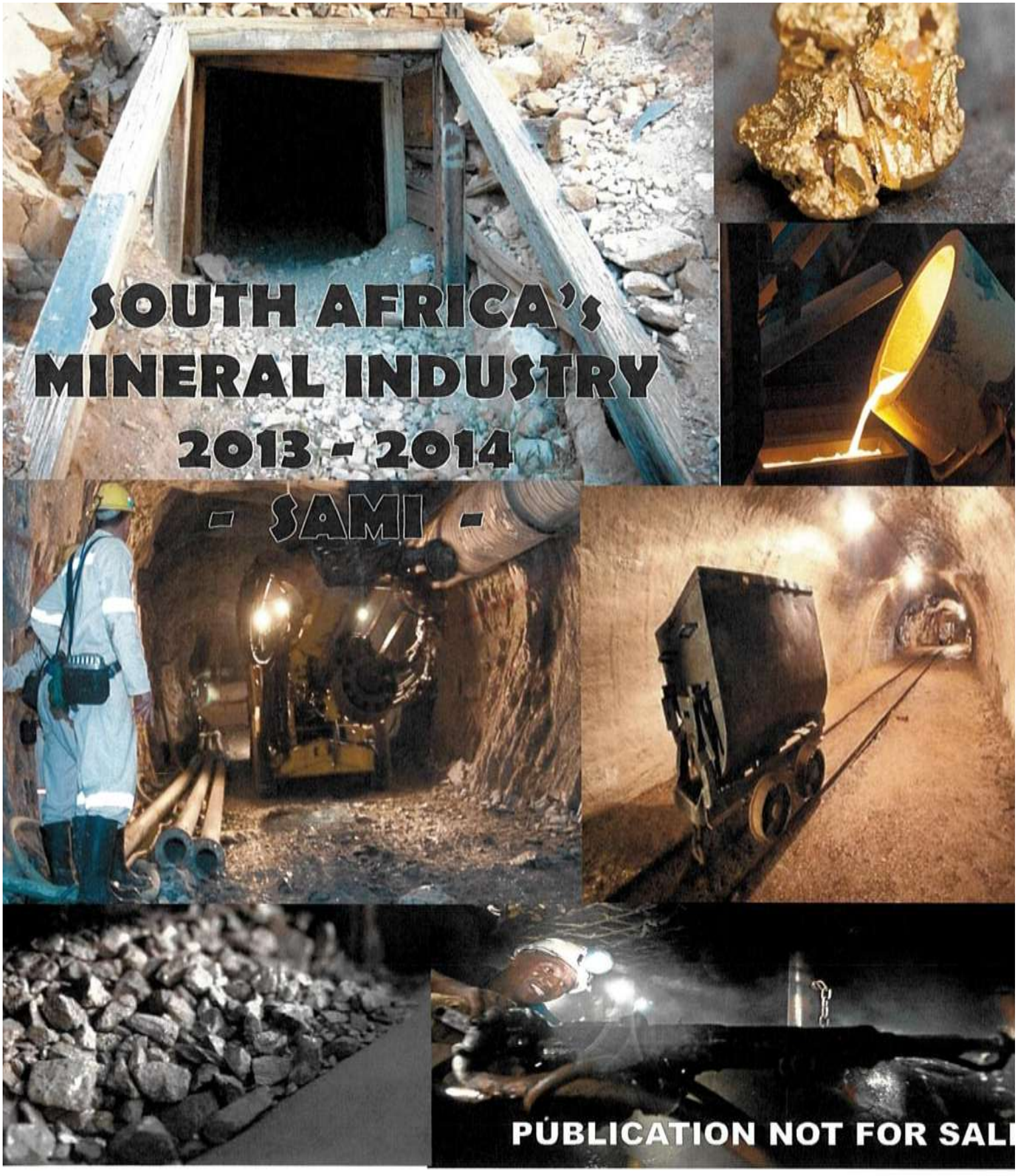

mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

DEPARTMENT: MINERAL RESOURCES
REPUBLIC OF SOUTH AFRICA

Directorate: Mineral Economics

SOUTH AFRICA'S MINERAL INDUSTRY

2013/2014

The cover picture represents South Africa's Minerals Mining Industry.

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FOREWORD

South Africa ranks among the most sophisticated and promising emerging markets in the world. The introduction and adoption of the National Development Plan (NDP) 2030 in September 2012 by the South African government, envisaged an economy that serves the needs of all South Africans. It offers a long-term socio-economic development road map. In 2013, Government's National Development Plan (NDP) and the New Growth Path (NGP) were applauded for their focus on creating jobs. South Africa's mining industry continues to play an economical and socioeconomic role in the country's development. The country accounts for 96 percent of known global reserves of the platinum group metals (PGMs), 74 percent of chrome, 26 percent manganese, 25 percent of vanadium and 11 percent of gold reserves. As a leading producer and supplier of a range of minerals, the country offers a highly competitive investment location ensuring that it can meet specific trade and investment requirements of prospective investors and business people, whilst also meeting the development needs of its populace.

Although global activity strengthened during the second half of 2013 and Q3 2013 touted as turning point for the global economy, the reality is that 2013 was a difficult year. However, South Africa continued to attract investment interest. The country has the potential to supply a large share of the global demand for many commodities, but its rich endowment of natural resources and high mineral potential can only be developed and extended through a vibrant exploration sector.

In 2013, a total amount of 3 933 applications for prospecting and mining rights were received by the DMR. Of the total number of applications received, 3 003 applications were for prospecting rights, 930 were for mining rights. This gives an indication of interest from the investment community for South Africa's natural resources. In the same year, mining contributed R279.7 billion ($29.0 billion) or 9.2 percent to gross domestic product, an increase of R9.6 billion over the previous year. Despite the slowdown in the global economy, depressed commodity prices as well as labour unrest, South Africa's mineral export sales revenue increased by 4 percent to R278.7 billion in 2013 from R269.1 in 2012. However, primary minerals export sales percentage contribution to the country's total exports value of goods decreased from 33 to 30 percent. During this period, PGMs and ferrous mineral export sales revenue increased by 23.7 percent and 23.3 percent, respectively. Non-ferrous minerals followed the same trend with an increase of 12 percent to R14.7 billion in 2013. The increase is attributed to strong commodities demand from China, particularly of iron ore, increased export volumes and well as the depreciation of the rand / dollar exchange rate. However, the negative effect of the weaker commodity prices was evident in the gold and coal export sales revenue which decreased by 25.1 percent and 2.6 percent from R72 billion in 2012 to R53.9 billion in 2013 and from R52.2 billion to R50.9, respectively. The processed total sales revenue as well increased by 12.2 percent from R59.5 billion in 2012 to R66.7 billion in 2013, with export and local sales increasing by 12.6 percent and 10.1 percent, respectively. The largest contributors to the total of selected processed minerals sales were chromium alloys at 42.8 percent, followed by a conglomerate of classified commodities at 39.1 percent and antimony at 22.4, respectively.

However, the total state revenue from the mining sector decreased significantly by 47.6 percent to R18.9 billion in 2013 from R12.8 billion in 2012. Iron ore was the largest contributor at 33.3 percent to the total state revenue, followed by platinum and chrome at 17.9 and 16.6 percent, respectively. In addition, SA's total mining employment decreased by 14 533 workers or 2 percent to 510 099 in 2013 from 524 632 in 2012, mainly due to the retrenchments in the gold and PGMs sectors as a result of industrial action. While, during the same period remuneration in the mining sector increased by 7.7 percent from R 93.61 billion in 2012 to R 100.81 billion in 2013 (Table 5). For the past decade, 2004-2013, a total of 61 190 direct jobs were created, highlighting the significance of mining to the South African economy.

As a result of its vast mineral resources, South Africa is, to a large degree self-sufficient with respect to the supply of minerals however, there are some minerals and mineral products, which need to be imported due to lack of local resources. The total value of the more significant imports during 2012, decreased by 16.1 percent from R20.1 billion in 2011 to R16.8 billion in 2012. In order to reduce the increase in imports, South Africa will need to intensify beneficiation and develop projects that will produce value added products locally and substitute imported goods. Thus, beneficiation remains a key initiative for government, as it seeks to leverage the country's comparative advantage in mineral resource endowment to create a competitive advantage for domestic mineral beneficiating entities thus playing a contributory role towards setting the country's growth trajectory on a production led growth path.

Despite the slow economic recovery globally, newly committed investment in mineral related projects in South Africa amounted to R167 237 million by September 2012, of which 87.9 percent is for primary

minerals and 12.1 percent recorded for processed mineral products. Platinum projects dominated the primary minerals, accounting for 54.8 percent followed by other minerals 38.9 percent and gold's 5.4 percent. This paints a picture that despite a myriad of challenges that the sector faces the country remains among the favoured investment destinations.

Mineral Economics team wish to thank the staff of the Mineral Policy and Promotion for their continued sterling performance in contributing to the compilation of this publication, the industry for its support and cooperation. Special appreciation is extended to Mr. S Ntshobane, Ms K Ratshomo, Mr. O Mkhari and Mr. L Maphango, all of whom are no longer in the employ of the department but selflessly contributed to the compilation of this 31st edition of SAMI.

TR Masetlana

Director: Mineral Economics

31st March 2015

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ABBREVIATIONS AND SYMBOLS

A$	Australian dollar
bbl	barrel
bbl/d	barrels per day
BGS	British Geological Survey
billion	thousand million
CIF	cost, insurance, freight
CIS	Commonwealth of Independent States. Par of the former Union of Soviet Socialist Republics (USSR)
China	People's Republic of China
CPI	Consumer price index
conc	concentrate carat ct
ct	carat
DM	Deutsche Mark
DMR	Department of Mineral Resources
DRC	Democratic Republic of Congo
DRI	Direct reduced iron
e	estimate
EAF	Electric-arc furnace
EU	European Economic Union
FOB	free on board
FOR	free on rail
FSU	Former Union of Soviet Socialist Republics (USSR)
g	gram
Ga	giga year
g/t	gram per ton
GAR	gross as received
GWe	net gigawatts electric
ILZSG	International Lead and Zinc Study Group
INSG	International Nickel Study Group
kcal	kilocalorie
kg	kilogram
kg/t	kilogram per metric ton
km	kilometre
kt	kiloton
kt/a	kiloton per annum
lb	pound avoirdupois
LME	London Metal Exchange
m	metre
m^3	cubic metre
Ma	million years
mic	metal-in-concentrate
Mct	million carats
Mozt	million ounces troy
Mozt/a	million ounces troy per annum
Mt	megaton (million tons)
Mt/a	million tons per annum
MVA	megavolt ampere
carat	MWh megawatt hour
na	not available
nar	not as received
ns	not specified
NW	North West Europe
ozt	troy ounce
pa	per annum
PGMs	platinum-group metals
ppm	parts per million
R	rand (South African currency)
	SA South Africa
S.ton	Short ton
t	metric ton
t/a	tons per annum
TCF	trillion cubic feet
UAE	United Arab Emirates
US	United States of America
USBM	United States Bureau of Mines
USGS	United States Geological Survey
w	withheld
WBMS	World Bureau of Metal Statistics
y	year
y-o-y	year-on-year
$	US dollar, unless stated otherwise
C$	Canadian dollar
£	British pound sterling
%	per cent

EXPLANATORY NOTES

Reference

Due to space limitations, only the sources of statistical information are given. The absence of a source reference to statistical data indicates that such data was sourced from the Directorate: Mineral Economics database of mineral production, sales and labour in South Africa. A bibliography is presented in Part Three.

Mineral Resource

Mineral Resource covers in situ mineralisation as well as dumps or tailings, which have been identified and estimated through exploration/assessment and sampling from which mineral reserves may be derived by the application of modifying factors.

Minerals Reserve

In this publication, mineral reserve refers to the economically mineable material derived from a measured and indicated mineral resource. It includes diluting materials and allows for losses that are expected to occur when the material is mined. Appropriate assessment to a minimum of pre- feasibility study for a project or a Life of Mine Plan for an operation, must have been carried out, including consideration of, and modification by, realistically assumed mining, metallurgical, economic, marketing, legal, environmental, social and governmental factors.

PART ONE: SOUTH AFRICA'S MINERAL INDUSTRY

GENERAL REVIEW

P Mwape, M Mnguni, N Jali and K Menoe

INTRODUCTION

The South African mining and minerals industry has played a key role in the country's economic development, which has transformed South Africa into the most industrialised country in Africa. It has also been the principal driver of the current infrastructure network which now underpins jobs in many other sectors. The South African government's development policies, the National Development Plan (NDP) and the New Growth Path (NGP), both recognise the critical role that mining contributes in growing investments, exports, gross domestic product (GDP) and job creation. In this respect government, organised labour and industry have, through the Mining Industry Growth, Development and Employment Task Team (MIGDETT) undertaken several initiatives aimed at resolving the challenges facing the industry.

Other policy interventions aimed at addressing structural imbalances and tackle high levels of unemployment, poverty and inequality have either been developed or are currently being developed. Principal amongst these are the National Development Plan (NDP), Developmental Growth Path (DGP), Industrial Policy Action Plan (IPAP), the Ten Year Innovation Strategy as well as the Beneficiation Strategy. The IPAP identifies areas where employment could be leveraged and Key Action Plans (KAPs) to achieve the employment growth.

The mining industry is a well-established and resourceful sector of South Africa's economy and has a high degree of technical expertise as well as the ability to mobilize capital for new development. It has provided the impetus for the development of an extensive and efficient physical infrastructure and has contributed greatly to the establishment of the country's secondary industries. With the diversity and abundance of its natural resources, South Africa is a leading producer and supplier of a range of minerals and produced approximately 53 different minerals from 1 712 mines and quarries in 2013. Gold was produced from 53 mines, platinum-group metals (PGMs) from 43 mines, coal from 143 mines and diamonds from 388 mines, all as primary commodities.

STRUCTURE OF THE MINING INDUSTRY

South Africa, now in its second decade of a constitutional democracy endorsed the principles of private enterprise within a free-market system, offering equal opportunities for its entire people. The State's influence within the mineral industry is not only confined to orderly regulation and the promotion of equal opportunity for all its citizens and investors, but also participates in mining operations through state owned

companies like Alexkor, African Exploration Mining and Finance Corporation (Pty) Ltd (AEMFC) and the Industrial Development Corporation (IDC).

Transformation

Corporate restructuring of the South African mining industry remains an ongoing exercise. The introduction of the Mining Charter in South Africa was aimed at transforming the mining industry to redress historical imbalances, so that the industry is aligned with the changes in the country's overall transformation of its social, political and economic landscape.

The transformation of the mining industry has included the consolidation of ownership through minority buy-outs, separation of large diversified companies into two or more specialised companies as well as the purchase of South African mining assets by foreign companies.

Associations involved in the South African mining industry include:

Business

The *Chamber of Mines* of South Africa is a voluntary, private sector employers' organisation founded in 1889, three years after gold was discovered on the Witwatersrand. The Chamber is an association of mining companies and mines operating in the gold, coal, diamond, platinum and other mineral commodity sectors. Today, the organisation acts as the principal advocate of the major policy positions endorsed by mining employers. The Chamber represents the formalised views of its membership to various organs and spheres of government, and to other relevant policy-making and opinion-forming entities, both within and outside the country.

The *South African Mining Development Association (SAMDA),* which was formed in 2000 as a junior mining initiative by a group of people associated with various South African junior and BEE mining companies, aims to create an enabling environment for raising finance, developing technical and other skills, practising responsible environmental management and sustainable development as well as the maintenance of standards of good practice in the junior mining sector.

Voluntary Associations

- The Southern African Institute of Mining and Metallurgy (SAIMM), was founded 115 years ago in 1894. The SAIMM is a professional institute with local and international links aimed at assisting member's source news and views about technological developments in the mining, metallurgical and related sectors as well as embracing a professional code of ethics. (www.saimm.co.za).
- South African Colliery Managers Association (SACMA). (www.Sacollierymanagers.org.za)
- Association of Mine Managers South Africa (AMMSA). (www.ammsa.org.za)

- Geological Society of South Africa (GSSA)
- Engineering Council of South Africa (ECSA)
- South African for Natural Scientific Professions (SACNASP)

Statutory Associations:

Workers in the mining industry are represented by the following organisations:

- The National Union of Mineworkers (NUM), which was formed on 4 December 1982. The NUM is the largest recognised collective bargaining agent representing workers in the Mining, Construction and Electrical Energy Industries in South Africa and the largest affiliate of the Congress of South African Trade Unions (COSATU), with offices in all the South African Provinces.

- The United Association of South Africa (UASA) also plays an important role in the international labour arena, joining hands with various international federations that promote global solidarity among workers of the world in their struggle against the negative effects of globalisation of the economy. UASA is affiliated to the International Federation of Transport Workers (FIOST), the International Confederation of Free Trade Unions (ICFTU), and the World Confederation of Labour (WCL).

- Solidarity is another movement, which represents the rights of its members and their communities.

- The African Mineworkers and Construction Union (AMCU) formed in 1999, also represents workers at chrome and platinum mines as well as workers at some coal mines in Mpumalanga and KwaZulu-Natal. It is also recruiting at the iron ore and manganese mines around Kathu and Hotazel in the Northern Cape. It focuses on vulnerable contract workers.

There are also many co-operative organizations, which serve the interests of the smaller groups and independent operators, or specific sectors of the industry. These include the Aluminium Federation of South Africa, the South African Copper Development Association, the Ferro-Alloy Producers Association, the Engineering Industries Federation of South Africa, the Southern Africa Stainless Steel Development Association, the Diggers Association and the Aggregate and Sand Producers Association of South Africa.

Government

Ownership, access and opportunity in regard to the country's mineral and petroleum resources are regulated by the Mineral and Petroleum Resources Development Act of 2002 (Act No. 28 of 2002) (MPRDA), which recognises the State's custodianship over the country's mineral and petroleum resources. The MPRDA regulates the prospecting for, and optimal exploitation, processing and utilisation of minerals, provides for safety and controls the rehabilitation of land disturbed by exploration and mining. This Act

defines the entire regulatory environment of the minerals industry, from rights and ownership to mineral sales and beneficiation.

The Act's main objectives are to:

- recognize State custodianship of all mineral and petroleum resources within the Republic of South Africa;
- promote equitable access to the nation's mineral and petroleum resources, especially among historically disadvantaged South Africans;
- promote investment, growth and employment in the mineral and petroleum industry thus contributing to the country's economic welfare;
- provide for security of tenure in respect of existing prospecting, exploration, mining and production operations;
- give effect to section 24 of the Constitution by ensuring that the nation's mineral and petroleum resources are developed in an orderly and ecologically sustainable manner; and
- ensure that holders of mining and production rights contribute towards the socio-economic development of the areas in which they are operating.

Recognizing State custodianship of natural resources has brought South Africa in line with international best practices consistent with UN Resolution 1803 governing States' Permanent Sovereignty over Natural Resources. This more universally recognized mineral rights system has led to the freeing-up of unused old order rights and hitherto effectively sterilized privately-owned mineral rights in prospective mineral terrains, which attracts international exploration and mining companies and increases the level of competition among local players.

The Act also aims to assist historically disadvantaged South Africans aspiring to conduct prospecting or mining activities, with the proviso that such assistance is fair and equitable and does not harm the interests of other parties. The Act provides security of tenure for owners of existing rights, or for those whose applications were being processed at the time of enactment and guarantees security of tenure in respect of prospecting and mining operations. Furthermore, this gives the holder of an "old order" mineral right an opportunity to comply with the provisions of the Act and also promotes equitable access to the country's mineral and petroleum resources.

The Advantages of the New System of State Custodianship of Mineral Rights in South Africa

- The change from a dual system of ownership to a singular system where the State controls the ownership of mineral rights on behalf of the nation has facilitated access to potential mineral terrains for new entrants into the mining and minerals industry thus stimulating private sector activity.

- State control of mineral rights removes difficulties in legal and administration costs and delays caused by a fragmented mineral right holdings structure.
- The system of State custodianship of mineral rights enables the state to enforce the submission and release of exploration information, thereby avoiding the duplication of exploration activities.
- State custodianship of mineral rights prevents the hoarding of mineral rights and allows equal and equitable access to potential investors.

Review of the Mining Charter

The Department is currently finalising the mining charter assessment process to determine the mining industry's compliance with the Mining Charter targets set for 2010 to 2014 milestones. This is the continuation of the initial assessment conducted in 2009 aimed at ensuring meaningful and effective transformation within the mining sector.

Other Mining Policy and Legislative Amendments

- Chapter XVI of the Mining Rights Act, (Act No 20 of 1967) in the form of the Precious Metals Act, 2005 (Act No. 37 of 2005)
- The Diamonds Act, 1986 (Act No 56 of 1986) in the form of the Diamonds Amendment Act, 2005 (Act No 29 of 2005), and the Diamonds Second Amendment Act, 2005 (Act No 30 of 2005).
- Geosciences Amendment Act, 2010 (Act No. 16 of 2010
- The Geoscience Amendment Act (16/2010) Draft Regulations
- The Housing and Living Conditions Standards for the Mining and Mineral Industry, 2009,
- The Codes of Good Practice for the Mining and Mineral Industry, 2009
- Section 22 (5) Guidelines
- African Exploration Mining and Finance Corporation Bill 2015 (AEMFC Bill)

The objective of the Precious Metals Act is to provide for the acquisition, possession, smelting, refining, beneficiation, use and disposal of precious metals. Precious metals include gold and the platinum group metals (PGMs). Since silver is produced as a by-product and has a low value (price) compared to other precious metals, it is excluded from the definition of precious metals.

The Diamonds Amendment Acts, 2005 (Act No. 29 of 2005 and Act No. 30 of 2005)

The rationale for the amendment of the Diamonds Act, 1986 (Act No.56 of 1986) was: to increase access to rough diamonds for jewellery manufacturing in South Africa, to maintain security of supply of rough diamonds, and to promote the beneficiation of diamonds in South Africa, thus creating jobs and increasing participation especially by Historically Disadvantaged South Africans throughout the diamond value chain.

Housing and Living Conditions for the Mineral Industry

The Housing and Living Conditions were gazetted in April 2009, with the objective of developing basic guidelines for suitable housing and living conditions standards for mine workers.

The codes of good practice were first published in April 2009 for implementation as of the 1st of May 2009. The review of the codes initiated in September 2010 was influenced by the need identified by the department to facilitate the creation and development of relevant avenues for human resources and economic development within mining communities. The need identified was also to ensure sustainable development and economic growth in line with the Broad Based Socio-Economic Empowerment Charter for the South African Mining and Minerals Industry.

Drafts of reviewed Codes were developed and referred to the Minister who has since approved them for consultation purposes. The purpose of the review is to outline ethical standards to be adhered to by all mining industry stakeholders in respect of fronting, labour practices, fair business practices, beneficiation, community upliftment, employee welfare, sustainable development and safe mineral exploitation. In the Draft Review of the Codes of Good Practice, stakeholders commit to exercising ethical behaviour, respect for employees' rights and to promote economic development within mine communities.

Extensive consultation with all relevant stakeholders on the Draft Reviewed Codes will be conducted after the Minister has approved the Draft Reviewed Codes document. It is expected that once the Codes of Good Practice are implemented, the industry will reflect the vision of non-racial, non-sexist and prosperous South Africa. The setting up of administrative principles will also facilitate the effective implementation of the minerals and mining legislation and enhance the implementation of the Broad-Based Socio-Economic Charter as applicable to the mining industry as well as to give effect to section 100(1) (b) of the Mineral and Petroleum Resources Development Act, 2002.

