted from South African’s land should be used for the purposes of creating optimum wealth whereby they are not only extracted and exported as crude resources but are subjected to processing and refining locally in order to add value which would enabled them to be exported as finished products to overseas hence attracting more revenue. The essence of this increased revenue should be for the benefit of the people, especially HDBSA who were deliberately excluded from the mineral resources wealth of the country. It is against this backdrop that under the current democratic government, all necessary legal interventions that will make the disadvantaged to actively participate in all activities and processes of mineral beneficiation to alleviate economic poverty and suffering of the disadvantaged. This is said against the backdrop that HDBSAs were out rightly removed from mineral resources entrepreneurship during the apartheid regime while the white minority were overwhelmingly involved. Therefore, interventions introduced to mainstream the HDBSA to actively and effectively participate in all aspects of extraction of mineral resources for the purposes of promoting beneficiation are crucial mechanisms to redress the apartheid injustices which excluded the HDBP.

Undoubtedly, transformative intervention strategies and measures are considered the best approach to mainstream majority black into mineral resources entrepreneurship activities in the mining industry. This said, the research found that there are various challenges being faced in the refining and processes of mineral resources. Most of the mineral resources are still being exported as crude. There is need to accelerate the implementation of all interventions that will enable the processing of the mined minerals locally by local entrepreneurs thereby adding value and exporting them for higher value prices.

## **RECOMMENDATIONS**

In order for South Africa to be internationally competitive and derive maximum benefits from its mineral resources in a sustainable way, the country must develop and sustain interventions promoting positive transformation in the mining industry. It is against this backdrop, that it is recommended that any impediment or deliberate barrier that will frustrate these interventions should be punitively sanctioned.

Black majority should continue to be trained and acquire skills in all aspects prospecting, extracting, processing and refining mineral resources locally. Therefore, massive investment in skills development will ensure and maintain the implementation and realisation of sustainable mineral resources beneficiation in South Africa. This, undoubtedly, will foster job opportunities, entrepreneurships, poverty alleviation and improve standard of living of the HDBP. The BEE entrepreneurs should be preferential treatment in the industry that dominated by gigantic mining houses with decades of existence, in order to survive. The Department of Small and Medium Enterprises must pave way for monetary resources and business opportunities to both existing and emerging BEE entrepreneurs, to ensure maximum impetus to local beneficiation in the mining industry.

Over and above, the government should create a conducive environment for mining companies and other stakeholders to invest in research, learning, innovation and development. By doing this, undoubtedly poverty, inequality and moratorium unemployment rate shall be history in South Africa. The host communities should be at the forefront of fundamental implementation of local beneficiation of mineral resources throughout South Africa.

## CONCLUSION

Even though South Africa is endowed with various mineral resources, the black majority had long been excluded in participating and benefiting from these naturally endowed mineral resources. Consequently, the democratic government introduced various progressive interventions to mainstream them in order to actively participate in all aspects of mineral resources enterprises and businesses and become managers and owners of mineral resources of all types in South Africa. Undoubtedly, to a greater extent, statistics point to the fact that deprived and denied black and the mining communities are the beneficiaries of these interventions and as such, the participation and inclusiveness are the catalyst for modern infrastructure, poverty alleviation, job opportunities and good standard of living.