Geoscience Amendment Act 16 of 2010

Following an extensive consultative process, a Draft Amendment Bill was prepared and tabled in Parliament in June 2010. In September 2010, the Bill was considered by the Parliamentary Portfolio Committee and approved by the National Assembly in late November 2010. The President of the Republic assented to and signed the Bill into law on the 3rd of December 2010. The Act was proclaimed by the President on the 28th of May 2012 with the exception of certain sections. The excluded sections were suspended from coming into operation due to a lack of financial resources to implement same by the CGS. These will be put into operation once the CGS has secured the requisite funds from National Treasury.

The main objectives of the Amendment Act are to mandate the Council for Geoscience to be the custodian of geotechnical information, to be the national advisory authority in respect of geo-hazards related to

infrastructure and development, and to undertake reconnaissance operations, prospecting, research and other related activities in the mining sector.

The Geoscience Amendment Act (16/2010) Regulations

Consequent to the promulgation of the Amendment Act, the DMR's Mineral Policy Development Directorate, together with the Council for Geoscience, developed Draft Regulations. The purpose of the regulations is to prescribe the processes, procedures and requirements for compliance with the Amendment Act. All the relevant stakeholders will be consulted on the Draft Regulations.

Section 22 (5) Guidelines (MPRDA of 2002)

In March 2011, comprehensive section 22 (5) guidelines were prepared. The purpose of the guidelines is to create an enabling environment for the Department to facilitate the processing of applications made in terms of section 22 (5), which empowers the Minister to exercise his/her discretion by publishing a notice in the Government Gazette inviting applications for mining rights in respect of specific land.

The guidelines are aimed at achieving the following objectives:

- optimal mining of South Africa's mineral resources;
- promotion of investment in the mining and minerals industry;
- equitable access to the nation's mineral resources;
- substantial and meaningful opportunities for historically disadvantaged persons;
- promotion of economic growth and mineral resources development;
- promotion of employment and advancement of the social and economic welfare of all South Africans..

The draft guidelines were approved by the Director General (DG) and the Minister for implementation.

Mineral and Petroleum Resources Development Amendment Bill 2013

The objectives of the amendment are:

- improve the current construct of the Act to remove ambiguities,
- make provision for a comprehensive consultation process with landowners, lawful occupiers and interested and affected parties, make provision for enhanced sanctions,
- Streamline the licensing processes and provide for a single regulatory authority. provide for regulation of associated minerals, partitioning of rights and enhance provisions relating to the regulation of the mining industry through beneficiation of minerals or mineral products;
- provide for active State participation in petroleum exploration and production;
- promote national energy security; and

- align the Mineral and Petroleum Resources Development Act with the Geoscience Act, 1993 (Act No. 100 of 1993).

The Amendment Bill was tabled before Parliament in 2013 and dully considered by the Portfolio Committee on Mineral Resources through extensive public hearings involving all interested and affected parties, in particular, the petroleum industry, environmental groups, the legal fraternity and communities. The DMR responded comprehensively to all concerns raised on the Amendment Bill in this process.

The key provisions of the Bill include among others the introduction of the integrated licensing regime, the concept of active State participation in the exploitation of the nation's petroleum resources, determination of strategic minerals by the Minister, mineral beneficiation, improvements on regulation of Social and Labour Plans (SLP's), substitution of the first come first serve system with an application process by invitation and enhanced sanctions. The Bill has been through the both houses of Parliament and was referred by the National Assembly to the President for assent in April 2014. The President has referred the Bill back to the National Assembly (NA) for reconsideration in terms of section 79 (1) of the Constitution on the basis that he has reservations regarding certain aspects of the Bill. The reservations relate to the constitutionality of the Bill, conflicts with international trade agreements, insufficient consultation by the National Council of Provinces and consultation with Traditional Authorities. The Bill is currently with NA for reconsideration as per the President's referral.

African Exploration Mining and Finance Corporation Bill 2015 (AEMFC Bill)

The department is in the process of developing a draft Bill referred to as the African Exploration Mining and Finance Corporation Bill, 2015. The purpose of the AEMFC Bill is to provide for :

(a) establishment of African Exploration Mining and Finance Corporation as a creature of statute;
(b) consolidation of the directly held State interest in mining assets;
(b) objects and functions of the African Exploration Mining and Finance Corporation;
(b) constitution of its Board and the management of the African Exploration Mining and Finance Corporation by the Board;
(c) finances of the African Exploration Mining and Finance Corporation; and
(d) Chief Executive Officer and the staff of the African Exploration Mining and Finance Corporation;

The draft Bill has been forwarded to the Office of the Chief State Law Adviser (OCSLA) for pre-certification. The OCSLA has certified that the draft Bill conforms with the requirements of the Constitution. The draft Bill will be published for public comments upon Cabinet approval.

International Organisations/Associations

Association of African Diamond Producing Countries (ADPA)

ADPA is an association of diamond producing African countries, 11 of which have full membership while seven only enjoy observer status. The Association is chaired on a rotational basis and in July 2012, Ghana took over chairpersonship from the Democratic Republic of Congo during the annual Council of Ministers' meeting held in Accra, Ghana. The ADPA Secretariat was in consultation with the Council of Mining Ministers to host the meeting later in 2014, following postponement of the 2013 meeting which was supposed to be held in Guinea Conakry. However, the 2014 Council of Mining Minister's meeting could not be held due elections and the Ebola outbreak in 2013 and 2014 respectively. The main focus of ADPA revolves around the implementation of aligned policies and strategies intended to maximize the benefits derived from revenues of diamonds across the African continent. In so doing ADPA explores the development of a best practice document that will promote the realisation of harmonised policies across Africa with a goal to increase foreign investments into the diamond sector for the benefit of all member States.

The Kimberley Process (KP)

South Africa is one of the founding members of the Kimberley Process (KP), which brought into existence the Kimberley Process Certification Scheme (KPCS). The KP was established when diamond producing countries convened in Kimberley, South Africa in May 2000, to discuss ways to stem the trade in 'conflict diamonds' and ensure that the diamond trade was not fuelling armed conflicts. In December 2000, the United Nations General Assembly adopted a landmark Resolution 55/56 of 2000, which supported the establishment of an international certification scheme for rough diamonds. By November 2002, negotiations between governments, the international diamond industry and civil society organisations resulted in the creation of the KPCS, which was launched in Kimberley, South Africa in 2003.

As one of the founding members of the KPCS, South Africa played a pivotal role in the establishment of the KPCS as well as the harmonisation of the regulatory framework relating to the sale and export of diamonds. The KPCS has 54 participants representing 81 countries that counts for 99.8 precent of the global production of rough diamonds.

The KPCS core document (statutes) governs the global production of rough diamonds and stipulate the objectives, definitions, internal controls and, most importantly, minimum requirements that each participant must comply with. The People Republic of China hosted KPCS Intercessional and Plenary meetings in June and November 2014, respectively. The Republic of Angola assumed KPCS Chairpersonship from the 1st of January 2015 for the next twelve months.

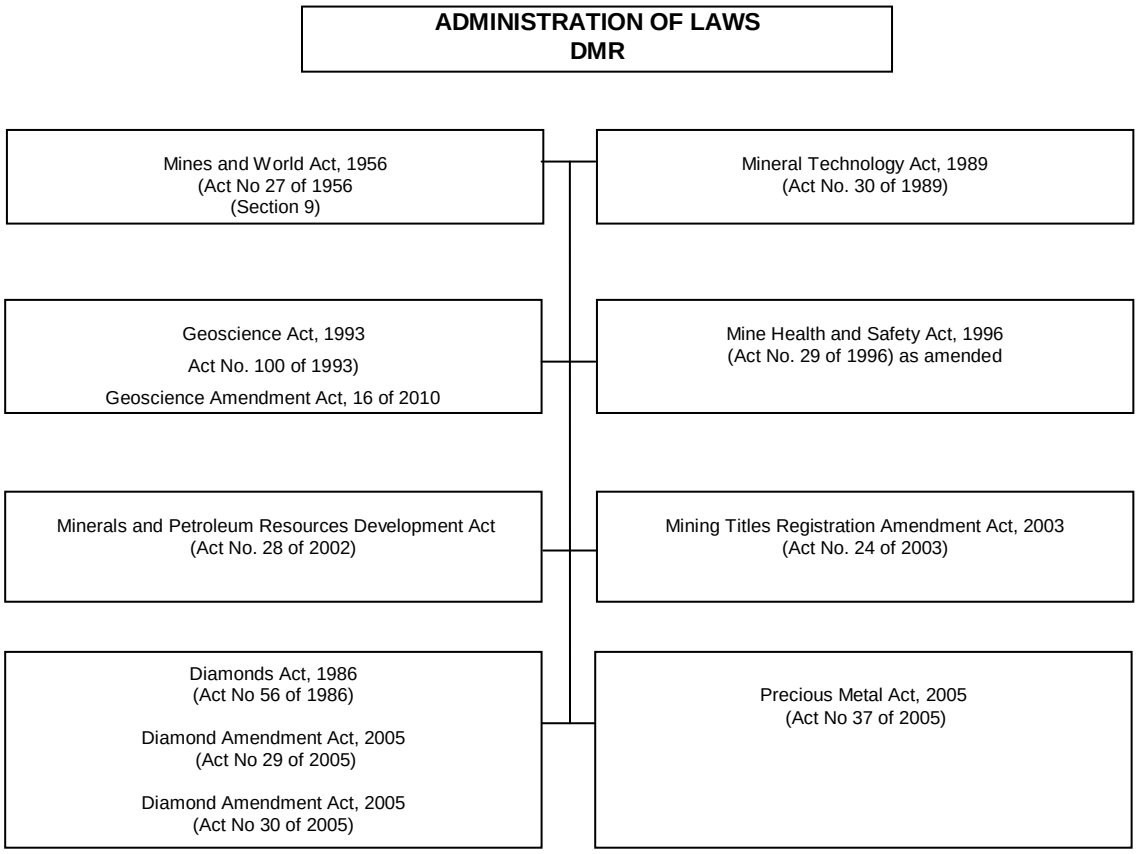
Department of Mineral Resources (DMR)

The Department of Mineral Resources (DMR) assumes the custodianship of all mineral resources in the Republic of South Africa on behalf of its citizens. To this end, the Department promotes and regulates the

Minerals and Mining Sector for transformation, growth and development as well as ensures that all South Africans derive sustainable benefit from the country's mineral wealth. Various specialised divisions of the DMR and associated institutions are responsible for the administration of the mining and regulations (Figure 1) and for promoting the development of the industry. Mining is regulated by three branches, namely the Mineral Policy and Promotion Branch, Mineral Regulation Branch and the Mine Health and Safety Inspectorate.

The *Mineral Policy and Promotion Branch* is responsible for formulating mineral related policies and helps promote the mining and minerals industry of South Africa in order to make it attractive to investors. The branch consists of four Chief Directorates: *Mineral Policy,* which develops new policies, reviews existing policies and amends legislation to promote investment growth and achieve transformation in the minerals and mining industry; *Economic Advisory Services* that undertakes macroeconomic research and analysis, to inform Executive Management and the department in their engagements with industry stakeholders; *Mineral Promotion* promotes mineral development and advises on trends in the mining industry to attract additional investment,; and *Mine Environmental Management* that provides strategic guidance to mine environmental management and mine closure issues, including the management of derelict and ownerless mines.

FIGURE 8: SUMMARY OF SOUTH AFRICA'S ADMINISTRATION OF MINERAL LAWS



Source: DMR

The *Mineral Regulation Branch* regulates the minerals and mining sector to promote economic growth, employment, transformation and sustainable development. Mineral Regulation is also responsible for the administration of prospecting and mining rights licensing and compliance with the Mineral and Petroleum Resource Development Act, 28 2002 (the Act), including environmental management compliance by mines.

The *Mineral Regulation* branch consists of four Chief Directorates that are accountable for all matters relating to mineral regulation within the nine regions. The *Central Region* is responsible for Free State and Northern Cape provinces; *Western Region* for Gauteng and North West provinces; *Northern Region* for Limpopo and Mpumalanga provinces; while the *Coastal Region* is responsible for KwaZulu Natal and Eastern and Western Cape provinces.

The *Mine Health and Safety Inspectorate* (MHSI) is responsible for implementing mine health and safety legislation. The Inspectorate ensures the safe mining of minerals under healthy working conditions and is represented in the various provinces by Principal Inspectors.

The branch is comprised of two sub – programmes which are: Mine Health and Safety (Regions) responsible for audits, inspections, investigations, enquiries, enforcing the Mine Health and Safety Act and its provisions, examination services and providing professional advice; and Governance Policy and provide

technical support to regional offices, chair tripartite structures and facilitate HIV and AIDS work in the sector.

Through the *Mine Health and Safety Council* (MHSC), the inspectorate provides leadership and participates in initiatives and activities of tripartite institutions to respond to current health and safety challenges. The MHSC is a national public entity (schedule 3A) established in terms of the Mine Health and Safety Act, No 29 of 1996 as amended. The main task of the Council is to advice the Minister of Mineral Resources on occupational health and safety legislation and research outcomes focused on improving and promoting health and safety in South African mines.
The MHSC continues to respond to health and safety challenges through implementation of focused programmes addressing milestones agreed upon by stakeholders (labour, state and employers) during their health and safety summit in 2003.

Resolutions made included that the mining sector will achieve a 20 percent decline in fatality and injury rates per year and eliminate Silicosis and Noise Induced Hearing Loss by 2013. The setting, monitoring and enforcement of health and safety standards within the South African mining industry are regulated under the Mine Health and Safety Act 1996, (Act No. 29 of 1996). The Mine Health and Safety Act 29 of 1996 ("MHSA"), referred hereto as the Principal Act, was published in the Government Gazette in June 1996 and came into operation on the 15th of January 1997. The Principal Act was amended in 1997 by the Mine Health and Safety Amendment Act 72 of 1997 with minimal changes.

In 2008 the Principal Act was further amended in detail by the Mine Health and Safety Amendment Act 74 of 2008. This Act 74 of 2008 addressed some challenges and shortcomings that had developed over the years in the mining industry with regard to the enforcement of the MHSA. This Amendment Act came into operation on the 1st of May 2009. Currently, the Mine Health and Safety Act is being reviewed comprehensively;

- to strengthen enforcement provisions; to simplify the administrative system for the issuing of fines;
- to reinforce offences and penalties; to substitute and remove ambiguities in certain definitions and expressions; and
- to effect certain amendments necessary to ensure consistency with other laws, particularly the Mineral and Petroleum Resources Development Act, 2002 (MPRDA).

The DMR in association with the following highly specialised associated institutions of government conducts regulatory, promotional and various research activities

- The Council for Geoscience (CGS) undertakes geological mapping and carries out studies pertaining to the identification, nature, extent and genesis of ore deposits and also maintains national databases of the country's geoscientific data and information.

- Council for Mineral Technology (MINTEK) assists the minerals industry to operate more effectively by developing and making available the most appropriate and cost-effective mineral recovery and mineral beneficiation technologies. It is engaged in the full spectrum of minerals research: from the mineralogical examination of ores to the development of processing, extraction and refining technologies and also conducts research into: the production of added value products and feasibility and economic studies. Much of this work is carried out in close liaison with the local and international minerals and metallurgical industries.
- The South African Nuclear Energy Corporation (NECSA) undertakes and promotes research and development in the field of nuclear energy technology and radiation sciences in order to process source material, special nuclear material and restricted material as described in Nuclear Energy Act, No 146, 1999, Sections 2(a), 2(b) and 2(c).
- The Council for Scientific and Industrial Research (CSIR) conducts, *inter alia*, research related to specific minerals, brown fields mineral exploration, air quality, water pollution and purification, as well as mining and mineral processing technologies. The CSIR's Division of Natural Resources and Environment in the mining category focuses its research and development on the mining industry. Major research activity in this division focuses on the most crucial challenges threatening the health and safety of the underground workforce and overcoming a variety of technological challenges that impact on profitability in the mining industry. The division conducts fundamental research and technology development and provides general advice and assistance relating to the improvement of the underground environment and strata control, reduction of hazardous conditions associated with rock pressure in mining operations, as well as development of new or improved mining systems and equipment.
- The South African Diamond & Precious Metals Regulator (SADPMR) was established by Section 3 of the Diamonds Act, 1986 (as amended in 2005), and replaced the South African Diamond Board which was de-listed as a Schedule 3A public entity in March 2007. The South African Diamond Board was established in 1987 in terms of the Diamond Act, Act 56 of 1986 to regulate control over possession, the purchase and sale of diamonds, and the processing and the export of diamonds.
- The State Diamond Trader (SDT) is a state owned entity established in terms of Section 14 of the Diamonds Amendment Act, 29 of 2005. The SDT's main business is to buy and sell rough diamonds in order to promote equitable access to and beneficiation of diamond resources. The main aim of the SDT is to address distortions in the diamond industry and correct historical market failures to develop and grow South Africa's diamond cutting and polishing industry. The entity is empowered by law and proclamation to purchase up to 10% of the run of mine stones from all diamond producers in South Africa, and to sell to registered customers through an application and approval process.
- Petroleum Agency South Africa (PASA) promotes exploration for onshore and offshore oil and gas resources and their optimal development on behalf of government, as designated in terms of the Mineral and Petroleum Resources Development Act (MPRDA). The Agency regulates exploration and production activities, and acts as the custodian of the national petroleum exploration and production database.

- Most of South Africa's institutions of higher education (universities and universities of technology) are not only responsible for the training of professional and technical personnel required by the mineral industry but also undertake mineral and/or mining research. The mining industry strives to conform to strict professional ethics and competitive technical practices through organisations such as the Geological Society of South Africa (GSSA), the Southern African Institute of Mining and Metallurgy (SAIMM) and the South African Council for Natural Scientific Professions (SACNASP). The Mining Qualifications Authority (MQA) plays a critical role by addressing skills shortages in the mining industry through capacity development and process improvement. The MQA as established by the MHSA, No. 29 of 1996, is mandated to ensure that the mining and mineral sector has sufficient competent people who will improve health and safety.

MINERAL INDUSTRY STRENGTH

South Africa's mineral wealth has been built on the country's enormous resources most of which are usually found in the following distinctive geological structures and settings:

- The Witwatersrand Basin yields some 93 percent of South Africa's gold output and contains considerable resources of uranium, silver, pyrite and osmiridium;
- The Bushveld Complex hosts platinum group metals (with associated copper, nickel and cobalt mineralisation), chromium and vanadium bearing titanium iron ore formations as well as large deposits of the industrial minerals, including fluorspar and andalusite;
- The Transvaal Supergroup contains enormous resources of manganese and iron ore;
- The Karoo Basin extends through Mpumalanga, KwaZulu-Natal, Free State as well as Limpopo Province hosting considerable bituminous coal and anthracite resources and shale gas discoveries;
- The Palaborwa Igneous Complex hosts extensive deposits of copper, phosphate, titanium, vermiculite, feldspar and zirconium ores;
- Kimberlite pipes host diamonds that also occur in alluvial, fluvial and marine settings;
- Heavy mineral sands contain ilmenite, rutile and zircon;
- Significant deposits of lead-zinc ores associated with copper and silver are found in the Northern Cape near Aggeneys.

South Africa accounts for 96 percent of known global reserves of the platinum group metals (PGMs), 74 percent of chrome, 26 percent of manganese, 25 percent of vanadium and 11 percent of gold reserves (Table 1). Since most of the identified mineral resources and reserves were discovered by means of obsolete exploration methods, there is still significant potential for the discovery of other world-class deposits in areas not yet thoroughly explored using modern exploration technologies. As a major mining country, South Africa's strengths include a high level of technical expertise as well as comprehensive research and development activities.

TABLE *4*: SOUTH AFRICA'S ROLE IN WORLD MINERAL RESERVES, PRODUCTION AND EXPORTS, 2013

COMMODITY	RESERVES				PRODUCTION				EXPORTS			
	Unit	Mass	%	Rank	Unit	Mass	%	Rank	Unit	Mass	%	Rank
Aluminium		*	*	*	kt	823	1,7	10	kt	527,9		*
Alumino-silicates	Mt	51	*	*	*	*	*	*	*	*	*	*
Antimony	kt	27	1,5	5	t	2 405	1,5	5		*	*	*
Chrome Ore	Mt	6 751	74,1	1	kt	13 653	48,8	1	kt	7 663	53,2	1
Coal	Mt	30 156	3,4	8	Mt	256,3	3,2	7	Mt	74,6	5,9	6
Copper	Mt	11	1,6	11	kt	81	0,4	13	kt	26	0,3	12
Ferro-chrome		*	*	*	kt	3 426	37	1	kt	3 048	55,2	1
Ferro-Mn/Fe-Si-Mn		*	*	*	kt	790	*	*	kt	751	*	*
Ferro-silicon		*	*	*	kt	83	2,4	7	kt	33	3,1	5
Fluorspar	Mt	41	17,1	1	kt	155	2,7	4	kt	136	*	*
Gold	t	6 000	11,1	6	t	159,5	5,6	6	t	159,5	*	*
Iron Ore	Mt	650	0,8	12	Mt	72	3,6	7	Mt	58	4,3	3
Lead	kt	3,7	5	7	kt	51,2	2,1	11	kt	40,5	*	*
Manganese Ore	Mt	150	26,3	1	kt	11	21,1	2	kt	8	30,8	1
Nickel	Mt	3,7	5,0	7	kt	51,2	2,1	11	kt	40,5	*	*
PGMs	t	63 000	95,5	1	t	264,2	*	1	t	266,5	*	*
Phosphate Rock	Mt	1 500	2,2	5	kt	2 131	1,2	12	kt	170.9	*	*
Silicon Metal		*	*	*	kt	53,0	2,5	8	kt	59,4	4,5	6
Silver		*	*	*	t	68,7	0,4	20	t	*	*	*
Titanium Minerals	Mt	71,3	9.5	4	kt	1 220	16,1	2		*	*	*
Uranium	ktU	295[#]	8	5	MlbU	582	1,1	11		*	*	*
Vanadium	kt	3 500	25	2	kt	20,0	33	2	kt	15,5	*	*
Vermiculite	Mt	14	*	*	kt	127.6	31	1	kt	118.3	*	*
Zinc	Mt	15	6	5	kt	30	0,2	27	kt	26	*	*
Zirconium	Mt	14	20.9	2	kt	360	25,0	2		*	*	*

Sources: *USGS, BP statistical review of world energy 2013, Mineral Economics Directorate,*

Notes: *Full details given in respective commodity chapters*

** Information not available*

[#]Resource

INFRASTRUCTURE DEVELOPMENTS

South Africa ranks among the most sophisticated and promising emerging markets in the world. The unique combination of a well-developed first-world economic infrastructure and a rapidly emerging market economy, has given rise to an entrepreneurial and dynamic investment environment with many global competitive advantages and opportunities. Being a leading producer and supplier of a range of minerals, the country offers a highly competitive investment location ensuring that it can meet specific trade and investment requirements of prospective investors and business people, whilst also meeting the development needs of its populace.

The introduction and adoption of the National Development Plan (NDP) 2030 in September 2012 by the South African government, envisaged an economy that serves the needs of all South Africans. The NDP is South Africa's socio-economic policy blueprint that focuses, among other things, on eliminating poverty by reducing the proportion, of households with a monthly income below R419 per person from 39 percent to zero and the reduction of inequality, increasing employment from 13 million in 2010 to 24 million by 2030, broadening the country's ownership of assets by historically disadvantaged groups, ensuring that all children have at least two years of pre-school education and that all children can read and write by Grade 3 providing affordable access to healthcare and ensuring effective public transport. The NDP offers a long-term socio-economic development road map. In 2013, Government's National Development Plan (NDP) and the New Growth Path (NGP) were applauded for their focus on creating jobs. The objectives of the NDP are to eradicate poverty and sharply reduce inequality by 2030 while the NGP is an economic framework for 2010-2020 with the overriding objective of creating employment. The 2030 structural reforms outlined in the NDP are complemented by the near-term goals of the New Growth Path (NGP), the Industrial Policy Action Plan (IPAP), and the projects of the Presidential Infrastructure Coordinating Commission (PICC). The NDP provides a framework of policy and planning priorities and a phased implementation approach to which the country's public and private business must be aligned to.

South Africa boasts the most modern and extensive infrastructure in Africa, with a highly developed transport infrastructure consisting of an extensive road and rail networks. Transnet is a public company wholly owned by the government and is dominant player in the Southern African transport sector, supporting the country's freight logistics network. Its activities extend beyond the borders of South Africa into Africa and the rest of the world. The company has five operating divisions that drive business value creation, namely; Transnet Freight Rail (TFR), Transnet Engineering (TE), Transnet National Ports Authority (TNPA), Transnet Port Terminals (TPT) and Transnet Pipelines (TP). Transnet has also three specialist units: Transnet Property (TP), Transnet Capital Projects (TCP) and the Transnet Foundation (TF). The Company's corporate centre is responsible for finance, planning and monitoring, human resources, risk, commercial and corporate affairs.

Transnet announced its intention to spend R300 billion on capital projects, over a seven year period, which would create 588 000 jobs. Transnet adopted the Market Demand Strategy (MDS) in 2012, the successful execution of the MDS will result in an increase in rail, port and pipeline capacity ahead of market demand.

Through Transnet's Market Demand Strategy, rail volumes increased by 5 percent and capital invested in the build programme increased by 30 percent to just below R30 billion, in 2013.

An amount of R20,7 billion was invested in the GFB and relates to the upgrade and maintenance of infrastructure and rolling stock. Transnet transported 88,0mt of GFB volumes during the year. The New Multi-Product Pipeline (NMPP) connecting Durban with Johannesburg will ensure the supply of liquid fuels to the hinterland. The NMPP is a strategic investment to secure the supply of petroleum products to the inland market over the long term. It is one of the largest and most complex multiproduct pipelines in the world.

TFR is the largest division within Transnet, representing the group's rail freight transport interests. It transports bulk and containerised freight by rail. The network and rail services provide strategic links between ports and production hubs and connect with the railways of the SADC region. The Rail network unit manages Freight Rail's infrastructure and focuses on the maintenance, modernisation and expansion of the approximately 20 500 route kilometre (31 000 track km) rail network. About 1 500 km comprises heavy–haul lines for coal and iron ore export. There are dedicated railway lines for iron ore from Sishen, in the Northern Cape to Saldanha Bay on the west coast, and for transporting coal from the coal fields of Mpumalanga to the Richards Bay Coal Terminal (RBCT) on the east coast.

Portnet, a subsidiary of PSA Corporation Limited, was formed in 2000 with the aim of helping the port and shipping to increase productivity and save costs through the greater use of information technology and the internet. Portnet is the largest port authority in Southern Africa, with the best-equipped and most efficient network of ports in Africa. The network connects the ports of South Africa and the rail networks of the Sub-Saharan region. Most of South Africa's minerals are exported through five major ports, the largest of which is Richards Bay Coal Terminal (RBCT) with the capacity of 92 Mt per annum mainly for coal exports.

In 2013, the RBCT received and exported more than 70 MMt (77.2 MMst) of coal for the first time. According to RBCT operating statistics, the terminal received 70.8 MMt (78 MMst) of coal and shipped 70.2 MMt (77.4 MMst) of coal in 2013. Nonetheless, the terminal operates below its nameplate capacity of 91 MMt per year. South Africa's coal exports are mostly sent to India, China, and Europe. The coal line is the main export channel for transporting coal, and starts at the mines in Mpumalanga and ends at the Port of Richards Bay. Plans are in place to increase rail capacity to 81,0mt in the near future and thereafter to 97,5mt. The total expansion and sustaining capital investment for the coal and mineral system programme is estimated at R45,5 billion over the next seven-year period of the Market Demand Strategy (MDS). Final designs to expand capacity to 81,0mt are nearing completion and a number of work packages are already in execution. The land acquisition process is well underway for constructing substations on privately-owned land. Negotiations are underway with Eskom to ensure that the upgrading of the electrical supply between Ermelo and Richards Bay is completed according to schedule. The project is expected to be completed by the 2018 financial year.

The iron ore line is the main export channel for iron ore from the mines in the Northern Cape to the Port of Saldanha. Rail capacity was increased to 60,0mt and port capacity to 58,0mt over the quay wall. Phase 1A to C to increase the iron ore line capacity to 60,0mt is complete. The prefeasibility study to expand the capacity is in progress. The business case is currently undergoing a detailed validation process from a commercial, technical and economic perspective. Phase 1D, being the addition of a third tippler and associated rail works, has been approved by the Board for approximately R1,6 billion. The third tippler will ensure that 60,0mt can be exported on a sustainable basis as the two existing tipplers currently do not allow for any down-time.

The Port of Ngqura being developed near Port Elizabeth in the Eastern Cape will increase the country's port capacity substantially. The port is capable of serving post-Panamax dry and liquid bulkers and the new generation of cellular container ships. On 27 January 2012, the Minister of Transport gave effect to the cabinet decision by issuing a section 79 Directive in terms of Ports Act, enabling Port Terminals to operate the terminal until 26 January 2015.

Eskom was established in South Africa in 1923 as the Electricity Supply Commission. In July 2002, it was converted into a public, limited liability company, wholly owned by government. Eskom is a vertically integrated operation that generates, transmits and distributes electricity to industrial, mining, commercial, agricultural, residential customers and redistributors. According to South Africa's Department of Energy (DOE), Eskom supplies roughly 95 percent of South Africa's electricity and the remainder comes from independent power producers (IPPs) and imports. Eskom buys and sells electricity with countries in the region. South Africa plans to diversify its electricity generation mix. Currently, about 90 percent of South Africa's generation capacity is from coal-fired power stations, about 5 percent from one nuclear power plant, and 5 percent from hydroelectric plants, with a small amount from a wind station, according to South Africa's DOE. South Africa's renewable energy industry is small, but the country plans to expand renewable electricity capacity to 18,200 MW by 2030. South Africa has one nuclear power plant, Koeberg, with installed capacity of 1,940 MW. The country plans to expand nuclear power generation by 9,600 MW by 2030.Eskom is ranked among the top ten utilities in the world in terms of generation capacity.

Eskom is projected to spend over R200 billion for the supply of coal over a period of five years. The aim is for the power utility to procure more than 50 percent of its coal from emerging black coal miners by 2018. In May 2013, the Minister of Public Enterprises launched the Black Emerging Miners Strategy to increase black participation and ownership in the coal-mining sector. A key element of the strategy is to establish a mine development fund to provide finance for the development of mines, mainly at the early exploration stage. The fund started operating at the end of 2013/14. Eskom finalised its build programme and that about 82 percent of funding had been secured. In 2013, Eskom spent about R65 billion and will spend another R337 billion over the next five years, to complete the Medupi, Ingula and Kusile power stations. The SA's power utility aimed to have the first unit of Medupi start operation by the end of 2013. Evidence from a survey commissioned by utility suggests that the public campaign to save energy is bearing fruit.

South Africa's banking system is well-developed, which sets it apart from many other emerging economies, offering a mature market with a good regulatory and legal framework. The South African Reserve Bank (SARB) oversees the local banking services industry. The non-banking financial services industry is governed by the Financial Service Board (FSB). The South African banks are well capitalised and managed; and have sophisticated risk-management systems and corporate-governance infrastructure comparable to First World economies.

South Africa has a sizeable labour pool and a Human Development Index (HDI) survey, conducted by the United Nations in about 187 countries, places South Africa at 118 as a medium human development country. The Government, through the Amended Skills Development Act of 2003 tightened regulations to ensure continuous improvement in the skill development strategies across all sectors. The Mining Qualifications Authority (MQA) is responsible for the provision and administration of skills development projects for the mining and minerals sector.

PRODUCTION OVERVIEW OF SELECTED MAJOR MINERALS

TABLE 5: SOUTH ARICA'S PRODUCTION OF SELECTED MAJOR MINERALS, 2009 – 2013

COMMODITY	UNIT	PRODUCTION				
		2009	2010	2011	2012	2013
Coal	t	250 538 125	257 205 807	250 706 255	258 575 793	255 019 489
Cobalt	t	238	840	862	1 102	1 294
Copper	t	92 884	83 640	89 298	69 859	80 821
Chromite	t	7 560 938	10 871 095	11 865 380	11 310 223	13 652 883
Diamonds	ct	6 112 834	8 870 967	7 117 887	7 245 403	8 143 256
Gold	kg	197 628	188 702	180 293	154 178	159 472
PGMs	kg	271 393	287 304	288 851	254 338	264 188
Nickel	t	34 605	39 960	43 321	45 945	51 208
Lead	t	49 149	50 625	54 460	52 489	41 848
Manganese	t	4 575 766	7 171 745	8 651 842	8 943 415	11 055 658
Iron Ore	t	55 313 053	58 709 330	58 056 897	67 100 474	71 533 814
Zinc	t	28 159	36 142	36 629	37 034	30 145

Source: Department of Mineral Resources, Directorate: Mineral Economics

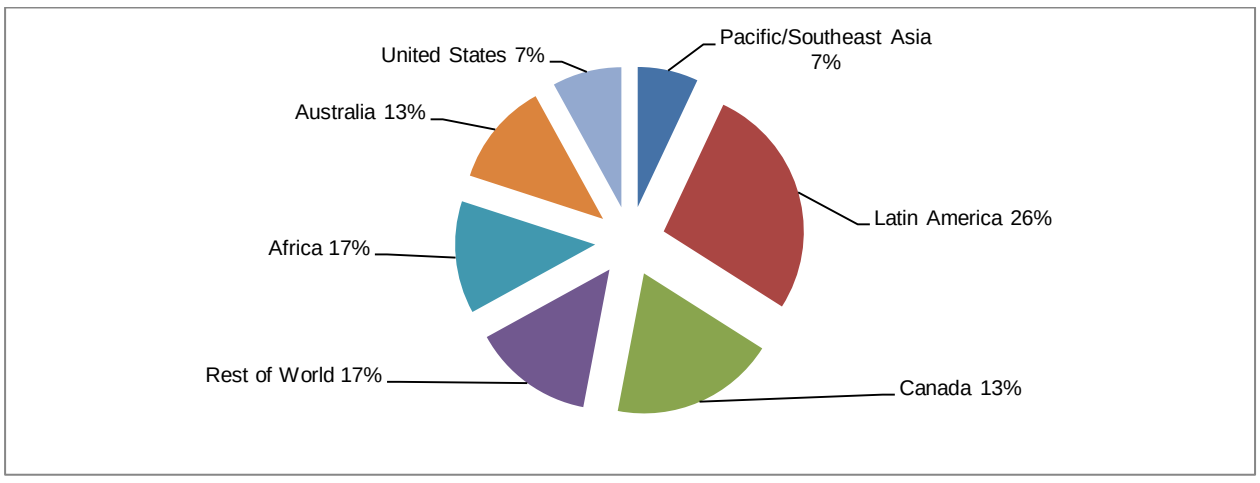
Table 2 above indicates increased production of most commodities despite the industrial action in the mining industry, with the exception of lead, zinc and coal. During the period under review, manganese and chrome production registered highest increase of 23 percent and 20 percent, respectively.

MINERAL EXPLORATION

Natural resources can play a crucial role in transforming economies if they are well managed. In 2013, exploration expenditure allocations decreased in all the regions. The exploration expenditure declined by approximately 30 percent to US$14.43 billion in 2013 from US$ 20.53 billion in 2012. The decrease was due to weak commodity prices amid to poor economic global data from most economies such as Europe and China. Consequently, investors are reluctant to invest in the mining industry, and this hinders junior company's ability to raise fund for exploration. During the period under review, Canada recorded the highest year on year percentage decrease of 41 percent from US$3 244.8 million in 2012 to US$1 917.6 million in 2013, followed by US at 38 percent. Canada was ranked the world second exploration region for the past consecutive years, before dropping to the third and fourth place in 2012 and 2013 after being surpassed by Africa and Rest of the world respectively. World exploration budgets for top ten countries accounted for 66 percent or US$ 9.3 billion of the world total.

During the period under review, allocations for top ten rankings remained the same with Canada and Australia remaining the top contributing countries to global exploration expenditure at 13 percent, respectively. However, Russia moved up to number sixth in 2013 from the eighth position in 2012, and Peru and China dropped to seventh and eighth, respectively. For the first time the Democratic Republic Congo (DRC) was counted in the top ten countries contributing to global exploration expenditure, occupying the tenth position replacing Argentina. Figure 2 below depicts other regions attracting large exploration expenditure, which included Latin America at 26 percent, followed by Africa and Australia at 17 percent and 13 percent, respectively. Although South Africa lost its spot in the top ten countries, it is counted among major African countries attracting large exploration spending, alongside Democratic Republic of Congo (DRC), Burkina Faso, Ghana and Zambia. In addition, the country went from only supplying simple tools to its miners to become an internationally competitive supplier to the world mining industry.

FIGURE 9 EXPLORATION EXPENDITURE BY REGION, 2013



Source: Metal Economics Group, 2013

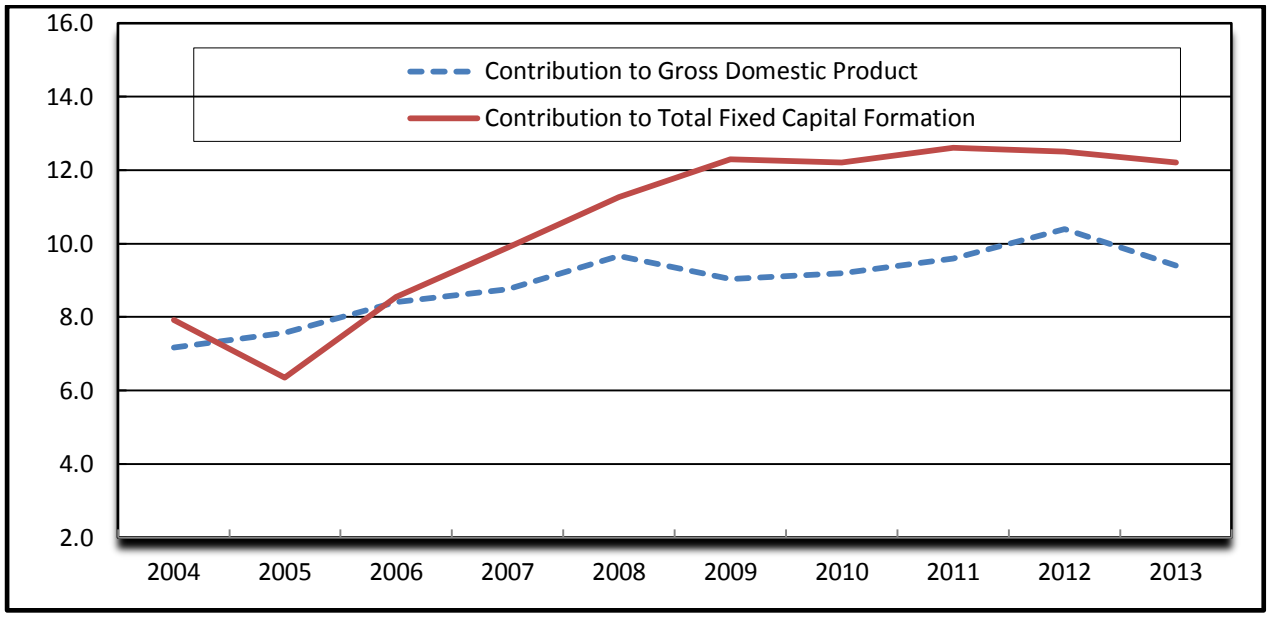
In 2013, a total amount of 3 933 applications for prospecting and mining rights were received by the DMR. Of the total number of applications received, 3 003 applications were for prospecting rights, 930 were for mining rights. The country has the potential to supply a large share of the global demand for many commodities, but its rich endowment of natural resources and high mineral potential can only be developed and extended through a vibrant exploration sector.

The depleting nature of the mineral resources necessitates that South Africa refocuses its support towards investment in greenfield exploration, in order to sustain the mining industry through the discovery of new deposits. Mineral exploration investment as prescribed under the sustainable development element of the Mining Sector Declaration, amongst other factors, was identified as one of the key elements in growing and developing the mining industry.

ROLE OF MINING IN THE NATIONAL ECONOMY

South Africa's mining industry is one of the country's key economic sectors with potential for substantial contribution to economic growth, job creation and transformation, consistent with the government's objectives of higher and more balanced economic growth. In 2013, mining contributed R279.7 billion ($29.0 billion) or 9.2 percent to gross domestic product (Figure 3 and Table 3), an increase of R9.6 billion over the previous year. The increase in value added in rand terms by mining increased despite the sluggish prices of most commodities. This increase can be attributed to the rand/dollar exchange rate which depreciated to R8.21 in 2013 from R9.65 in 2012 and the increase in the production of diamonds and ferrous minerals. If the value-added contribution of processed minerals (presently included in the manufacturing sector's figures) were added to that of mining and quarrying, the impact of mining on the national accounts would be significantly higher. Mining and quarrying contribution to Gross Fixed Capital Formation (GFCF) remained at 12.4 percent in 2013.

FIGURE 10: PERCENTAGE CONTRIBUTION OF MINING AND QUARRYING TO GROSS DOMESTIC PRODUCT AND TOTAL FIXED CAPITAL FORMATION OF SOUTH AFRICA, 2004 – 2013 (CURRENT RAND PRICES)



Source: South African Reserve Bank: Quarterly Bulletin, June 2014

TABLE 6: CONTRIBUTION OF MINING AND QUARRYING TO GROSS DOMESTIC PRODUCT, FIXED CAPITAL FORMATION AND TOTAL NATIONAL EXPORTS OF GOODS, 2004 – 2013 (at current prices)

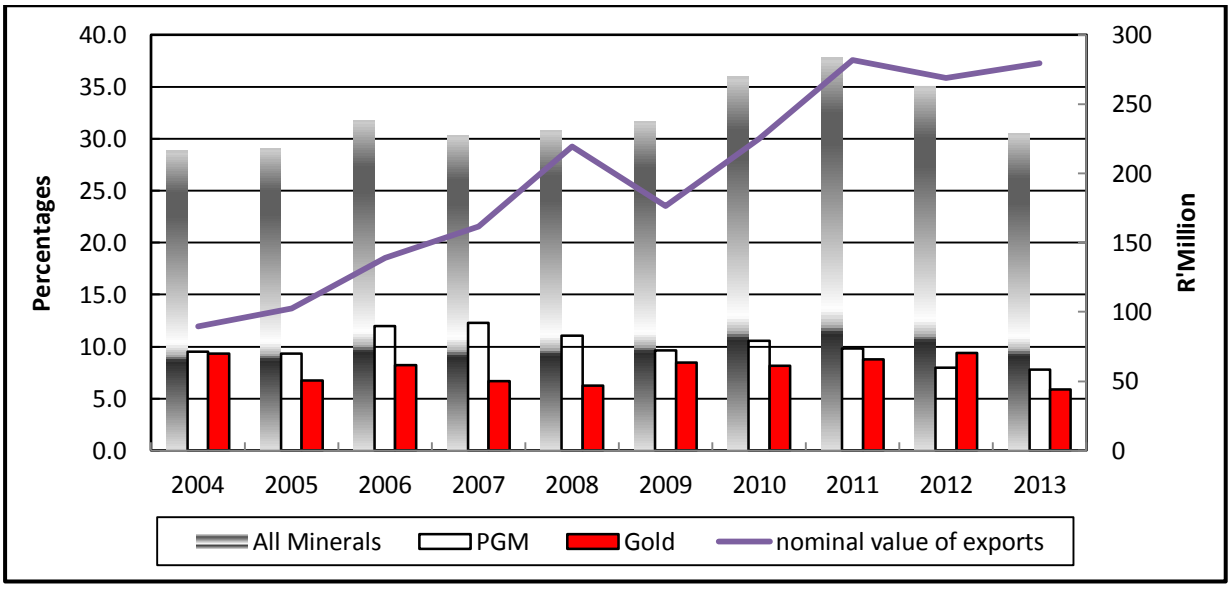
	CONTRIBUTION TO VALUE ADDED			CONTRIBUTION TO FIXED CAPITAL FORMATION			CONTRIBUTION TO NATIONAL TOTAL EXPORT OF GOODS		
Year	National Gross Domestic Product	From Mining		Total Fixed Capital Formation	From Mining		Total Exports	From Mining	
	R'million	R'million	%	R'million	R'million	%	R'million	R'million	%
2004	1 415 237*	91 198*	6.4	226 180*	17 917*	7.9	310 525*	89 546*	28.8
2005	1 401 067*	105 992*	7.6	263 754*	16 743*	6.3	358 361*	102 486*	29.1
2006	1 572 319*	132 301*	8.4	324 083*	27 715*	8.6	447 690*	138 878*	31.8
2007	1 792 076*	156 970*	8.8	406 257*	40 206*	9.9	533 791*	161 755*	30.3
2008	2 033 207*	196 525*	9.7	520 717*	58 645*	11.3	704 293*	219 593*	30.8
2009	2 174 512*	196 521*	9.0	518 785*	64 140*	12.4	556 432*	176 390*	31.7
2010	2 423 362*	228 230*	9.4	512 305*	62 431*	12.2	656597*	224 956*	34.3
2011	2 635 033*	274 530*	10.4	550 362*	68 815*	12.5	789 764*	282 012*	35.7
2012	2 820 262*	270 096*	9.6	593 387*	74 658*	12.6	814 861*	269 119*	33.0
2013	3 030 263	279 691	9.2	654 427	79 602	12.2	917 602	279 543	30.5

Sources: *Department of Mineral Resources, Directorate Mineral Economics*
South African Reserve Bank, Quarterly Bulletin June 2014, pS106, 107 & 116

Notes ** Revised figures*

Despite the slowdown in the global economy, depressed commodity prices as well as labour unrest, South Africa's mineral export sales revenue increased by 4 percent to R278.7 billion in 2013 from R269.1 in 2012. However, primary minerals export sales percentage contribution to the country's total exports value of goods decreased from 33 to 30 (Figure 4 and Table 3). During the period under review, PGMs and ferrous mineral export sales revenue increased by 23.7 percent and 23.3 percent, respectively. Nonferrous minerals also followed the same trend registering an increase of 12 percent to R14.7 billion in 2013. The increase in the export sales value was due to strong commodities demand from China, particularly of iron ore, increased export volumes and well as the depreciation of the rand / dollar exchange rate. On the other hand, the negative effect of the weaker commodity prices was evident in the gold and coal export sales revenue which decreased by 25.1 percent and 2.6 percent from R72 billion in 2012 to R53.9 billion in 2013 and from R52.2 billion to R50.9, respectively.

FIGURE 11: CONTRIBUTION OF PRIMARY MINERALS TO SOUTH AFRICA'S EXPORTS[#,] 2004-2013



Sources: Department of Mineral Resources, Directorate Mineral Economics

Notes: [+] *Includes gold*

[#] *Total exports of goods only, including gold*

The total state revenue from the mining sector decreased significantly by 47.6 percent to R18.9 billion in 2013 from R12.8 billion in 2012. Iron ore was the largest contributor at 33.3 percent to the total state revenue, followed by platitum and chrome at 17.9 and 16.6 percent, respectively.