## REFERENCES

- Beech, W., & Veltman, N. (2011). Making the most of SA'S Mineral Wealth. *Without Prejudice*, 11(6), 16-17.
- Biermann, J. (2001). Undermining mineral rights: An international comparison Johannesburg, The Free Market Foundation. Occasional Paper No. 10.
- Botha, Z. (2004). Miners contribute R1-trillion to SA's decade of democracy. *Mining Weekly*, 10(45), 2-18.
- Business report, economy. (2014). Investors shun SA's R36 trillion in minerals. Retrieved from <http://www.iol.co.za/business-report/economy/investors-shun-sas-r36-trillion-in-minerals-1762558>.
- Cleaver, B. (2016). De Beers Group: Enterprise development project for diamond beneficiaries.pdf. Retrieved from <http://jewellersnetwork.co.za/de-beers-enterprise-development-project-for-diamond-beneficiators/>.
- Collier, P.P. (2014). Oxford university: Beneficiation the good, the bad and the necessary. Retrieved from <https://mg.co.za/article/2014-02-12-beneficiation-the-good-the-bad-and-the-necessary>.
- DEAT, (1998). Department of Environment Affairs and Tourism. (1998). Green Paper on an Environmental Policy for South 1996.
- DMR, (2011). Department of Mineral Resources. A Beneficiation strategy for the minerals industry of South Africa, of June 2011.
- Doke, L. (2014). Mail and Guardian online news. Beneficiation the good, the bad and the necessary. Retrieved from <https://mg.co.za/article/2014-02-12-beneficiation-the-good-the-bad-and-the-necessary>.
- Global Education Magazine, (2012). South Africa is one of the most unequal societies in the world. Retrieved from: <http://www.globaleducationmagazine.com/south-africa-unequal-societies-world/>.
- ILO (2010). International Labour Organization. Global Wage Report 2016/17: Wage inequality in the workplace. Page 42. International Labour Office in Geneva. Retrieved from: [http://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/--publ/documents/publication/wcms\\_537846.pdf](http://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/--publ/documents/publication/wcms_537846.pdf).
- Jordan, P. (2012). State Intervenes in the Minerals Sector (SIMS) study commissioned by ANC, 2011, Flexi Cadastre, Cape Town.
- Lydall, M. (2011). beneficiation of SA's Natural Resources. Retrieved from <http://www.mintek.co.za/wp-content/uploads/2011/10/Metal-Jewellery-Brochure.pdf>.
- Mahumapelo, N.P., & Magaseng, C. (2014). Beneficiation of marble from Griekwastad, Northern Cape Province, *The Journal of the Southern African Institute of Mining and Metallurgy*, 114, 951-962.
- Makhura, D. (2016). During his address at De Beers Consolidated Mines in Johannesburg.
- Matlou, O. (2014). Centre stage for local beneficiation, Business Day, Companies and Markets. Retrieved from [https://www.ensafrica.com/Uploads/Images/news/31\\_January\\_2014\\_-\\_Business\\_Day\\_Centre\\_stage\\_for\\_local\\_beneficiation.pdf](https://www.ensafrica.com/Uploads/Images/news/31_January_2014_-_Business_Day_Centre_stage_for_local_beneficiation.pdf).