TABLE 4: CONTRIBUTIONS OF MINING AND QUARRYING TO STATE REVENUE, 2004–2013

YEAR Ended 31 Mar	Mining Taxation	State Share of Profits and Diamond Exports Duties	Total Revenue	As Percentage of Total State Revenue	State Aid[#]
	R' 000	R'000	R'000	%	R'000
2004	3 300 975	421 793	3 722 769	0,9	32 530
2005	8 754 436*	1 132 179*	9 886 615*	0,4	36 225
2006	19 296 292*	825 472*	20 121 764*	0,2	37 339
2007	25 055 690*	900 703*	25 956 393*	0,1	24 139
2008	38 540 477*	644 241*	39 184 718*	0,1	21 000
2009	15 625 306*	1 104 882*	16 730 188*	0,1	21 000
2010	16 921 875*	468 596*	17 390471*	0,1	18 000
2011	17 518 359*	802 061*	18 320 420*	0,1	18 000
2012	12 228 479*	575 234*	12 803 714*	N/A	N/A
2013	18 595 510	303 647	18 899 160	N/A	N/A

Sources: *Department of Finance, South African Revenue Service*

Department of Mineral Resource, Directorate Financial Planning and Management Accounting

Notes: # *In respect of leased mines*

* *Revised figures*

In 2013, South Africa's labour market was characterized by disruptive labour unrest particularly in the mining industry's PGMs sector. During the same year, mining industry, excluding exploration, research and development organisations and head offices, employed 2.5 percent of South Africa's economically active population, or 2.5 percent of all workers in the non-agricultural formal sectors of the economy (Table 5). SA's total mining employment decreased by 14 533 workers or 2 percent to 510 099 in 2013 from 524 632 in 2012, mainly due to the retrenchments in the gold and PGMs sectors as a result of industrial action. During the same period remuneration in the mining sector increased by 7.7 percent from R 93.61 billion in 2012 to R 100.81 billion in 2013 (Table 5). For the past decade, 2004-2013, a total of 61 190 direct jobs were created, highlighting the significance of mining to the South African economy.

TABLE 5: EMPLOYMENT AND WAGES IN SOUTH AFRICA'S MINING INDUSTRY, 2004–2013

YEAR	EMPLOYMENT		WAGES				
	Number employed	As % of total economically active population	Total		Per worker per annum		As % of total mining revenue[#]
			Nominal	Real[+]	Nominal	Real[+]	
			R million		R	R	
2004	448 909*	2,9	33 655	34 124	77 515*	80 146*	26,9
2005	444 132*	2,6	36 682	36 703	86 299*	90 305*	25,6
2006	456 337*	2,7	39 447	41 756	92 578*	99 149*	20,3
2007	495 150*	2,9	50 072	49 924	100 826*	100 527*	22,4
2008	518 519*	2,9	60 876	65 193	125 730*	134 647*	20,3
2009	492 219*	2,9	66 096	68 935	140 049*	146 064*	27,4
2010	498 906*	2,9	74 318	78 044	156 430*	164 273*	24,7
2011	512 878*	2,9	86 972	91 866	179 118*	189 196*	23,5
2012	524 632	2.9	93 608	107 930	205 725*	237 201*	25.7
2013	510 099	2.5	100 811	100 811	197 630	197 630	26.3

Sources: *Quarterly Labour Force Survey (Stats SA), May 2014*
Department of Mineral Resource, Directorate Mineral Economist

Notes: [#] *Export plus local commodity sales*
[+] *Deflated by means of the CPI with 2008 as base year*
** Revised figures*

In 2013, North West, platinum province remained the largest contributor to total mining employment and remuneration at 34 percent and 32 percent respectively. This is despite the industrial action that took place in the province. Provincial employment distribution was distinctly unequal with five provinces (North West, Mpumalanga, Gauteng, Limpopo and the Free State) employing 89.3 percent of the mining workforce, which in turn earned 88.9 percent of the total remuneration (Table 6).

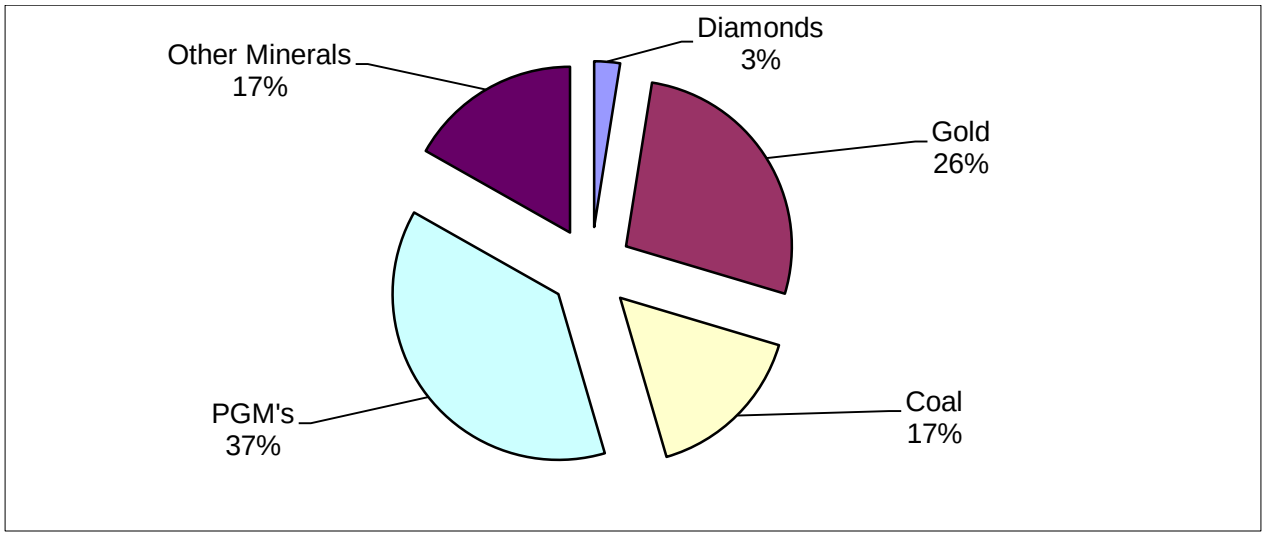
TABLE 6: EMPLOYMENT AND REMUNERATION BY PROVINCE, 2013

PROVINCE	EMPLOYEES		TOTAL REMUNERATION	
	Number	%	R million	%
North West	171 212	33,5	32 560	32,3
Mpumalanga	103 574	20,3	22 784	22,6
Gauteng	70 649	13,9	13 131	13,0
Limpopo	72 538	14,2	14 450	14,3
Free State	39 493	7,4	6 799	6,7
Northern Cape	37 711	7,4	8 093	8,0
KwaZulu-Natal	11 509	2,3	2 227	2,2
Western Cape	3 230	0,6	596	0,6
Eastern Cape	1 758	0,3	172	0,2
TOTAL	510 099	100,0	100 812	100,0

Source: *Department of Mineral Resources, Directorate Mineral Economics*

Figure 5 below indicates that the, 37 percent PGMs sector remained the largest contributor to SA's total mining industry's employment, a decrease of 3 percent from 197 847 in 2012 to 191 261 in 2013. Other sectors which recorded increase in employment were diamond and coal at 11 percent and 5 percent, respectively. Employment levels in the gold mining sector decreased by 7 percent from 142 201 in 2012 to 131 591 in 2013. Nevertheless, the gold sector maintained its positions as the second largest contributor to total mining employment at 26 percent.

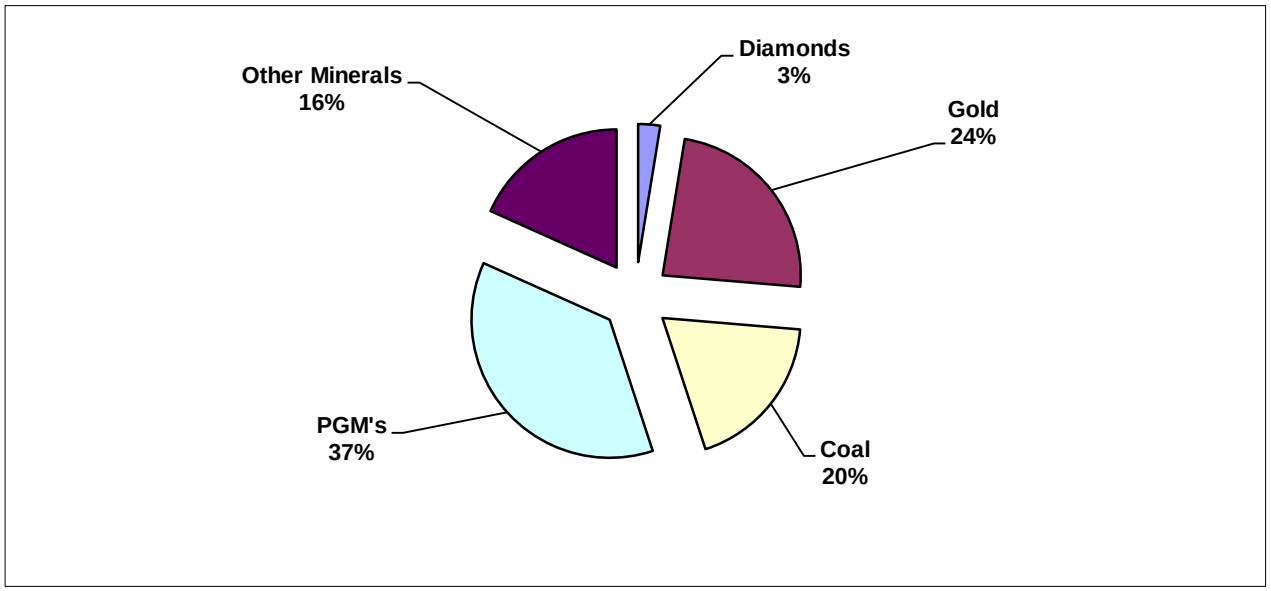
FIGURE 12: MINING INDUSTRY'S EMPLOYMENT BY SECTOR, 2013



Source: Department of Mineral Resources, Directorate Mineral Economics

South Africa's mining sector's remuneration increased by 8 percent from R93.6 billion in 2012 to R100.7 billion in 2013. The PGMs industry accounted for 37 percent of the total remuneration, followed by gold and coal industry which accounted for 24 percent and 20 percent, respectively (Figure 6).

FIGURE 13: MINING INDUSTRY'S REMUNERATION BY SECTOR, 2013

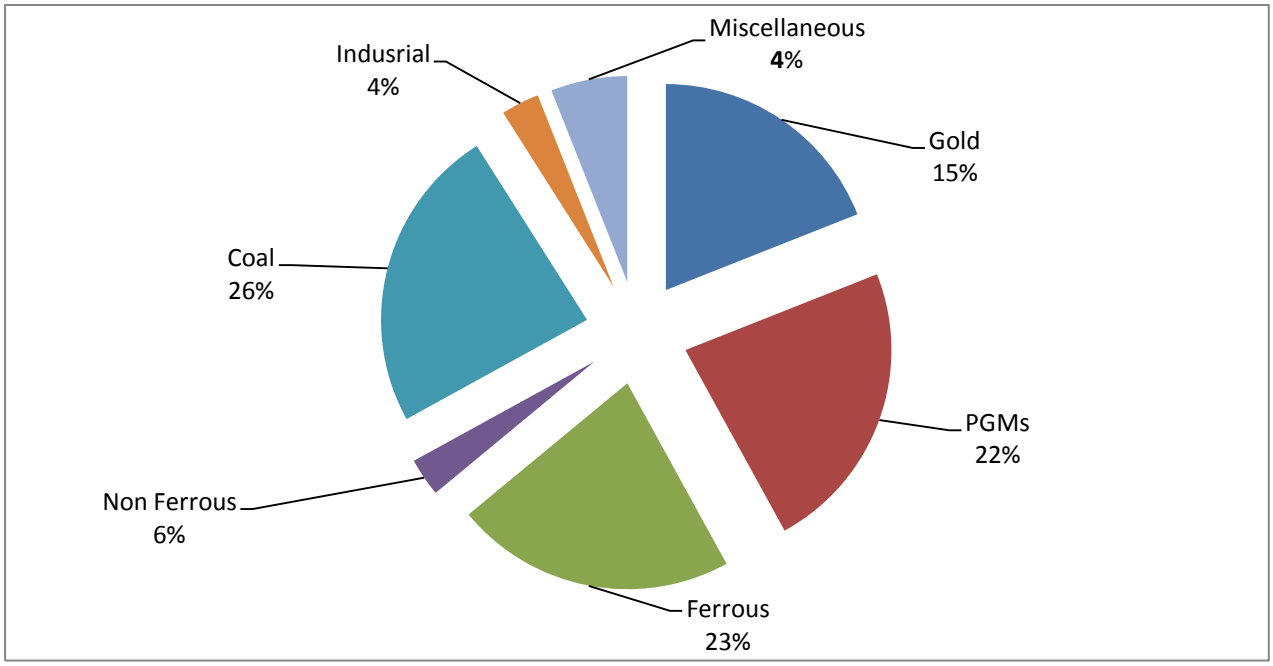


Source: Department of Mineral Resources, Directorate Mineral Economics

MINERAL PRODUCTION AND SALES IN 2013

The 2013 financial year was faced with challenges in terms of the slugglish global economic growth, SA's labour unrest and lower industrial economic growth in China, which impacted negatively on most commodity prices. Nevertheless, South Africa's total primary minerals sales value increased by 5.5 percent from R384 billion in 2013 to R363.8 billion in 2012. Despite the decrease in price, coal still maintained its position as SA's leading commodity revenue earner contributing 26 percent to the country's total minerals sales revenue (figure 7). Coal total sales revenue increased by 6 percent from R96.1 billion in 2012 to R101.4 billion in 2013. The increase in coal sales revenue can be attributed to strong local and international demand for the commodity particularly from Asia. Ferrous and PGMs also registered increase of 24 percent and 21.7 percent respectively. However, the 17.5 percent depreciation of the rand from R8.2099 in 2012 to R9.6502 in 2013 could not offset the poor performance in the gold sales which plummeted by 25.6 percent to R57.2 billion in 2013 from R76.8 billion in 2012.

FIGURE 14: CONTRIBUTION OF PRIMARY MINERAL COMMODITIES TO TOTAL SALES REVENUE, 2013



Source: Department of Mineral Resources, Directorate Mineral Economics

TABLE 7: MINERAL PRODUCTION AND SALES, 2013

COMMODITY		PRODUCTION	LOCAL SALES (FOR)		EXPORT SALES (FOB)		TOTAL SALES	
		Quantity	Quantity	Value (R)	Quantity	Value (R)	Quantity	Value (R)
1. Precious								
Diamonds	ct	8 143 256	**	**	**	**	**	**
Gold	kg	159 472	7 524	3 312 817 676	123 389	53 845 892 651	130 913	57 158 710 327
Platinum-group metals	kg	264 188	**	8 886 102 662	238 674	75 348 534 711	**	84 234 637 373
Silver	kg	68 633	6 002	43 178 660	61 725	410 157 561	67 727	453 336 221
2. Semi-precious stones			*	*	*	*	*	*
3. Ferrous[@]	t	96 242 355	*	13 159 592 811	70 001 335	76 162 082 868	*	89 321 675 679
4. Non-ferrous[+@]	t	207 689	92 017	8 123 442830	111 333	14 711 656 902	203 349	22 835 099 732
5. Energy								
Coal	t	256 282	183 374 050	49 569 211 280	73 583 828	51 813 484 136	256 957 878	101 382 695 416
Uranium oxide	kg	626 279	**	**	**	**	**	**
6. Industrial[@]				12 135 109 213		1 930 275 452		14 065 384 665
7. Miscellaneous				10 040 390 216		4 806 739 699		14 847 129 915
TOTAL#				105 325 324 083		278 657 859 021		383 983 183 104

Source: Department of Mineral Resources, Directorate Mineral Economics

Notes: All quantities are in metric tons, unless otherwise specified

***Not available: where applicable, earnings are included under 'Miscellaneous'*

[@] Full details given in respective overview chapters

[+] Excludes titanium and zirconium minerals which are included under Miscellaneous'

** Nil*

Total local mineral sales value increased by 11 percent from R94.6 billion in 2012 to R105.4 billion in 2013 (Table 7), due to the weakening of the rand/dollar exchange rate. In 2013, coal remained the major local earner at R49.5 billion from R43.9 billion in 2012, representing an increase of 12.7 percent. All the ferrous minerals performed well with manganese registering the highest increase of 38.3 percent, followed by iron and chrome at 29.2 percent and 25.3 percent, respectively. PGMs local sales revenue also followed the same trend increasing by 7.3 percent to R8.9 billion in 2013 from R8.3 billion in 2012. In 2013, gold sector was hardest hit declining by 31.9 percent and losing all its gains of the past three years.

TABLE 8: SOUTH AFRICA'S PRIMARY MINERAL SALES BY PROVINCE, 2013

PROVINCE	LOCAL SALES (FOR)		EXPORT SALES (FOB)		TOTAL SALES	
Mpumalanga	42 874 633	40,7	63 507 107	22,7	106 381 740	27,6
North West	11 674 662	11,1	63 015 229	22,5	74 689 891	19,4
Northern Cape	10 702 930	10,2	64 236 525	23,0	74 939 455	19,5
Limpopo	19 145 103	18,2	38 477 232	13,8	57 622 335	14,7
Gauteng	5 748 241	5,5	30 421 051	10,9	36 169 292	9,4
Free State	4 377 253	4,2	12 214 165	4,4	16 591 417	4,3
KwaZulu-Natal	4 979 370	4,7	5 078 634	1,8	10 058 044	2,6
Western Cape[#]	5 238 704	5,0	2 580 824	0,9	7 819 528	2,0
Eastern Cape	658 131	0,6	11 876	0	670 008	0,2
TOTAL[#]	105 399 026	100,0	279 542 643	100,0	384 941 670	100,0

Source: Department of Mineral Resources, Directorate Mineral Economics

Note: [#] Hydrocarbons were produced and sold at a value of R1 070 million locally

The bulk of the total mineral revenues were generated from Mpumalanga, North West, Northern Cape, Limpopo and Gauteng provinces collectively accounting for 90.6 percent of the total primary mineral sales revenue (Table 8). Mpumalanga remained the leading contributor to both local and export sales revenue with 40.7 percent and 22.7 percent respectively. In 2013, Northern Cape surpassed North West province to be the second largest contributor to export and total sales revenue at 23.0 percent and 19.5 percent, respectively. Mpumalanga is mainly dependent on coal as a major contributor towards minerals revenue, North West depends on PGMs, Northern Cape on diamonds, Limpopo on PGMs, diamonds, copper as well as coal and Gauteng on gold.

SELECTED PROCESSED MINERAL SALES

The prosessed total sales revenue increased by 12.2 percent from R59.5 billion in 2012 to R66.7 billion in 2013, with export and local sales increasing by 12.6 percent and 10.1 percent, respectively. (Table 9). The largest contributors to the total of selected processed minerals sales were chromium alloys at 42.8 percent, followed by a conglomerate of classified commodities at 39.1 percent and antimony at 22.4, respectively.

TABLE 9: SOUTH AFRICA'S PRODUCTION, LOCAL AND EXPORT SALES OF SELECTED PROCESSED MINERAL PRODUCTS, 2013

COMMODITY	PRODUCTION	LOCAL SALES		EXPORT SALES		TOTAL SALES	
		Mass	Value (FOR)	Mass	Value (FOB)	Mass	Value (FOB)
	T	T	R'000	T	R'000	T	R'000
Chromium alloys	3 219 162	503 994	2 983 321	3 489 887	25 552 642	3 993 881	28 535 964
Manganese alloys	787 249	82 319	737 127	577 111	4 927 945	659 430	5 665 073
Vanadium[+]	21 397	1 421	210 820	15 500	2 278 915	16 920	2 489 735
Other: Classified[x]	2 479 945	459 002	6 389 569	1 862 093	19 714 699	2 321 098	26 104 268
TOTAL 2013	6 507 753	903 372	10 715 989	5 256 135	56 001 719	6 159 507	66 717 708
TOTAL 2012	6 169 938	799 565	9 736 533	5 253 728	49 724 842	6 053 291	59 461 376

Sources: Department of Mineral Resources, Directorate Mineral Economics

: United State Geological Survey

Notes : [+] Contained vanadium

[x] Comprises aluminium, titanium slag, zinc metal, low-manganese pig iron, silicon alloys and metal, phosphoric acid, and antimony trioxide

Table 10 below, shows KwaZulu-Natal (KZN) province as the major contributor to the total selected processed mineral sales accounting for 38.2 percent, followed by Mpumalanga and North West provinces at 31.7 percent and 19.7 percent respectively, (Table 10). Together, KwaZulu-Natal, Mpumalanga and North West provinces accounted for 89.6 percent of the total processed minerals sales revenue. Titanium slag and aluminium dominated the KwaZulu-Natal contribution, whilst 94.6 percent of Mpumalanga's total sales revenue was derived chromium alloys. North West's total processed mineral sales revenue was almost entirely derived from ferroalloys contributing about 28.5 percent. These three provinces also dominated the local and export sales revenue, with a combined contribution of 91.3 percent and 89.3 percent, respectively.

TABLE 10: SOUTH AFRICA'S LOCAL AND EXPORT SALES OF SELECTED PROCESSED MINERAL PRODUCTS BY PROVINCE, 2013

PROVINCE	LOCAL SALES (FOR)		EXPORT SALES (FOB)		TOTAL SALES	
	R'000	%	R'000	%	R'000	%
KwaZulu-Natal	5 561 687	51,9	19 926 516	35,6	25 488 203	38,2
Mpumalanga	3 387 327	31,6	17 735 520	31,7	21 122 847	31,7
North West	837 870	7,8	12 322 561	22,0	13 160432	19,7
Gauteng	638 345	6,0	2 862 577	5,1	3 500 921	5,2
Limpopo	228 804	2,1	820 255	1,5	1 049 059	1,6
Western Cape	61 956	0,6	2 334 288	4.2	2 396 244	3.6
TOTAL	9 736 533	100.0	49 724 842	100.0	59 461 376	100.0

Source: Department of Minerals Resources, Directorate Mineral Economics

SOUTH AFRICA'S IMPORTS OF SELECTED PRIMARY AND PROCESSED MINERAL PRODUCTS, 2013

As a result of its vast mineral resources, South Africa is, to a large degree self-sufficient with respect to the supply of minerals. However, there are some minerals and mineral products, which need to be imported due to lack of local resources. The total value of the more significant imports during 2012 decreased by 16.1 percent from R20.1 billion in 2011 to R16.8 billion in 2012 (Table 11). In order to reduce the increase in imports, South Africa will need to intensify beneficiation and develop projects that will produce products locally and substitute imported goods.

The value of imports of precious metals increased significantly by 80 percent to R 3.0 billion in 2012 from R1.7 billion in 2011, with diamonds also increasing by 74.1 percent. During the same period coking coal and primary industrial minerals sales value decreased by 40.4 percent and 18.6 percent respectively.