- Matlou, O. (2014). ENSafrica director in the mining business area. Retrieved from <https://www.ensafrica.com/lawyer/Otsile-Matlou?SearchTerm=Otsile%2520Matlou&personId=166>.
- Mining News. (2014). Coega IDZ's metals beneficiation precedent in SA. Retrieved from <http://www.miningnews.co.za/2014/09/23/coega-idzs-metals-beneficiation-precedent-in-sa/#>.
- Mogamad, S.D. (2014). Leading SA'S National Metals beneficiation strategy, COEGA, *Inside Mining*, 7(11), 18-28.
- Montja, N. (2014). Mineral Beneficiation in Africa: What was missed and what can now be done? MISTRA.
- Mostert, H. (2012). Mineral law: Principles and Policies in Perspectives. Juta Co Ltd Cape Town.
- Mugabe, R.G. (2014). Address at Southern African Developing Communities two-day 34th SADC summit at Victoria Falls on the 17 and 18 August 2014.
- Naidoo, S. (2012). Nationalisation taken off the table at mining indaba. Mail & Guardian retrieved from: <https://mg.co.za/article/2012-02-06-nationalisation-taken-off-the-table-at-mining-indaba>.
- Netshitenzhe, J., & Tukor, B. (2014). Industrial Development Corporation media room. (MISTRA): Beneficiation seen as the best way. Retrieved from <http://www.idc.co.za/home/media-room/articles/719-beneficiation-seen-as-the-best-way.html>.
- New Age. (2017). R4.5 billion titanium beneficiation plant opened in Richards Bay dated 11 April 2017. Retrieved from <http://www.thenewage.co.za/mec-zikalala-opens-r4-5-billion-titanium-beneficiation-plant-in-richards-bay/>.
- Omarjee, L. (2016). Beneficiation the future of SA's diamond industry, 13 July 2016. Retrieved from [www.fin24.com/.../beneficiation-the-future-of-sas-diamond-industry-20160713](http://www.fin24.com/.../beneficiation-the-future-of-sas-diamond-industry-20160713).
- PCTI, (2014). Portfolio Committee on Trade and Industry: Briefing on upstream and downstream mining linkages dated 20 August 2014. Retrieved from [https://www.thedti.gov.za/parliament/2014/Briefing\\_Beneficiation.pdf](https://www.thedti.gov.za/parliament/2014/Briefing_Beneficiation.pdf).
- RDP, (1994). *Reconstruction and Development Programme, A policy framework*, Johannesburg, Umanyano, Publications.
- Robinson, I.C., & Von Below, M.A. (1990). The role of the domestic market in promoting the beneficiation of raw materials in South Africa. *Journal of the South African Institute of Mining and Metallurgy*, 90(4), 91-98.
- Rungan, S.V., Cawood, F.T., & Minnitt, R.C.A. (2005). Incorporating BEE into the new Mineral law framework for the South Africa Mining Industry. *The journal of the South African Institute of Mining and Metallurgy*. 105(10), 735-744.
- Sorensen, P. (2014). Legislative transformation of South African mining since 1994: What progress? *International Journal of Environmental Studies*, 68(2), 171-190.
- South African News. (2017). South Africa 4billion titanium beneficiation milestone. Retrieved from <http://www.sanews.gov.za/south-africa/r4bn-titanium-beneficiation-milestone-sa>.
- Speight, R. (2015). Beneficiation legislation- does it achieve the desired effect? Retrieved from [https://www.mayerbrown.com/files/uploads/Documents/PDFs/art\\_speight\\_beneficiation-legislation\\_dec2115.pdf](https://www.mayerbrown.com/files/uploads/Documents/PDFs/art_speight_beneficiation-legislation_dec2115.pdf).
- SSA, (2016). Statistics South Africa. Retrieved from: [http://www.statssa.gov.za/?page\\_id=5992](http://www.statssa.gov.za/?page_id=5992).
- Teke, M., & Baxter, R. (2015). Chamber of mines response to eff memorandum dated 25 November 2015. Retrieved from <http://www.chamberofmines.org.za/industry-news/special-features/47-chamber-of-mines-response-to-eff-memorandum-of-27-october-2015>.
- Teke, M. (2017). Chambers of Mines of South Africa. Achieving the mining sector's great economic and transformational potential - what is required. Retrieved from: <http://www.chamberofmines.org.za/industry-news/publications/presentations/send/7-2015/395-achieving-the-mining-sector-s-great-economic-and-transformational-potential-what-is-required>.
- The Freedom Charter. (1955). Retrieved from [www.anc.org.za/ancdocs/history/charter.htm](http://www.anc.org.za/ancdocs/history/charter.htm) p.
- Tukor, B. (2014). Beneficiation seen as the best way. Industrial Development Cooperation. Retrieved from <http://www.idc.co.za/home/media-room/articles/719-beneficiation-seen-as-the-best-way.html>.
- Van Dijk, M. (2017). JSE Magazine, Beneficiation full value, accessed at <http://www.jsemagazine.co.za/jse-supplement/full-value/>.
- World Bank Report, (2018). South Africa Economic update. Jobs and Inequality.
- WPMMP, (1998). White Paper Minerals and Mining Policy of 1998. Retrieved from [http://www.gov.za/sites/www.gov.za/files/white\\_paper\\_mining\\_minerals\\_policy\\_2.pdf](http://www.gov.za/sites/www.gov.za/files/white_paper_mining_minerals_policy_2.pdf).
- Zonwabele, Z.T. (2015). *Analysis of the key factors affecting beneficiation in South Africa*. University of the Witwatersrand, Faculty of Engineering and the Built Environment, School of Mechanical, Industrial & Aeronautical Engineering.

Zuma, J.G. (2011). BBC News. South Africa launches state-owned mining company. Retrieved from <http://www.bbc.com/news/business-12591324>.