TABLE 11: SOUTH AFRICA'S IMPORTS OF SELECTED PRIMARY AND PROCESSED MINERAL PRODUCTS, 2013

PRODUCT	VALUE (FOB)		
	2012 R'000	2013 R'000	Year on year % change
Precious			
Diamonds	1 245 375	1 364 863	9.6
Other precious and semi-precious stones *	278 019	276 548	-0.5
Precious metals +	3 081 658	3 062 894	-0.6
Ferrous@			
Primary	837 882	696 639	-16.9
Processed	1 028 490	1 380 038	34.2
Nonferrous@	104 301	145 512	39.5
Coking Coal	1 072 519	2 839 238	164.7
Industrial@			
Primary	1 041 081	1 541 261	48
Processed	2 388 143	1 988 923	16.5
Manufactured	5 727 067	6 357 199	48.1
TOTAL#	20 106 337	16 873 550	-16.1

Source: South African Revenue Service, 2013

Notes: * *Includes natural and synthetic precious or semi-precious stones and dust and powders of these stones*

+ *Includes alloys containing base metals*

@ *Full details given in relevant chapters*

REPORTED MINERAL-RELATED PROJECTS IN SOUTH AFRICA

Newly committed investment in mineral related projects in South Africa amounted to R167 237 million by September 2012, of which 87.9 percent is for primary minerals and 12.1 percent recorded for processed mineral products (Table 12). Platinum projects dominated the primary minerals, accounting for 54.8 percent followed by other minerals 38.9 percent and gold's 5.4 percent.

TABLE 12: NEWLY COMMITTED MINERAL-RELATED PROJECTS IN SOUTH AFRICA, 2013

SECTOR	COST R million	COST+ $ million	AS A PERCENTAGE OF PRIMARY MINERALS	AS A PERCENTAGE OF TOTAL MINERAL PRODUCTS
Primary	163 646	15 343	100	82.2
Gold	8 301	778	5.1	4.2
Platinum	76 237	7 148	46.6	38.3
Other	79 108	7 417	48.3	39.7
Processed minerals	35 521	3 330		17.8
TOTAL	199 167	18 673		100.0

Source: Department of Minerals Resources, Directorate Mineral Economics
Mining Weekly

Note: +At a Rand/dollar exchange rate of R10, 6654, as at September 2014

SADC MINING AND MINERAL PRODUCTION OF SELECTED MAJOR MINERALS

The Southern African Development Community (SADC) countries continue to be major contributors to the world's mining and mineral production. During the period 2012 to 2013, mineral production of SADC countries decreased significantly, with platinum production registering the highest decreased of 80.3 percent from 143 300kg in 2012 to 137 024kg in 2014, with diamond also decreasing by 45 percent (Table 13). The decrease in the platinum production can be attributed to the decline in the metal price and the continuing Eurozone economic crisis. However, chromite and copper registered increase of 48 percent and 9.9 percent, respectively.

TABLE 13: SADC MINE PRODUCTION OF SELECTED MAJOR MINERALS, 2009 – 2013

MINERAL		PRODUCTION					
	unit	2009	2010	2011	2012	2013	% of world production
Coal	t	255 863 000	260 448 000	256 755 000	258 575 793	256 282 136	-3.3 %
Cobalt	t	27 738	56 840	58 540	9 764	6 494	-5.4 %
Copper	t	1 046 900	1 254 400	1 371 500	1 525 800	1 823 600	9.9 %
Chromite	t	10 742 600	11 340 000	11 411 400	11 549 900	14 126 300	48.0 %
Diamonds	carats	57 807 117	69 574 658	67 551 925	71 782 664	58 655 986	-45.0 %
Gold	kg	266 344	272 600	239 500	236 000	159 724	-8.1 %
Platinum	kg	148 000	156 500	158 400	143 300	137 024	-80.3 %
Nickel	t	80 530	71 700	68 900	71 600	110 200	4.4 %
Lead	t	60 000	63 000	62 500	59 200	52 800	-0.9 %
Zinc	t	233 000	241 000	238 200	230 400	223 700	-1.6 %

Source: Department of Minerals Resources, Directorate Mineral Economics
World Bureau of Metal Statistics

**RSA Figure (other SADC countries figures not available)*

MINERAL BENEFICIATION

Beneficiation remains a key program me for the Department of Mineral Resources as it seeks to leverage the country's comparative advantage in mineral resource endowment to create a competitive advantage for domestic mineral beneficiating entities thus playing a contributory role towards setting the country's growth trajectory on a production led growth path.

To this end, the Department has put in place the policy building blocks to ensure security of raw material supply by strengthening the provisions of section 26 as was planned in the beneficiation strategy. The strategy, which was adopted as policy by Government in 2011, had identified limited access to raw materials as one of the five key constrains to domestic mineral beneficiation and proposed as an intervention, strengthening of the Minerals and Petroleum Resources Development Act to ensure security of supply for domestic beneficiation.

Section 26 of the Mineral and Petroleum Resources Amendment Bill of 2014, ensures security of supply by:

- Enabling the Minister, after consultation with stakeholders, to designate identified minerals as being critical for domestic beneficiation.
- Compelling producers of designated minerals to set aside a predetermined percentage of their production for local beneficiation.
- Ensuring designated minerals are accessed at competitive prices through a provision that requires producers to sell the portion of designated minerals at mine gate price or an agreed price between the producer and beneficiator.
- Ensuring local demand for designated minerals is satisfied through section 26(3) which requires all exports of designated minerals to have written approval except exports done by producers who have complied with section 26.

Security of supply is but one element identified by the strategy required to increase levels of local beneficiation. Implementation of all elements required to increase local beneficiation will be a collaborative effort between all organs state.

The continued stagnation in most commodity prices off their pre-financial crisis highs and more recently the retreat in the gold price have starkly shown the peril for countries of over reliance on raw mineral resource exports. The adoption of the mineral beneficiation strategy for the South African mining and minerals industry as policy was one in a series of deliberate interventions by government to shift the trajectory of the economy to a more sustainable course. This intervention was followed by the development of an implementation framework that pulls together policy building blocks suggested in the strategy and specifies how they will be implemented to create a conducive environment for increased mineral beneficiation that will be the cornerstone for the re-industrialisation drive by government.

ECONOMIC OUTLOOK FOR THE SOUTH AFRICAN MINERALS INDUSTRY 2012/2013

Five years after the global financial crisis, the world economy is showing signs of bouncing back, pulled along by a recovery in high income economies. Developing country growth is also firming helped by recovery in high income economies as well as moderating but still strong growth in China.

Although global activity strengthened during the second half of 2013 and Q3 2013 touted as turning point for the global economy, the reality is that 2013 was a difficult year. The advanced economies' below trend growth continued, despite several new policy initiatives to help reduce risks, stabilizer consumer, business and investor confidence. However, it is anticipated that global GDP growth, adjusted for inflation will rebound from 2.9 per cent in 2013 to around 3.3 per cent in 2014. Across the mature economies, GDP growth in 2013 recorded a modest 1.3 per cent. The Eurozone is expected to return to positive growth rate of at least 1.0 per cent in 2014, moderately picking up the pace from a weak recovery. The United States is the second largest contributor, after China to somewhat stronger outlook for 2014.

Developing countries continue to register much stronger growth than developed economies. Since 2012, most developing countries have been adopting more expansionary monetary and to a lesser extent, fiscal policies to strengthen domestic demand. Potential growth in many developing countries is likely lower than before the global financial crisis. China for example is expected to have shifted to a lower but more sustainable and balanced growth trajectory. The least developed countries are projected to see faster growth going into the next three years or so.
However, with commodity demand moderating and Official Development Assistance (ODA) falling, the pace of expansion will still be notably slower than the pre-financial crisis period.

The employment situation remains a key policy challenge in a large number of economies, as the world economy continues to expand well below its potential. Among developed countries, unemployment is most severe in parts of the Euro area. In early 2013, the unemployment rate increased to 26.7 per cent in Spain and 27.2 per cent in Greece, with youth unemployment rates exceeding 59 per cent. While the unemployment rate in the USA has fallen, it is still high by historical standards.

In most developing regions, labour markets have not extensively suffered from weak demand as in developed economies. In some emerging economies, unemployment rates have dropped below the levels seen before the financial crisis, particularly in South America and East Asia. Unemployment continues to be a key problem in many African countries despite relatively high growth rates over the past few years. Labour market challenges, such as low participation rates, particularly among women, high youth unemployment, large informal sectors, high shares of low quality jobs and slow productivity growth.

Gross Domestic Product (GDP) growth rates

Global GDP growth adjusted for inflation grew by 2.9 per cent in 2013, lower than the 3.5 per cent projection by International Monetary Fund (IMF) and also below the 3.2 growth recorded in 2012. Across

the mature economies, the 2013 GDP growth was 1.3 per cent, moderately picking up the pace from a weak recovery.

TABLE 14: OVERVIEW OF THE WORLD ECONOMIC OUTLOOK PROJECTIONS

			Projections	
	2012	2013	2014	2015
Advanced Economies	1.4	1.3	2.2	2.3
United States	2.8	1.9	2.8	3.0
Germany	0.9	0.5	1.7	1.6
France	0.0	0.3	1.0	1.5
Italy	-2.4	-1.9	0.6	1.1
Japan	1.4	1.5	1.4	1.0
United Kingdom	0.3	1.8	2.9	2.5
Emerging Market and Developing Economies	5.0	4.7	4.9	5.3
Russia	3.4	1.3	1.3	2.3
China	7.7	7.7	7.5	7.3
India	4.7	4.4	5.4	6.4
Brazil	1.0	2.3	1.8	2.7
Mexico	3.9	1.1	3.0	3.5
Sub-Saharan Africa	4.9	4.9	5.4	5.5
South Africa	2.5	1.9	2.3	2.7

Source: World Economic and Financial Surveys April 2014

Overall, the world's largest mature and emerging economies medium term outlook remains slightly more positive than the long term as these economies still have a long way to go toward closing remaining output gaps. The USA is expected to grow at 2.4 per cent on average per year and the Euro Zone at 1.2 per cent from 2014 to 2019

Sub-Sahara Africa

Sub-Sahara Africa's started the year on a solid footing as one of the best placed regions to benefit from the pick-up in global growth. Economic activity was robust in the region in 2013. GDP growth strengthens to 4.7 per cent, up from 3.7 per cent in 2012, supported by robust investment in the resource sectors and public infrastructure. However domestic constraints and a tightening global environment may moderate growth in the medium term. At the moment, the region's prospects remain favourable despite emerging challenges, such as weaker commodity prices and tighter global financial conditions. During the period 1995 to 2013, the region performed strongly, with an average annual GDP growth of 4.5 per cent.

Foreign direct investment (FDI) continued to flow to the region, not only in the oil, gas and mining sectors but also in non-extractive industries. According to Africa Overview., net FDI inflows were estimated at US$43 billion in 2013, up from US$37 billion in 2012.

Across Africa in general, governments have stepped up investment spending. Public investment continues to be geared toward the provision of basic infrastructure, such as power generation, roads and port facilities, which have persistently continued to limit Africa's growth potential. Economic growth in Sub-Sahara Africa is forecast to increase to 5.2 per cent, driven by increasing investment to exploit the region's natural resources and develop infrastructure. A quick review of selected Sub-Sahara Africa countries indicates that;

Democratic Republic of Congo, despite its significant domestic political uncertainties is making further economic progress, with real growth of 6.0 per cent of GDP in 2013.

South Africa is the biggest and most advanced economy in Sub-Sahara Africa . It is also the biggest global producer of gold, platinum and chrome.

Angola is Africa's second biggest oil producer. The economy is dominated by the government-owned oil sector which is responsible for 97 per cent of exports.

Zambia, driven by high momentum in the mining industry has registered average annual economic growth of 6.0 per cent in recent years.

Botswana has abundant diamond resources and the economic indicators are very favourable.

Mozambique, since 2006 the country's economic growth has ranged between 6 and 8 per cent drive by several new projects.
The manufacturing sector in the region is likely to focus on the processing of minerals and agriculture commodities. A growing share in value added will lower the countries' exposure to commodity price volatility.

South Africa

The South African economy was impacted by the recession in Europe and uncertainties in other export markets. In 2013, the GDP growth weakened to 1.9 per cent. However despite the country being the poorest performer in GDP growth, it remains an economic hub for neighbouring countries, which traditionally settle a significant portion of their exports and imports through South Africa's air and sea ports.

South Africa's economy continues to grow, but at a slower rate than previously expected. The 2013 GDP growth was projected at 2.7 per cent, but only managed a meagre 1.9 per cent. Although the GDP grew at an annualized rate of 3.8 per cent in the fourth quarter of 201, it failed to achieve a 2 per cent expansion across 2013. Both the critical mining and manufacturing sectors grew at double digit rates in the fourth quarter after a poor performance earlier in the year. However, this wasn't enough to push annual growth up higher than expected. The economy grew by only 1.9 per cent in 201`3. Faster economic growth will require greater private sector investment and improved trade performance

Planned strong capital investment by the public sector, additional electricity generating capacity, relatively stable inflation, low interest rates and robust economic activity and supportive environment should see an improved growth in the medium term. Moderate employment growth is also expected over the next 5 years and the implementation of the National Development Plan (NDP) will strengthen growth and accelerate job creation.

Expected economic activity in 2014:

The euro economy is expected to continue growing at a subdued pace on the backdrop of receded break up risk and improved sentiment. In the USA, gradual acceleration of the economic activity is expected, as the negative drag from the fiscal pinch dissipates over time and consumer pick up spending. Economic activity in emerging markets is expected to accelerate modestly due to higher demand in advanced economies.

TABLE 15: MINERAL/METAL PRICES

COMMODITY	UNIT	2009	2010	2011	2012	2013
		Ave	Ave	Ave	Ave	Ave
Aluminium High Grade, LME Cash	$/t	1664.36	2173.19	2383.199	2023.519	1849.255
Antimony, Metal Bulletin Free Market	$/t	5200.86	9020.271	14741.44	12778.05	10347.67
Cadmium, Metal Bulletin Free Market	$/lb,	149.25	193.5038	139.3483	90.58388	96.05665
Coal+ - Steam: Local FOR	R/t	162.75	177.7	196.1383	222.1713	260.4268
Export FOB	R/t	515.583	549.9	727.8467	684.9079	689.7281
Anthracite: Local FOR	R/t	690.333	776.4	898.9033	953.7545	932.384
Export FOB	R/t	889.75	770.4	864.6483	945.4677	867.1103
Cobalt, Metal Bulletin Free Market	$/lb,	17.3538	20.56907	17.58091	13.9735	13.16572
Copper: Grade A, LME Cash	$/t	5112.77	7533.923	8832.891	7957.306	7335.838
Republic Copper Price	R/t	#DIV/0!	62068.2	72610.5	73057.35	79868.94
Ferrochrome: Charge 52% Cr*	$/lb, Cr	0.9147	1.244329	1.255952	1.211358	1.161625
Ferromanganese: High Carbon 7,5% C*	€/t	912.737	1091.516	993.1415	907.583	775.5233
Ferrovanadium 70-80% V*	$/kg V	25.0127	29.99399	28.76459	24.98929	27.66005
Gold, London Price	$/ozt	973.322	1225.05	1569.073	1669.585	1410.907
Ilmenite Concentrate 54% TiO2	A$/t	86.0511	74.3125	128.3836	276.9318	291.3768
Lead, LME Cash	$/t	1718.86	2144.443	2397.525	2064.249	2141.138
Lithium Ore: Petalite 4%	$/t	212.495	212.5	212.5	212.5	212.5
Manganese Ore: 48-50% Metalurgical*	$/mtu	5.3714	7.705549	6.066667	4.920332	5.420675
	$/lb.					
Molybdenum: Molybdic Oxide*	Mo	11.3798	15.84478	15.7779	12.79116	10.40314
Nickel, LME Cash	$/t	14633.2	21803.81	22938.74	17577.39	15018.27
Palladium, London Price	$/ozt	263.483	526.3185	731.0204	646.719	724.9925
Platinum, London Price	$/ozt	1204.85	1610.887	1718.628	1554.329	1487.022
Rhodium, Johnson Matthey Base Price	$/ozt	1586.51	2458.431	2025.037	1275.73	1065.071
Rutile Concentrate 95% TiO2	A$/t	741.761	756.6761	1032.341	2369.85	1681.935
Silver, London Price	$/ozt	14.6575	20.15743	35.33946	31.23604	23.75676
Tantalum Ore: 30% Ta2O5	$/lb,	35	0	0	0	0
Tin, LME Cash	$/t	13563.8	20405.83	26181.78	21060.8	22370
Uranium Oxide, NUEXCO spot	$/lb,	46.6802	45.87332	56.29857	48.96251	27.03937
Vanadium Pentoxide*	$/lb,	6.03666	6.915378	6.606957	5.590256	5.996969
Zinc, Special High Grade	$/t	1653.77	2160.709	2194.365	1952.983	1912.334
Zircon: Foundry Grade, Bulk, FOB	A$/t	854.683	839.3523	1671.194	2489.683	1514.583
Exchange Rate	R/$	8.4371	7.3221	7.2531	8.2099	9.692267

In the years 2012 and 2013, commodity prices were affected by a number of macroeconomic factors, such as cyclical momentum in China's economy which contributed to large swings and the "on-again off-again concerns about financial fragility in the Euro Zone, which contributed to price volatility. Most commodity prices slipped in 2013, prompted largely by slowdown in Chinese industrial production Annual average prices of most commodities finished 2013 below levels of 2012.

Spot gold price averaged US$1 410.9/ozt in 2013, down from an average price of US$1 669.6/ozt recorded in 2012. The price of gold rose every year from 2001 as investors looked for an alternative to the U.S dollar and protection against inflation. At the 2013 price, gold lost 15 per cent when compared with 2012 price.
Violent strikes and supply disruptions in South Africa put platinum in the headlines in 2012 and 2013 and the metal spent 2012 selling at a discount to gold. Despite the increased uncertainty as a result of production disruptions in South Africa, prices were not driven up sharply. The price of platinum averaged US$1 487.02/ozt in 2013. A drop of 4.3 per cent from the average price of US$1 554.3/ozt recorded in 2012. Despite strong Chinese and Indian imports, the 2012 and 2013 steam coal prices averaged 23 per cent lower than in 2011. A strong recovery in Australian exports kept coal under pressure.

The copper price fell from an annual average price of US$7957.3/ton in 2012 to US$7335.8/ton in 2013 as mine production increased. Global copper mine supply grew by just over 6.0 per cent in 2013, led by Latin America and Africa. Despite strong growth in mine supply, which pushed the concentrate market into surplus, several factors combined to maintain a tighter cathode market, such as growth in global demand, relatively low scrap generation and some bottlenecks at smelting stage. As a result, copper LME stocks have been declining since July 2013.

Aluminium price also fell from an average of US$2 023.5/ton in 2012 to US$1849.3/ton in 2013. The recovery in developed markets should be supportive of global commodity demand in 2014 and beyond. For some commodities, increased demand will be required to balance the additional capacity from new operations. Looking ahead, there will be favourable long-term commodity demand, as we see an increase in complexity of future mining projects. Chinese growth albeit, slow at present, is coming from a stronger base which could see China's crude steel consumption peak at around 1 billion tonnes towards 2030. Prosperity in other developing economies remain on an upward path, which should bring new demand for various mineral commodities.

PART TWO: REVIEW OF SELECTED COMMODITIES

PRECIOUS METALS AND MINERALS OVERVIEW

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PRODUCTION AND SALES

The precious metals and minerals industry includes gold, platinum-group metals (PGMs), silver, and diamonds. South Africa was the world's largest producer of PGMs and the sixth largest producer of gold, in 2013. The country's precious metals and minerals production excluding diamonds, increased by 3.5 percent to 492.5t as the industry recovered from the labour unrests particularly in the PGMs sector, which saw PGMs and gold production improving by 3.9 percent and 3.5 percent, respectively, (Table 16). The sector's total sales mass amounted to 464.9 t, a 6.2 percent drop compared with 2012. The decline in the total sales was mainly as a result of a 25.7 percent drop in the gold total sales mass due to weaker local demand for fabrication, jewellery manufacturing and specialised uses. Despite a 15 percent increase in the global gold demand, South Africa's exports dropped by 25.2 percent partly due to a policy shift in India that banned imports of gold coins into the country since May 2013.

South Africa retained its ranking as the eighth largest producer of diamonds by volume, with an output of 8.1 Mct, an increase of 12.4 percent compared with 2012. The country produced R2 billion worth of rough diamonds in 2013, positioning the country as the fifth largest producer by value.

The precious metals and minerals' total revenue including diamonds contributed 40.2 percent to the country's total minerals sales revenue, positioning the sector as the leading revenue earner in 2013. The sector's total revenue declined by 1.6 percent in 2013 compared with 2012, due to weaker gold and silver prices.

TABLE 16: SOUTH AFRICA'S PRODUCTION AND SALES OF PRECIOUS METALS, 2013.

COMMODITY	YEAR	PRODUCTION	LOCAL SALES		EXPORT SALES		TOTAL SALES	
		t	t	R million	t	R million	t	R million
GOLD	2013	159.7	7.5	3 313	123.3	53 845	130.8	57 158
	2012	154.1	11.2	4 863	164.9	71 962	176.2	76 824
PGMs	2013	264.2	27.8	8 886	238.7	75 348	266.5	84 234
	2012	254.3	30.4	8 285	210.9	60 924	241.2	69 209
SILVER	2013	68.8	6.0	43.2	61.6	410	67.6	453
	2012	67.3	6.1	49.6	70.2	533	76.3	583
DIAMONDS	2013	8.16	3.42	7 544	3.77	4 792	7.19	12 335
(Mct)	2012	7.25	2.69	5 199	4.45	4 780	7.15	9 979
PRECIOUS METAL'S	2013	***492.7**	***41.3**	***19 786**	***423.6**	***134 395**	***464.9**	***154 180**
TOTAL	2012	***475.7**	***47.7**	***18 397**	***446.1**	***138 199**	***493.7**	***156 595**

Source: DMR, Directorate Mineral Economics

**Gold, PGMs and silver totals only*

EMPLOYMENT

The precious metals and minerals sector employed 337 189 employees, a 4.3 percent drop compared with 2012, (Table 17). The gold and PGMs sectors' employment dropped by 7.5 percent and 2.9 percent, respectively, while the diamond sector increased by 11.3 percent. Despite a drop in the number of employees, the precious metals and minerals sector remained the leading employer, accounting for 66 percent of total mining employment in 2013.

TABLE 17: EMPLOYMENT AND REMUNERATION IN SOUTH AFRICA'S PRECIOUS METALS AND MINERALS MINES, 2009 - 2013.

YEAR	AVERAGE NUMBER OF EMPLOYEES	TOTAL REMUNERATION (R'000 000)	AVERAGE REMUNERATION R/employee
2009	356 197	44 064	123 707
2010	350 181	48 366	138 117
2011	352 570	53 614	152 066
2012	352 224	59 052	167 655
2013	337 189	63 523	188 390

Source: DMR, Directorate Mineral Economics

OUTLOOK

According to Gold survey 2014, total world gold demand is expected to increase in 2014, owing to major increases in jewellery demand, coin and bar purchases. Gold market is expected to be closer to fundamental balance compared with 2013, as global gold demand is forecast to outperform new gold plus scrap supply in 2014. The metal's price is expected to remain flat for the remainder of 2014 into early 2015 due to the possible strengthening in the US dollar, weak global inflationary pressures, over supply of gold and further possible Exchange Traded Fund (ETF) liquidation. However, the price could be supported by continued strong demand from China and a relaxation in India's import duties.

Global supplies of PGMs are expected to decrease substantially in 2014 as a result of supply constraints from South Africa after a prolonged strike in the first half of the year. The prospect of disruption to supplies from strikes and industrial unrest combined with potential growth in photovoltaics and autocatalyst demand are cited as factors which could support the metal's price for the remainder of the year and into early 2015. Palladium prices are also expected to benefit from an anticipated market deficit, particularly given limited mine supply and waning exports from Russian state stocks. Coupled with anticipated strengthening from sales to the automotive gasoline sector, the metal's price is expected to average $774.81 in 2014, around $50 above its average price in 2013. Demand for rhodium in autocatalysis is expected to increase as global production of light duty vehicles continues to expand, leaving the market in deficit and price inflated.

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DIAMONDS

Donald O. Moumakwa

SUPPLY-DEMAND

World rough diamond output rose by 2.0 percent to 130.5 Mct in 2013 (Table 18), valued at just over R14 billion. The Russian Federation remained the top producer by volume, accounting for 29 percent of total output, while Botswana remained the top producer by value.

TABLE 18: WORLD ROUGH DIAMOND PRODUCTION, 2013.

		MASS		*VALUE*		
		Mct	*%*	*US$ mil*	*%*	*$/ct*
Angola		9.3	7.1	1 278	9.1	136.49
Australia		11.7	9.0	381	2.7	32.50
Botswana		23.2	17.8	3 625	25.7	156.36
Canada		10.6	8.1	1 906	13.5	180.52
DR of Congo		15.7	12.0	139	1.0	8.84
Namibia		1.7	1.3	1 360	9.7	805.24
Russian Federation		37.9	29.0	3 114	22.1	82.21
Sierra Leone		0.6	0.5	184	1.3	302.95
South Africa*		8.1	6.2	1 185	8.4	145.54
Zimbabwe		10.4	8.0	538	3.8	51.72
Other		0.9	0.7	131	0.9	145.37
Total:	*2013*	*130.5*	*100.0*	*14 085*	*100.0*	*107.95*
	2012	*127.9*		*12 645*		*98.81*

Source: KPCS Statistics

** DMR, Directorate Mineral Economics*

South Africa (SA) retained its ranking as the 8th largest producer by volume, with an output of 8.1 Mct, an increase of 12.4 percent compared with 2012 (Table 19). This was despite production disruptions in the first half of 2013 at the country's largest diamond operation, De Beers' Venetia mine, owing to heavy rains and subsequent floods. The country remained the 5th largest producer by value, after producing just under R2 billion worth of rough diamonds. Kimberlites were the source of 96 percent of the country's production, while alluvial and marine diamonds made up the remaining 4 percent. Combined production from De Beers and Petra Diamonds operations accounted for 95 percent of total production and, despite dominating the marine sector, Trans-Hex and Alexkor contributed less than one percent each. Local sales mass increased by 26.3 percent to 3.4 Mct in line with increased production, while export mass declined by 15.5 percent.

TABLE 19: SOUTH AFRICA'S ROUGH DIAMOND PRODUCTION AND SALES, 2013.

	Production	Local sales		Export sales		Total Sales	
Kimberlites	*Mass (cts)*	*Mass (cts)*	*Value (R mil)*	*Mass (cts)*	*Value (R mil)*	*Mass (cts)*	*Value (R mil)*
2013	7 877 176	3 170 091	5 500	3 698 146	4 158	6 868 237	9 658
2012	7 062 701	2 498 172	3 531	4 379 237	4 159	6 877 409	7 690
% Change	11.5	26.9	55.8	-15.6	0.0	-0.1	25.6
Alluvial							
2013	234 114	212 940	1 788	51 044	517	263 984	2 305
2012	158 479	174 936	1 532	66 414	574	241 350	2 106
% Change	47.7	21.7	16.7	-23.1	-9.9	9.4	9.4
Marine							
2013	31 966	26 186	141	13 356	113	39 542	254
2012	24 222	25 332	136	5 088	47	30 420	183
% Change	32.0	3.4	3.7	162.5	140.4	30.0	38.8
Total							
2013	8 143 256	3 409 217	7 429	3 762 546	4 788	7 171 763	12 217
2012	7 245 402	2 698 440	5 199	4 450 739	4 780	7 149 179	9 979
% Change	12.4	26.3	42.9	-15.5	0.2	0.3	22.4

Source: DMR, Directorate Mineral Economics

The State Diamond Trader (SDT) and Petra Diamonds are mainly responsible for the majority of local rough sales, while De Beers is mainly responsible for exports. The SDT is mandated by the Diamonds Second Amendment Act no. 30 of 2005 to purchase up to 10 percent of run-of-mine (ROM) production from all SA producers for sale to local cutting and polishing industry. In addition to the 10 percent due to SDT, Petra sells all rough diamond production by open tender, with SA production being sold in Johannesburg.

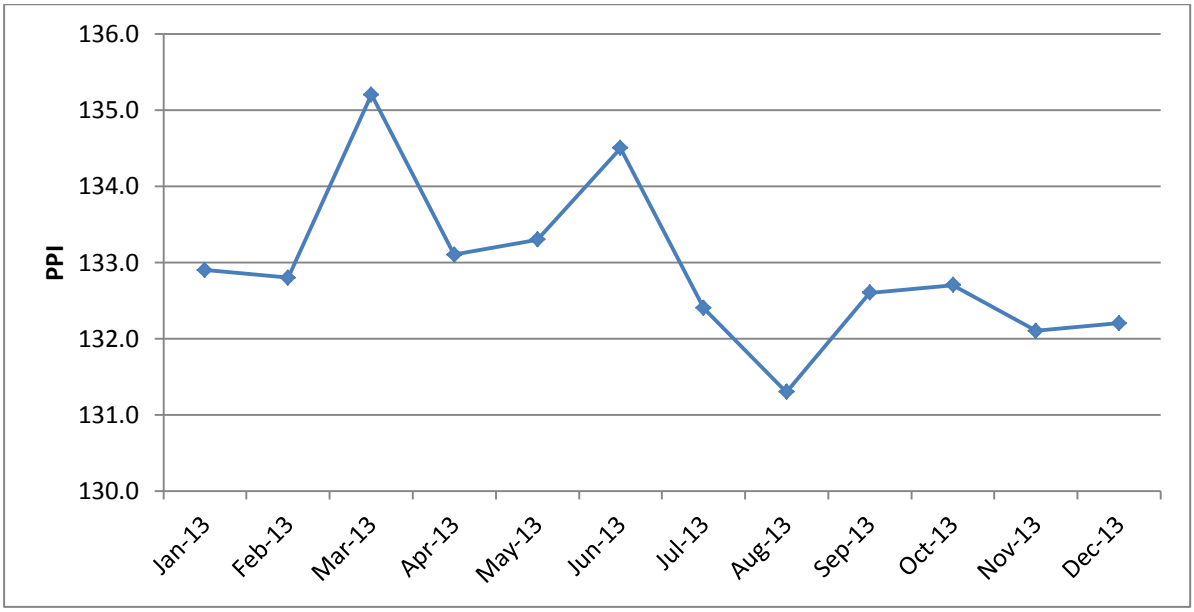
De Beers's Global Sight holder Sales (GSS) is the primary rough diamond distribution arm of the company and the world's largest supplier of rough diamonds by value. The GSS sees De Beers's SA rough stones being mixed with production from other countries and sold at a 5-day long sales activity, known as a sight, to the company's clients, known as sight holders. The GSS was relocated from London to Gaborone in 2013, with the first sight taking place in November 2013.

Just over 40 percent by volume of SA's rough production was sold locally to the cutting and polishing industry, while 45 percent was distributed to India, Israel and Belgium, the three main diamond manufacturing and trading centres, as well as locations for De Beers's sightholders' downstream partners. The US and China remained the major export markets for polished diamonds from both Israel and Belgium, while the United Arab Emirates (UAE) emerged as the top export destination of polished stones from India.

PRICES AND REVENUE

The International Diamond and Jewellery Exchange (IDEX) online global polished diamond price index (PPI) indicates that average global polished diamond prices declined by 2.9 percent from 137.0 in 2012 to 132.9 in 2013. A standout feature is that prices peaked in March on the back of Hong Kong jewellery show, and were nearly flat throughout the second half of 2013. This put a downward pressure on rough prices which, coupled with uncertain economic conditions, eroded profitability and decreased rough diamond financing by banks. However, SA local sales revenue increased by 42.9 percent, while the exports value remained flat despite a 15.5 percent decline in volumes, perhaps a result of more better quality stones being available for purchase.

FIGURE 8: THE IDEX ONLINE MONTHLY AVERAGE POLISHED DIAMOND PRICE INDEX, 2013.



Note: PPI is a percentage number that shows the extent to which a price has changed over a period as compared with the price in a certain year, in this case April 2004-March 2005, taken as a standard year.
Source: IDEX Online.

KEY DEVELOPMENTS

The SA diamond industry has never really recovered from the 2008 economic slump, as evident from the Department of Mineral Resources' production and sales figures. The downturn has presented a number of challenges that will ultimately determine whether the country retains or increases its share of the global diamond market in future. While there is clearly work to be done to increase the country's beneficiation and job creation opportunities, local producers remain positive about prospects for increased diamond production in the country.

The Minister of Mineral Resources hosted the jewellery summit in October 2013, which brought together mining and jewellery manufacturing associations, with the view to creating entrepreneurs with the requisite skills to enable South Africa to become a jewellery hub. Jewellery manufacturing is one of the five value

chains identified in the beneficiation strategy approved by Cabinet in 2011. Thus, the summit is expected to stimulate jewellery manufacturing, of which diamonds are a significant part, and ultimately contribute positively to socio-economic development.

In October 2013, De Beers began construction of a new underground mine beneath its open pit Venetia mine in the Limpopo Province. The $2 billion investment will extend the life of Venetia beyond 2040 and replace the open pit as South Africa's largest diamond mine. With underground production expected to commence in 2021, the mine is expected to treat approximately 130 million tonnes (Mt) of ore, containing an estimated 96 Mct of rough diamonds. The mine will also create over 5 000 new jobs directly, and a further 5 000 through the supply chain, benefitting the South African economy.

Petra is currently implementing a development plan at Finsch mine to increase production from approximately 1.4 Mct to 1.8 Mct per annum by financial year (FY) 2016 and to 2 Mct by FY 2019, involving both underground and tailings production. The company is also implementing an expansion plan at Cullinan, which would increase production from the current 870 000 cts to 2.2 Mct by FY 2019. After failing to find a suitable buyer, Petra downscaled two of its low tonnage, high grade fissure operations, Sedibeng and Star diamonds.

Rockwell Diamonds completed a feasibility study to re-open Wouterspan mine, in a bid to become a mid-tier diamond producer. The project, in the Middle Orange River region of Northern Cape, would cost $41 million and would create about 300 new jobs. In addition, Rockwell also started developing the Niewejaarskraal mine and the Saxendrift Hill Complex. *The latter led to the creation of 85 new jobs and the company's future growth plans include options to further increase the production capacity at Niewejaarskraal, which is expected to have employment benefits in the region.*

EMPLOYMENT

An average of 13 547 people were employed in the diamond industry in 2013 (Table 20), representing an increase of 11.2 percent year on year. This was largely attributed to an increase in the number of construction workers as some producers embarked on expansion projects. Total remuneration continued its upward trend, increasing by 19.3 percent to just over R2.8 billion and raising the average remuneration per employee by 7.3 percent to R211 836 per annum.

TABLE 20: EMPLOYMENT (INCLUDING CONTRACTORS) AND REMUNERATION IN SOUTH AFRICA'S DIAMOND MINING INDUSTRY, 2009-2013.

YEAR	AVERAGE NUMBER OF EMPLOYEES	TOTAL REMUNERATION (R'000)	AVERAGE REMUNERATION (R/employee)
2009	12 109	1 809 550	149 438
2010	11 159	1 912 019	171 343
2011	12 030	2 142 965	178 135
2012	12 176	2 404 916	197 512
2013	13 547	2 869 744	211 836

Source: DMR, Directorate Mineral Economics

OUTLOOK

Global rough diamond production is expected to remain flat at best in 2014, as many of the world's major mines are struggling to maintain previous high levels of output. SA production is expected to increase slightly in 2014 and beyond, on the back of the relatively dry season experienced by Venetia mine, and continuing production ramp-ups at different mines, most notably Finsch and Cullinan. Because of inherent production constraints, supply is expected to struggle to keep pace with demand, which continues to rise in both established markets, such as the US and Japan, and new markets, most notably China and India. As a result, local and exports sales are also expected to increase. The mid- to long-term outlook for diamond prices remains bullish as demand continues to outpace supply.

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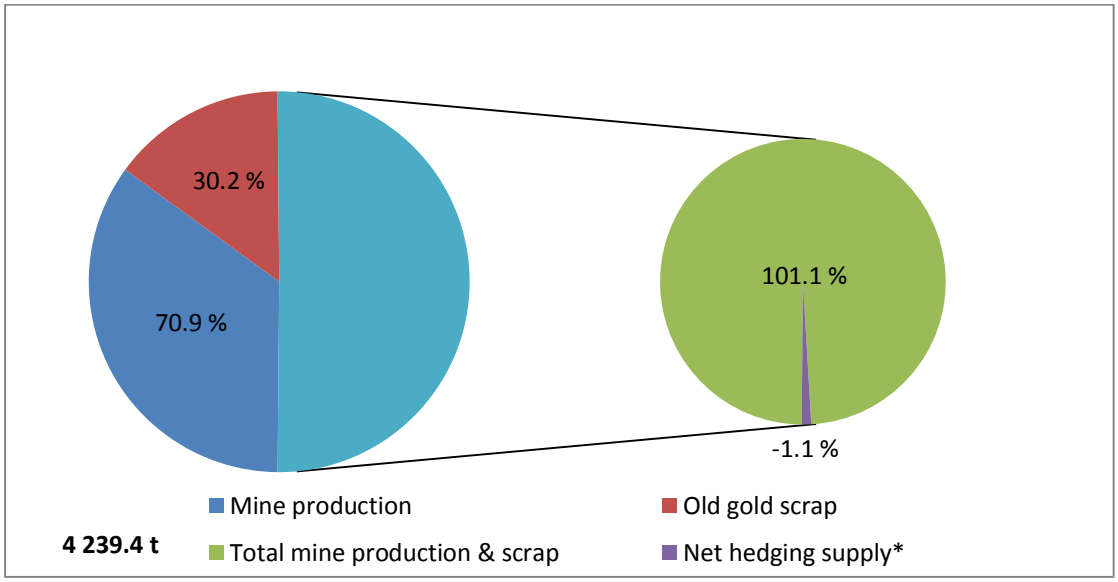
GOLD

P J Perold

SUPPLY-DEMAND

Total world gold supply, which includes mine production and scrap supply, decreased by 4.8 percent from 4 452.0 t in 2012 to 4 239.4 t in 2013. This was mainly due to a decrease in global scrap supply (old gold scrap), which accounted for 30.2 percent (1 280 t) of total supply, representing a decrease of 21.7 percent compared with 2012. In addition, net hedging supply decreased by 1.1 percent from the previous year (Fig. 1). Mine production, at 3 007.4 t accounted for 70.9 percent of total supply and increased by 5.2 percent, due to regional supply gains in excess of 20 t in China, Canada and the Dominican Republic. China remained the largest producer, contributing 15.6 percent to world production, followed by Australia and Russia, at 9.4 percent and 8.8 percent, respectively (Fig. 2).

FIGURE 9: GLOBAL GOLD SUPPLY, 2013.

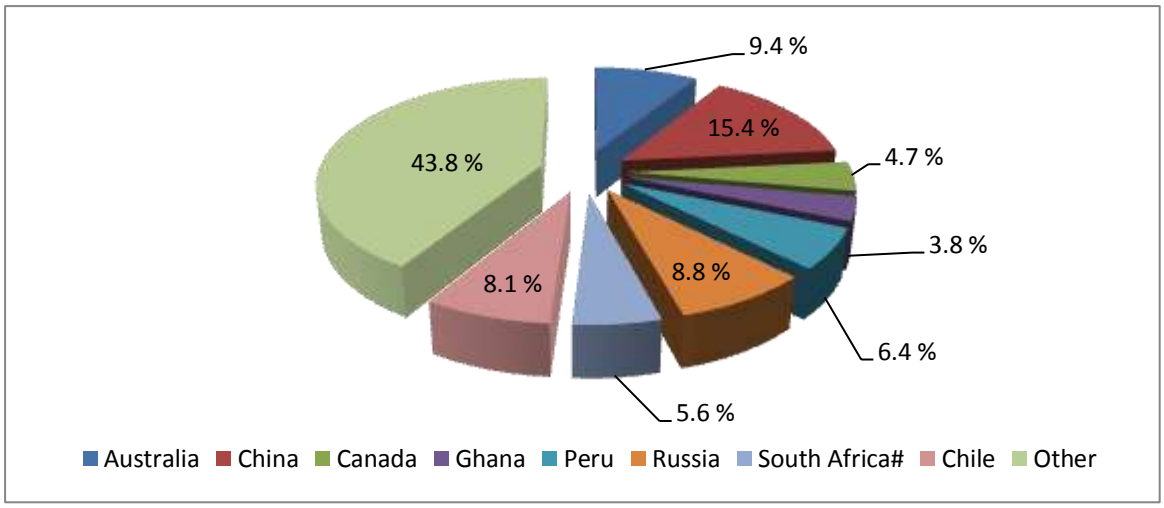


Source: Klapwijk, et al, 2013, pp 8 – 9

** Net hedging supply: Balancing figure*

South Africa's (SA) gold production increased by 3.5 percent from 154.2 t in 2012 to 159.5 t in 2013, contributing 5.6 percent to global production, retaining its position in world ranking as the sixth largest producer (Fig. 2). The increase in production was mainly due to higher mill grades, a general stabilisation and a ramp-up of production. In addition, increased output resulting from Sibanye Gold's acquisition of Gold One's Cooke Shafts, supported production increases to a large extent.

FIGURE 10: SOUTH AFRICA'S CONTRIBUTION TO GLOBAL PRODUCTION, 2013.

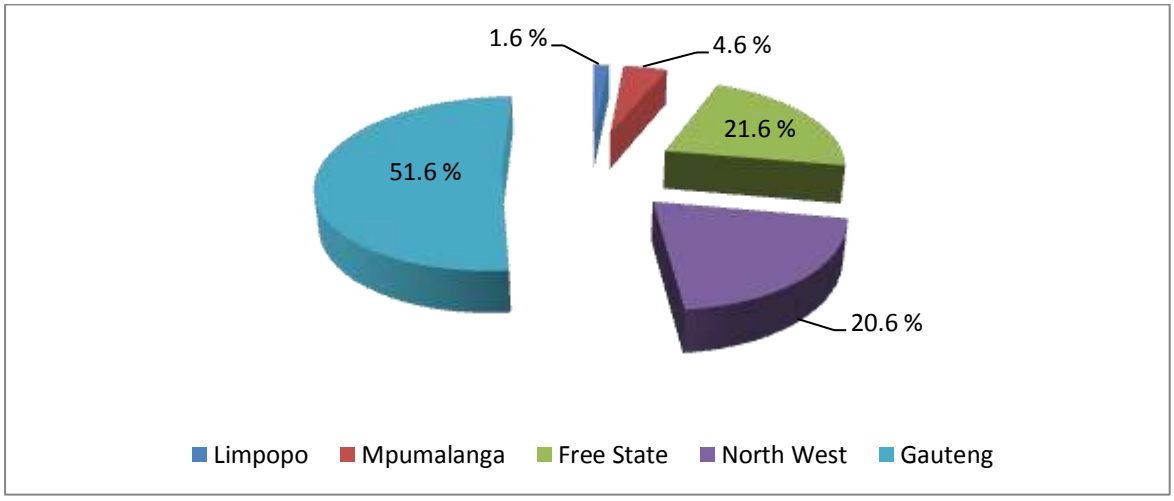


Sources: USGS, 2014, pp 66-67, Klapwijk, et al, 2014, pp 40 - 41

**DMR, Directorate Mineral Economics, 2013-2014*

South Africa produced gold bullion mainly from 30 primary gold mines in 2013, which contributed 95.4 percent to total production. In addition, the metal was recovered as a by-product from 34 Platinum Group Metals (PGMs) operations; an offshore refinery, 5 recovery operations, 1 uranium plant and 1 antimony mine, all of which contributed the remaining 4.6 percent to total production. Primary gold production increased marginally from 147.9 t in 2012 to 152.2 t in 2013. In addition, gold produced from PGMs operations increased by 15.9 percent to 7.3 t, in line with an increase in PGMs production in 2013. Gauteng was the largest gold producer, at 82.3 t accounting for 51.6 percent of total production, followed by Free State and North West Provinces at 21.6 percent and 20.6 percent, respectively (Fig. 3).

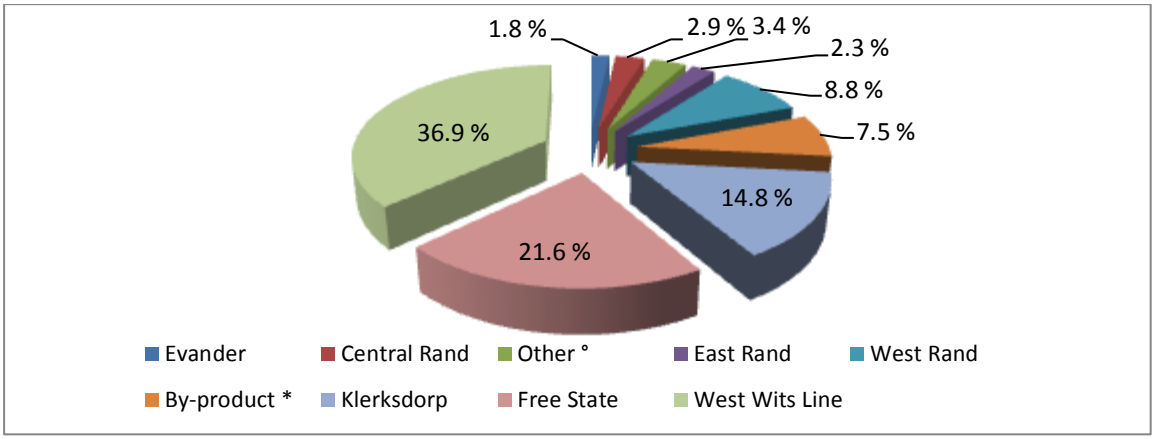
FIGURE 11: SOUTH AFRICA'S PRIMARY GOLD PRODUCTION AND CONTRIBUTION TO TOTAL PRODUCTION BY PROVINCE, 2013.



Source: DMR, Directorate Mineral Economics-2012, 2013

In terms of production by goldfield, the West Wits Line yielded the largest gold production, accounting for 36.9 percent of total production, followed by Free State and West Rand at 21.6 percent and 14.8 percent, respectively (Fig. 4). The remaining goldfields, inclusive of by-product from recovery plants and production, contributed the remaining 26.7 percent to total production.

FIGURE 12: SOUTH AFRICA'S PRIMARY GOLD PRODUCTION AND CONTRIBUTION TO TOTAL PRODUCTION BY GOLD FIELD, 2013.



Source: DMR, Directorate Mineral Economics: 2012-2013.

Note: ° Gold mines outside the Witwatersrand Basin

** Platinum and base metal mines*

Despite a 3.5 percent production increase, local sales volumes decreased by 33.5 percent to 7.5 t, in 2013 due to low uptake and weaker demand for fabrication, jewellery manufacturing and specialised uses, such as dentistry and electronics (Table 21). Export sales mass decreased by 25.2 percent from 164.9 t in 2012 to 123.4 t in 2013, partly due to a 10.0 percent import duty on Indian bullion demand.

TABLE 21: SOUTH AFRICA'S PRODUCTION AND SALES OF GOLD, 2004-2013

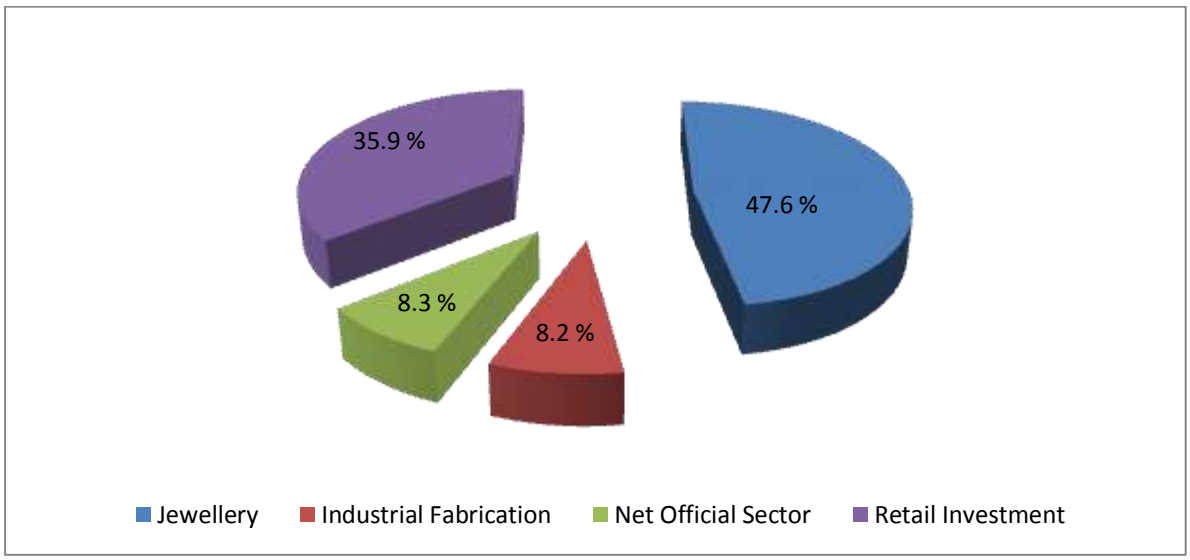
Year	Production	Local sales		Export sales		Total Sales	
		Mass	Value R'000	Mass	Value R' 000	Mass	Value R'000
2004	337.2	3.9	347 093	343.1	28 982 777	347	29 329 871
2005	294.7	4.6	419 622	265.4	24 181 619	270.1	24 601 241
2006	272.1	5.7	720 790	277.4	36 722 302	283.1	37 443 092
2007	252.6	13.2	2 081 731	229.3	35 953 993	242.6	38 035 724
2008	212.6	8.8	1 997 761	190	43 994 483	198.8	45 992 244
2009	197.6	6.6	1 701 334	180.6	46 994 169	187.2	48 695 503
2010	188.7	7.2	2 055 698	176.9	51 037 449	184.1	53 093 147
2011	180.3	10.2	3 633 111	175.5	65 258 302	185.7	68 891 413
2012	154.2	11.3	4 862 748	164.9	71 961 757	176.2	76 824 504
2013	159.5	7.5	3 312 964	123.4	53 877 728	130.9	57 190 693

Source: DMR Statistics: 2012-2013

Total world gold demand increased by 15.0 percent from 4 314 t in 2012 to 4 957 t in 2013, mainly as a result of a 16.0 percent growth in jewellery demand to 2 361 t and partly owing to a 33 percent increase in physical bar investment to 1 377 t. Jewellery demand and retail investment contributed 47.6 percent and 35.9 percent to total demand, while net official sector purchases and industrial fabrication contributed 8.3 percent and 8.2 percent, respectively (Fig. 5). Net official sector purchases were strengthened as a result of gold acquisitions by the Common Wealth of Independent States (CIS), acquiring 77 t in 2013.

Aggressive selling in the futures market combined with 12 consecutive months of selling, pushed combined gold holdings down by 415.0 percent to 880 t in 2013, the first outflows of Exchange Traded Funds (ETF's) since October 2009. Local backed ETF's, such as debentures by NewGold are fully backed by gold bullion with each debenture equivalent to 1/100th of a fine troy ounce of gold bullion. It is held with a secure depository on behalf of investors at an annual fee of approximately 0.4 percent of its value. This is classified as a domestic investment and is the first product in S.A through which institutional as well as retail investors can invest in gold bullion.

FIGURE 13: WORLD GOLD DEMAND MARKETS, 2013.



Source: Klapwijk, et al, 2014, pp 8 – 9

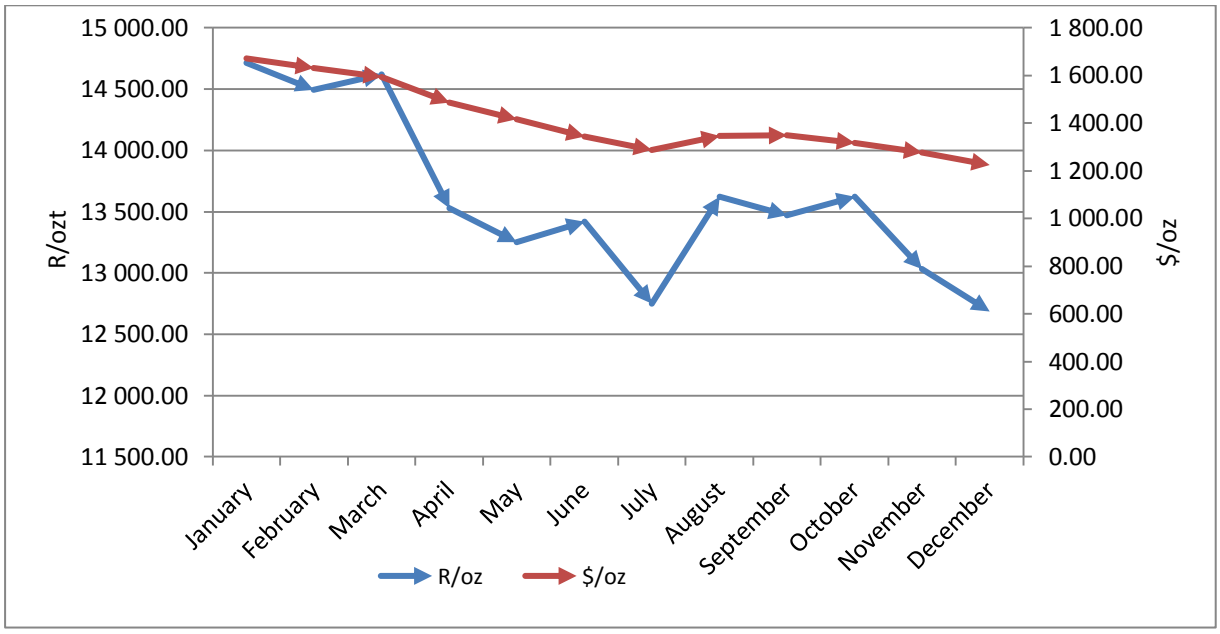
Local gold markets consist of fabrication and specialised uses, such as dentistry and electronic fabrication, as well as gold reserves purchases through South African Reserve Bank (SARB). Since 2010, Central Banks have been net buyers of gold, driven in part by uncertainty over the future of the international monetary systems and the need to diversify reserves. The SARB maintained its level of gold reserves at 125.1 t, which are passively managed. However, its value decreased by 7.1 percent from R59.29 billion in 2012 t R55.06 billion in 2013.

PRICES AND REVENUES

The average dollar gold price, at $1 410.92/ozt, was 15.6 percent lower in 2013 compared with 2012. The metal averaged $1 672/oz in January 2013 and $1 223.50/oz in December 2013, a decrease of 26.8 percent, due to continued economic recovery as a result of the emergence of the Federal Reserve's massive debt restructuring program, coupled with increases in United States' (U.S) treasury yields and equity markets.

The average gold price decreased by 5.2 percent, to $1 630.83/oz in the first quarter of 2013, as a result of stronger U.S retail manufacturing data, coupled with lower-than-expected uptake in Indian fabrication. Strong international market trends coupled with weaker international currencies, resulted in a 13.3 percent decline to $1 414.28/oz in the second quarter of 2013. The price continued to decrease during the third and fourth quarters of 2013, as a result of negative forward rates, meaning that investors were being paid interest to provide gold to the market.

FIGURE 14: AVERAGE GOLD PRICE MOVEMENTS IN RANDS AND DOLLARS, 2013.



Source: LBMA, 2012, 2013
SARB, 2012, 2013

Low gold prices coupled with a drop in the total sales volumes in 2013, resulted in the total sales value decreasing by 25.6 percent from R76.82 billion in 2012 to R57.19 billion in 2013 (Table 21). Local export sales value and mass decreased by 31.9 percent and 25.1 percent, respectively in 2013, mainly due to a drop in the average $/oz gold price that outweighed a 17.5 percent weaker exchange rate during the same period (Table 21).

KEY DEVELOPMENTS

Mine closures and industrial action were some of the challenges experienced by the gold industry in 2013, as prices remained weak and costs escalated. Higher operating costs, which rose above the $1 200/oz mark, forced most companies to look at innovative cost-cutting measures, as well as optimising high yield operations.

Sibanye Gold (Pty) Ltd announced its intention to mine Uranium (U^3O^8) at its Beatrix shaft 1 in early April 2013. Despite being utilised for gold mining, the shaft was originally designed to mine Uranium. This new development is expected to increase life-of mine as well as offset ailing gold production, which could contribute to a higher operating margin and help sustain employment at the shaft. In addition, there are plans to reform the Beatrix Mine 2 and 3 into more profitable operations. However, this initiative could affect as many as 3 300 employees at its development section.

Gold Fields (Pty) Ltd. announced during early April 2013, that it is expanding its South Deep gold mine, which is expected to ramp up production to an estimated 700 000 ounces per year, creating an additional 300 jobs. In line with this, its metallurgical plant has also been expanded from 220 000 tons per month (t/pm) to 330 000 t/pm.

Harmony (Pty) Ltd announced in April 2013 that its Phakisa expansion project was nearing completion and is expected to operate at a depth of 2 400 metres, with an ore-capacity of 72 000 t/pm. Development activities are currently centred close to the shaft in the lower-grade Southern areas. A major drive is planned to access higher-grade areas, thus moving closer to average reserve grade.

EMPLOYMENT

Total employment in the gold mining sector fell by 7.5 percent from 142 201 in 2012 to 131 591 in 2013, due to the liquidation of one gold operation, retrenchments and production interruptions (Table 22). In contrast, total remuneration increased by 5.4 percent in the same period, due to the issuing of voluntary packages. Productivity in rand per employee increased by 13.9 percent, from R156 387 in 2012 to R178 165 in 2013.

TABLE 22: SOUTH AFRICA'S GOLD MINES, EMPLOYMENT AND REMUNERATION, 2009 – 2013.

YEAR	NUMBER OF EMPLOYEES*			REMUNERATION		
	Total	Male	Female	Total R ' 000	Male R ' 000	Female R ' 000
2009	159 925	150 562	9 363	17 371 249	16 338 917	1 032 332
2010	157 019	145 865	11 154	19 844 856	18 481 016	1 363 840
2011	144 799	133 172	11 627	20 840 802	19 219 230	1 621 572
2012	142 201	129 940	12 261	22 238 338	20 342 069	1 896 269
2013	131 591	119 290	12 301	23 444 918	21 330 442	2 114 476

Source: DMR, Directorate Mineral Economics

*Note: *Average number of employees in service, including contractors*

OUTLOOK

Gold scrap supply is expected to fall modestly with a gradual decline in price levels. In contrast, Central Bank purchases are expected to increase again in 2014, which could have a positive impact on the gold price. Weak gold prices coupled with rising costs could put pressure on South Africa's gold sector. It is thus critical that the sector implements efficient and effective methods of mining. South Africa's production is expected to decrease by 9.0 percent to 145.1 t in 2014, due to a decrease in its reserves.

Total world gold demand is expected to increase in 2014, owing to major increases in investment-grade jewellery demand, coin and bar purchases. Physical demand is expected to decrease, even at a price of $1 300/oz in 2014. In contrast, investment demand and Exchange Traded Funds (ETF's) are expected to increase in-line with a decrease in the dollar gold price. Local demand is expected to increase, coinciding with a ramp up of local jewellery hubs.

The price in rand terms is forecast to increase by 1.0 percent to an average of R441 622/kg, aided by a 9.7 percent weaker R/$ exchange rate. In contrast, the average gold price in dollar terms is expected to decrease by 8.9 percent from $1 410.86 /oz in 2013 to $1 285.35/oz in 2014, on the back of a stronger U.S economy.

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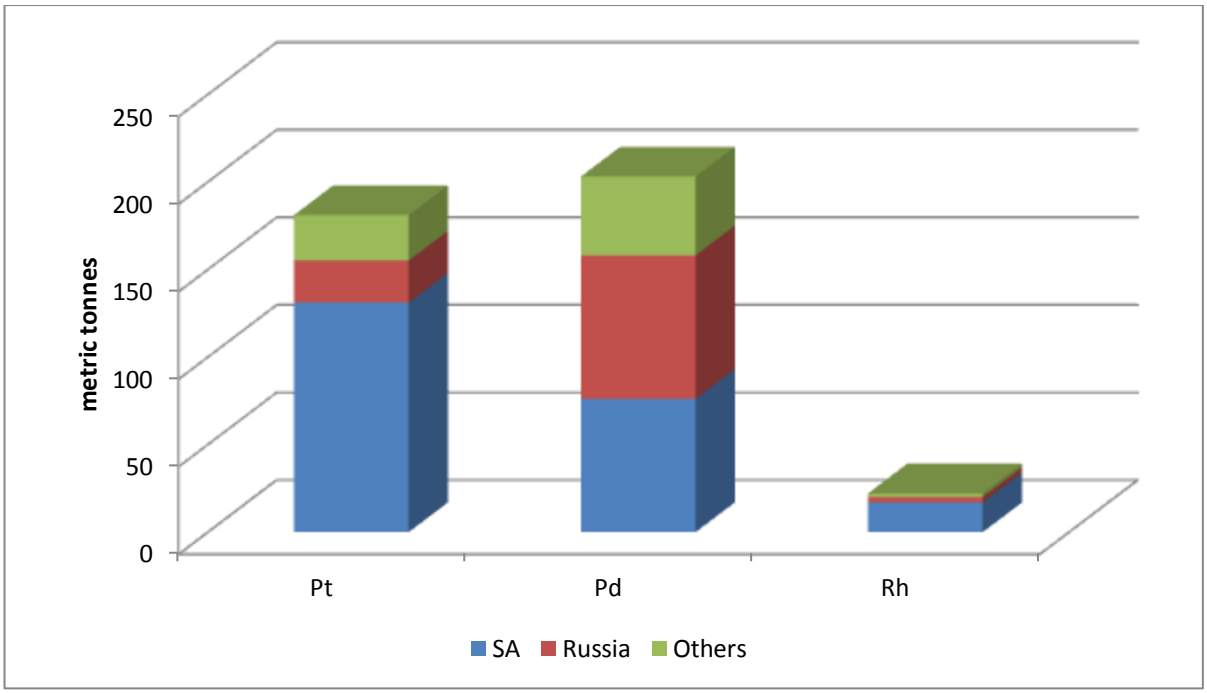
PLATINUM-GROUP METALS (PGMs)

Donald O Moumakwa

SUPPLY-DEMAND

Despite production disruptions in South African (SA) mines due to labour unrests, global platinum group metals (PGMs) supplies were largely unaffected in 2013. According to Johnson Matthey's PGMs Review of 2014 (Platinum 2014), platinum supplies increased by a modest 2.5 percent to 181 metric tonnes (t), with SA accounting for just over 72 percent (Fig. 1). Russia supplied 13.2 percent of global supplies, while others, including North America and Zimbabwe, accounted for the remaining 14 percent. Palladium supplies remained almost flat at 203t, with SA and Russia responsible for 37.4 percent and 40.4 percent, respectively. Rhodium supplies were down 2.6 percent to 22t, most of which (77 percent) were from SA.

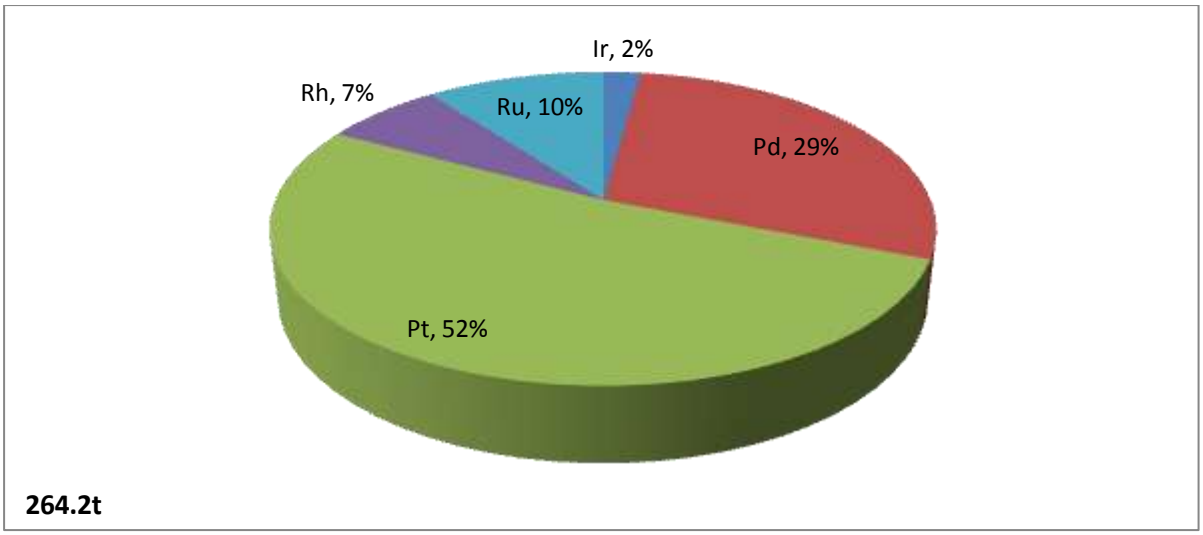
FIGURE 15**:** GLOBAL PGMs SUPPLY, 2013.



Source: Johnson Matthey's Platinum 2014.

Production disruptions were more prominent in the first and last quarters of 2013, most notably as Amplats's workers protested over the company's plans to cut as much as 14 000 jobs and Northam's workers demanded higher wages. However, data collected from the mines by Directorate Mineral Economics reveal that the country's production (including ruthenium and iridium) improved by 3.4 percent to 264.2t, 52 percent of which was platinum (Fig. 2). Local sales dropped by 8.5 percent to 27.8t, mainly as a result of the automotive sector components strike during the third quarter of the year (Table 23). Export sales increased by 13.2 percent to 238.7t due to a combination of relatively better economic outlook and improved demand profile from Europe and Asia.

FIGURE 16: SA PGMs PRODUCTION, 2013.



Source: Directorate Mineral Economics.

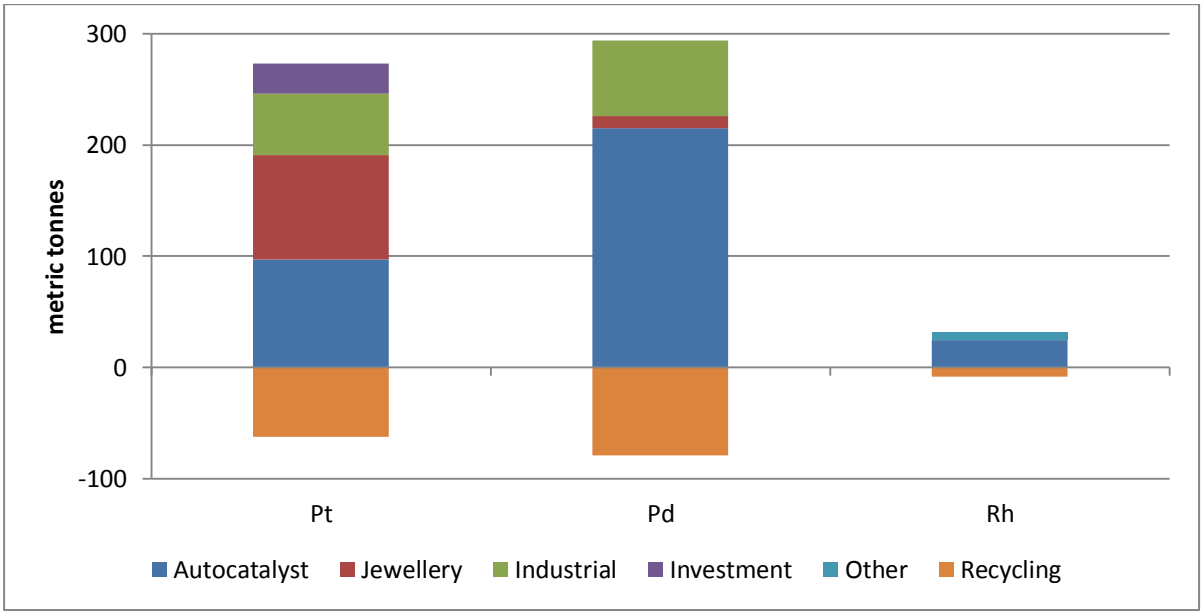
TABLE 23: SA PGMs MINE PRODUCTION AND SALES, 2013.

	Production	Local sales		Export sales		Total sales	
Platinum	Mass (t)	Mass (t)	Value (R mil)	Mass (t)	Value (R mil)	Mass (t)	Value (R mil)
2013	137.0	11.2	5 119.0	122.5	55 312.0	133.7	60 431.0
2012	128.6	12.6	5 113.3	115.0	45 003.4	127.6	50 116.7
% Change	6.5	- 11.1	.1	6.5	22.9	4.8	20.6
Palladium							
2013	76.0	15.0	3 327.0	60.8	13 148.0	75.8	16 475.0
2012	74.7	16.0	2 652.4	57.2	9 133.1	73.2	11 785.5
% Change	1.7	- 6.3	25.4	6.3	44.0	3.6	39.8
Rhodium							
2013	18.1	1.1	358.0	16.1	5 065.0	17.2	5 423.0
2012	17.8	1.2	403.5	16.7	5 346.5	17.9	5 750.0
% Change	1.7	- 8.3	- 11.3	- 3.6	- 5.3	- 3.9	- 5.7
All PGMs							
2013	264.2	27.8	8 886.0	238.7	75 348.0	266.5	84 234.0
2012	254.3	30.4	8 285.2	210.9	60 924.0	241.3	69 209.2
% Change	3.9	- 8.6	7.3	13.2	23.7	10.4	21.7

Source: Directorate Mineral Economics.

Demand for platinum and palladium exceeded supply for the second consecutive year in 2013, according to data from Platinum 2014. Despite the recovery of 62.4t of platinum from recycling, the metal's market was undersupplied by 29.5t after gross demand increased by 9.1 percent to 272.9t (Fig. 3). Of particular interest is the investment demand, which increased by 93.5 percent on the back of SA Absa platinum backed exchange traded fund (ETF). It is considered the largest such fund in the world, having grown at an average of 2.3t per month since it was launched in April 2013. Autocatalyst demand for platinum continued its downward spiral, but still accounted for more than 35 percent of gross demand. By contrast, jewellery demand improved by 8.8 percent and was responsible for just less than 35 percent of gross demand.

FIGURE 17: GLOBAL PGMs GROSS DEMAND AND RECYCLING, 2013.



Source: Johnson Matthey's Platinum 2014.

The palladium market was also under-supplied by 11.8t in 2013 as autocatalysts demand reached yet another record of 214.9 t, representing just over 73 percent of gross demand. Jewellery demand continued to decline, falling to 11.1t from 12.6t in 2012, as a result of falling production from China. Physical investment demand for palladium resulted in liquidation of 0.2t, while the 78.8t of metal recovered from recycling could not help ensure a balanced market. The rhodium market was once again close to balance in 2013, with 24.8t of autocatalyst demand partly accounted for by the 8.5t recovered from recycling.

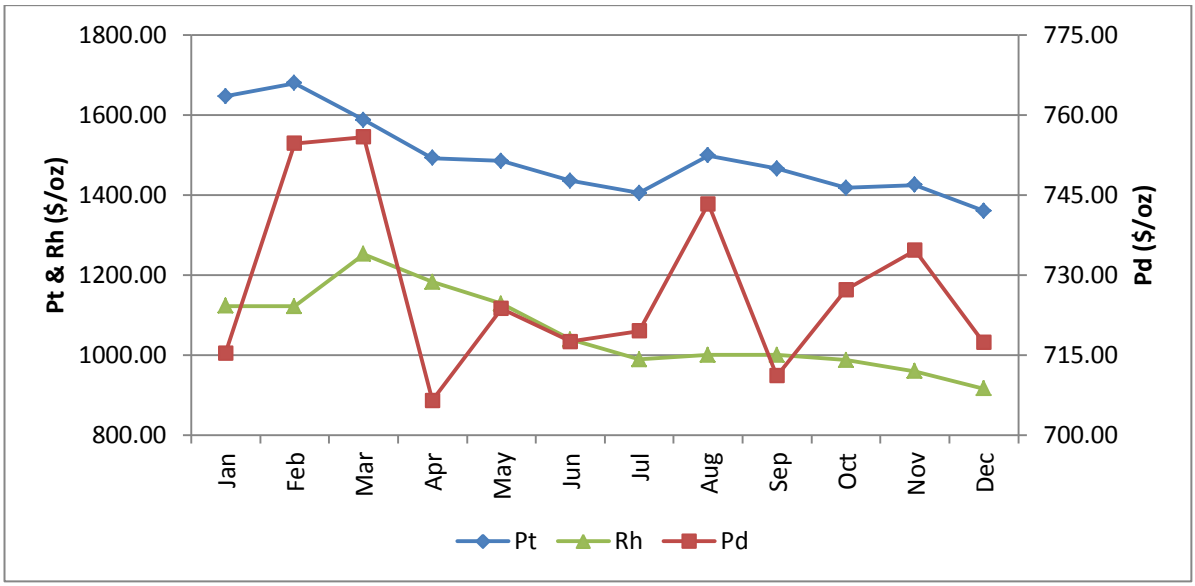
The majority of refined SA PGMs production was sold to a diverse range of customers across various global destinations, mostly Asia and Europe, the largest markets in terms of catalytic converters and jewellery industries. Smaller portions were consumed locally, almost entirely by the catalytic converters industry, and in North America by industrial applications.

PRICES AND REVENUE

In early 2013, PGMs prices drew strength from concerns over supply from SA after Amplats announced restructuring plans that would have had a significant cut in production capacity (Fig. 4). However, the

effect was relatively less significant on palladium and rhodium. The former was buoyed by media reports of a diminishing Russian stockpile, while rhodium was supported by buying from Asia and an increase in investment demand. However, rhodium was soon on a downward spiral as buying interest dissipated, and never recovered until the end of 2013.

FIGURE 18: PGMs MONTHLY AVERAGE PRICES, 2013.



Source: Johnson Matthey

Platinum and palladium were eventually weakened by heavy selling of gold, but the situation could have been worse for platinum, had it not been for increasing investment demand in April after the launch of the ETF by Absa bank in SA. Concerns over supply disruptions in SA resurfaced in August as wage negotiations approached, exerting upward pressure on both platinum and palladium. The two metals were then governed by the falling gold price, which suffered from a slight easing of international tensions over Syria. Palladium was boosted by an announcement by Absa bank that a palladium ETF would be launched by the end of 2013. However, weak autosales in Europe and worries over slowdown in Chinese economic growth dented investor confidence, although prices generally continued to react more to monetary policy than supply-demand fundamentals. By the end of the year, only palladium had made some gains, while platinum and rhodium had lost $195/oz and $105/oz, respectively, from their opening prices of 2013 (Table 24). Furthermore, the average price of palladium was 13 percent higher than in 2012 at $727/oz, while rhodium averaged 18 percent lower at $1 059/oz.

TABLE 24: LONDON BASE PRICES OF PGMs, 2013.

($/oz)	**Pt**	**Pd**	**Rh**
Opening Price	1 556	708	1 080
Closing Price	1 361	714	975
Losses/Gains	- 195	6	- 105
2013 Average Price	1 492	727	1 059
2012 Average Price	*1 552*	*643*	*1 284*
% Change (Ave. Price)	- 4	13	- 18

Source: Johnson Matthey

Despite a drop in prices of some PGMs metals, SA sales revenue increased by 21.7 percent to R84.2 billion, due to an increase in the total mass sold coupled with the weakening of the Rand (R) against the US dollar ($). Export revenue increased by 23.7 percent to R 75.3 billion, boosted by better economic outlook and improved demand profile from Europe and Asia. Despite a drop in the local mass sold, the corresponding revenue increased by 7.3 percent to R 8.9 billion due to a larger R/$ exchange rate. The PGMs industry contributed 21.9 percent to SA's total mineral sales revenue, positioning the sector as the second largest revenue earner in 2013, after coal.

KEY DEVELOPMENTS

Prevailing market conditions continued to weigh down heavily on some producers, resulting in project suspensions and, in some cases, mine closures as part of restructuring plans. This affected employment negatively in the sector, despite efforts by the government and unions to mitigate the effects. Labour unrests continued to negatively impact productivity and, according to some producers, it has become impossible to justify continued production. While the three large producers (Amplats, Implats and Lonmin) had to once more contend with labour unrests in 2013, others continued with projects in anticipation of improved future market conditions and some key milestones were reached.

Amplats's five Rustenburg operations were in August 2013 integrated into three and Union's two mines into one. Khomanani mine and Khuseleka 2 shaft were placed on long-term care and maintenance, but their mine boundaries were amended to allow their resources to be extracted from the two neighbouring mines, Siphumelele and Thembelani mines. Furthermore, Union North and Union South mines were integrated into Union mine, with the uneconomical Union North decline being successfully closed. However, the number of jobs affected reduced to approximately 5 000 from the originally proposed 14 000, thanks to the intervention of the DMR, unions and the CCMA.

Eastplats placed its Crocodile River mine on care and maintenance at the end of July 2013. The company announced then that the mine is likely to be suspended to preserve its value, rather than mining it at a loss, and production will not resume until economic and sustainable production can be guaranteed.

Approximately 92 percent of the mine's 2 500 jobs were affected through retrenchments and termination by mutual agreements.

Aquarius Platinum extended the life of its Kroondal mine by 3 years to 9.5 years after agreeing with Amplats to extend a pool-and-share agreement (PSA) on the adjacent mineral rights. In terms of the agreement, Amplats will make just under 16 Mt of ore available from its Rustenburg mines to Kroondal mine. In return, Aquarius will pay Amplats a royalty on the mined ore and sell the concentrate produced from its mining activities on the land to Amplats' refineries on a toll-treatment basis. The agreement helps de-risk Aquarius Platinum somewhat as the Kroondal mine comprises 41 percent of Aquarius total group production.

Ivanhoe Mines was given permission to sink a bulk-sample shaft at its Flatreef discovery, Platreef project, in South Africa's Bushveld Igneous Complex. The company started digging the 7.25m diameter Shaft 1 during the fourth quarter of 2013. The vertical shaft would descend to a depth of 800m, where the company would collect a bulk sample in the second half of 2015, which would be used to complete a development assessment of the Flatreef deposit. In June 2013, Ivanhoe filed a mining right application for the Platreef project with the DMR to mine and process minerals from the mining area for a maximum period of 30 years, which could be extended upon application.

At least six projects are expected to commence production in 2015. These are Platinum Australia's Kalahari and Rooderand projects, Platinum Group Metals Western Bushveld JV, Platmin's Mphahlele and Grootboom projects, as well as Royal Bafokeng Platinum's Styldrift Merensky Phase 1 project. The latter is an expansion of existing operations, while the rest are all new mine developments. By the end of 2013, these projects were all progressing well, except the Kalahari project which was delayed by power supply disruptions and infrastructural challenges. Combined, the projects are expected to create at least 8 000 jobs and produce at least 1 Moz of PGMs per annum.

EMPLOYMENT

Average employment in the PGMs industry declined by 2.9 percent to 192 051 in 2013 as current market conditions and labour unrests took their toll on some producers (Table 25). However, total remuneration increased by 8.1 percent, resulting in an 11.4 percent increase in the average remuneration per employee. Average productivity per employee increased by 7.8 percent to 1.38 kg.

TABLE 25: EMPLOYMENT (INCLUDING CONTRACTORS) AND REMUNERATION IN SOUTH AFRICA'S PGM MINES, 2013.

YEAR	AVERAGE NUMBER OF EMPLOYEES	TOTAL REMUNERATION (R'000 000)	AVERAGE REMUNERATION (R/employee)
2009	184 163	24 879	135 093
2010	182 003	26 577	146 027
2011	194 979	30 413	155 980
2012	197 847	34 409	173 917
2013	192 051	37 210	193 750

Source: DMR, Directorate Mineral Economics

OUTLOOK

Global supplies of PGMs are expected to decrease substantially in 2014 as a result of supply constraints from SA after a prolonged strike in the first half of the year. Some SA mines, particularly those that were affected by the strike, remain under serious cost pressures and a substantial amount of capacity could be shut down in 2014. Palladium supplies are expected to be further lessened as Russian stocks continue to diminish.

Demand for platinum from the investment sector is expected to increase, further exacerbating the supply deficit in 2014. The metal's price is expected to pick up during the second half of 2014 as above-ground stocks continue to be depleted before mines return to full production. While autocatalyst demand for palladium is expected to remain robust, investment demand has been further influenced by the successful launch of two SA ETFs. As a result, the palladium market is also expected to be undersupplied in 2014, which is likely to propel the price to record levels by year-end. Demand for rhodium in autocatalysts is expected to increase as global production of light duty vehicles continues to expand, leaving the market in deficit and price inflated.

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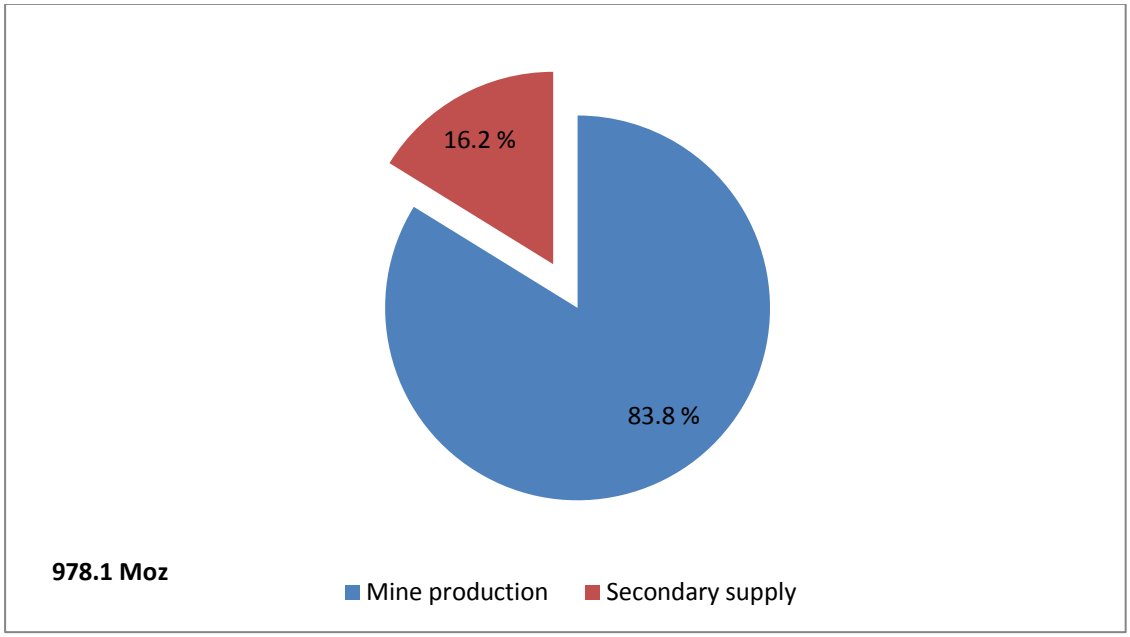
SILVER

PJ Perold

SUPPLY-DEMAND

Total global silver supply, which includes mine production and secondary supply-sources, decreased by 3.3 percent from 1 005.3 million ounces (Moz) in 2012 to 978.1 Moz in 2013. According to the Silver Survey 2014, mine production, inclusive of output from the lead and zinc sectors, remained the largest single contributor to total mine supply, contributing 83.8 percent (819.6 Moz), while secondary supply contributed 16.2 percent (Fig.1). Mexico remained the world's largest silver producing country, despite production levels declining by 1.5 percent to 169.7 Moz in 2013. Peru overtook China as the second largest producer, followed by China and Australia at third and fourth positions, respectively. South Africa's (S.A) production increased by 2.2 percent to 2.21 Moz in 2013, and contributed only 0.2 percent to total world supply, retaining its ranking as the twentieth largest producer.

FIGURE 19: GLOBAL SILVER PRODUCTION BY SOURCE, 2013.

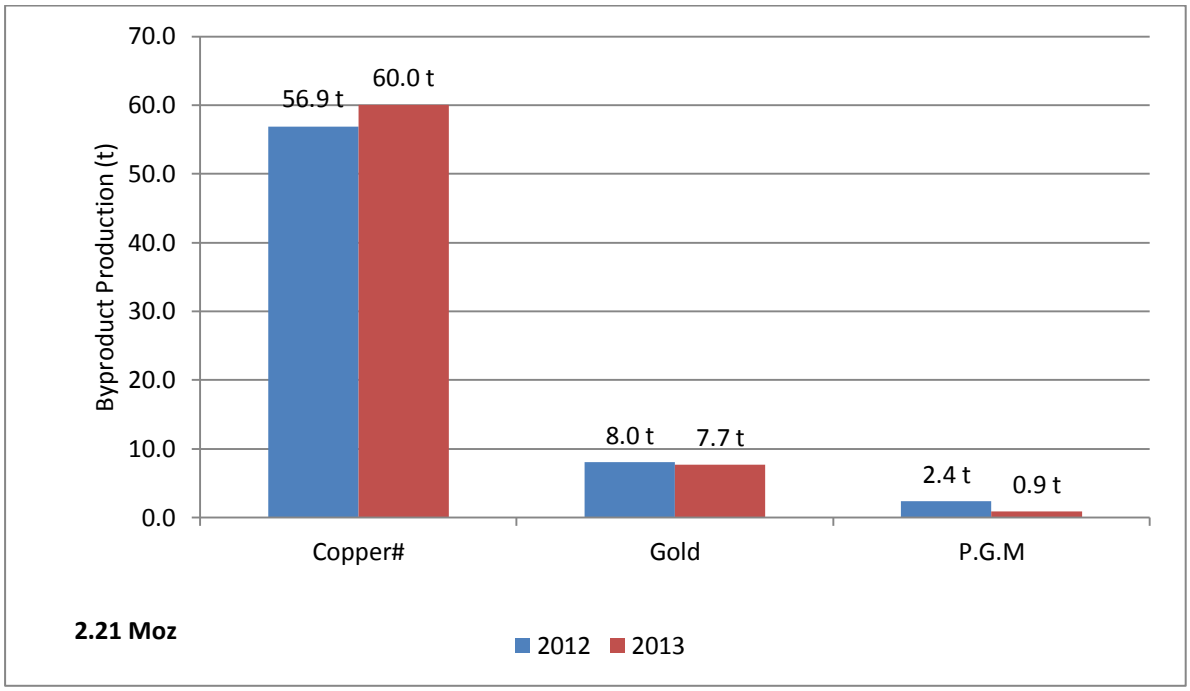


Source: Silver Survey, 2014

S.A produces the metal mainly as a by-product from two copper operations, thirteen gold operations and two Platinum Group Metals (P.G.M) operations. Copper operations contributed roughly 87.5 percent to S.A's total silver production, while production from gold and P.G.M operations jointly contributed 12.5 percent (Fig. 2). An increase of 5.4 percent in silver production recovered from copper operations offset the decline in production from the gold and P.G.M operations, which dropped by 3.8 percent and 7.7 percent, respectively, in 2013. Despite a 2.3 percent increase in production, local and export sales mass decreased by 2.2 percent and 23.1 percent respectively as production gains in mine supply were more than offset by a decrease in

scrap supply. Export sales mass decreased due to a tighter global regulatory environment, coupled with the exhaustion of coin and jewellery recycling in the country.

FIGURE 20: S.A SILVER PRODUCTION BY SOURCE-2012, 2013.



** Including recovery ops*

 # Including by-product derived from copper and lead-from-copper production

***Source: DMR Statistics, 2013, 2014*

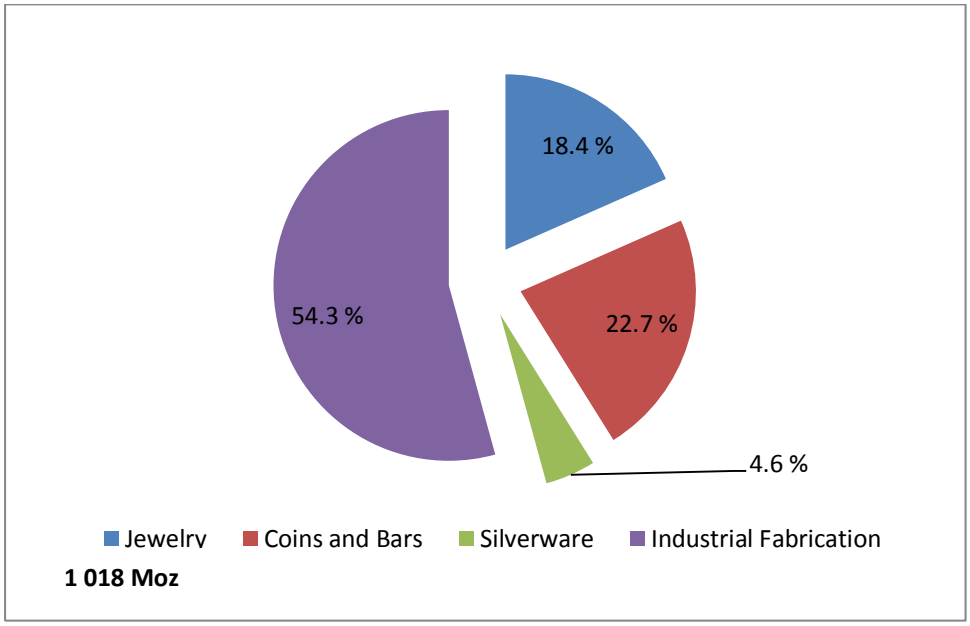
TABLE 26: SOUTH AFRICA'S PRODUCTION AND SALES OF SILVER, 2004-2013.

Year	Production	Local sales		Export sales		Total Sales	
		Mass	Value	Mass	Value	Mass	Value
		Moz	R'000	Moz	R' 000	Moz	R'000
2004	2.30	0.2	4 659	2.3	93 995	2.5	101 478
2005	2.80	0.1	7 483	3.2	137 844	3.3	143 504
2006	2.80	0.2	5 660	3.0	239 595	3.2	250 621
2007	2.20	0.1	11 026	2.5	224 146	2.6	235 041
2008	2.40	0.3	10 895	2.8	318 573	3.0	346 845
2009	2.50	0.3	28 272	2.3	256 198	2.5	287 103
2010	2.50	0.2	30 906	2.5	350 439	2.7	386 078
2011	2.40	0.3	35 639	2.3	531 932	2.6	611 933
2012	2.16	**0.20*	49 591	2.5	533 232	2.5	582 824
2013	2.21	**0.24*	43 179	2.0	410 158	2.2	453 336
Y-o-y (%)	2.2	20.0	-12.9	-20.0	-23.1	-12.0	-22.2

Source: DMR Statistics, 2004-2014

According to the Silver Survey, world silver demand, which consists of industrial fabrication, coins and bars, jewellery and silverware increased by 13.3 percent to 1 081.1 Moz. This was largely due to a 76.3 percent increase in retail investment in bars and coins, supported by an increase in jewellery and silverware fabrication, which rose by 12.1 percent and 9.6 percent, respectively.Total world demand was driven by industrial fabrication at 54.3 percent of total demand, followed by coins and bars as well as jewellery at 22.7 percent and 18.4 percent, respectively (Fig. 3). South Africa's silver demand was primarily driven by jewellery and electronic components.

FIGURE 21: WORLD SILVER CONSUMPTION (Moz) BY SECTOR, 2013.



Source: World Silver Survey, 2014

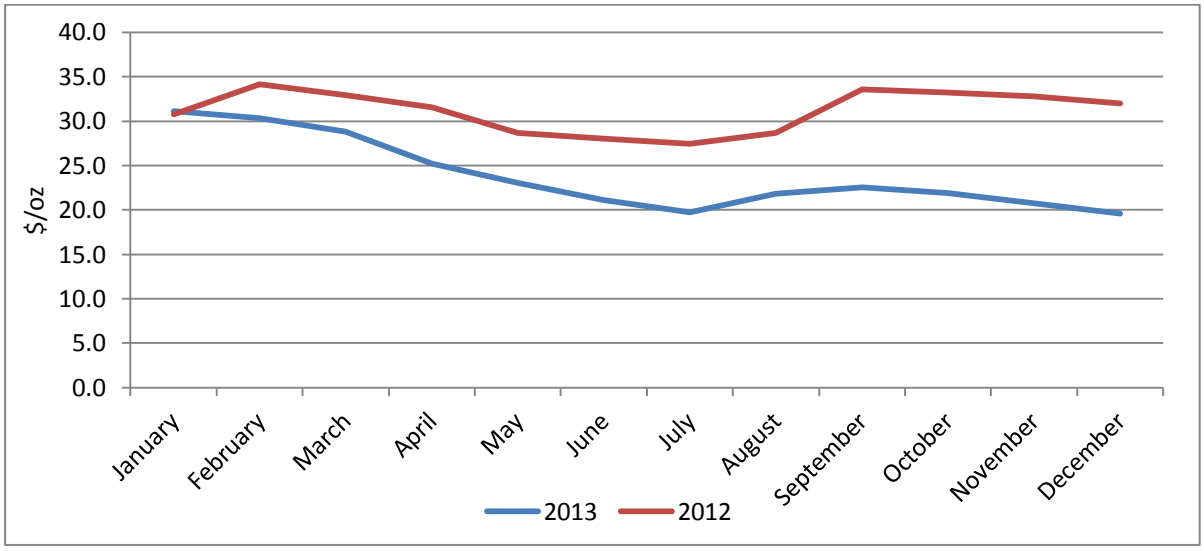
PRICES AND REVENUE

Despite a 75.8 Moz market undersupply in 2013, silver annual price decreased by 23.5 percent from $ 31.15/oz in 2012 to $ 23.83/oz in 2013. The debt limit bill signed by the United States on 3 January 2013, to avoid the fiscal cliff, exerted downward price-pressure during the first quarter of 2013. The average price decreased by 23.2 percent to $ 23.11/oz in the second quarter of 2013 (Fig. 4), mainly as a result of the Euro Central Banks's (ECB) decision to sell €400 million worth of gold which reinforced declines in the silver metal due to the inverse correlation of the metal to the gold price ratio. Prices declined by 13.1 percent to $ 19.61/oz, in the third quarter of 2013, coinciding with the debt limit bill that avoided technical default and reopened U.S markets.

Revenue from total sales amounted to R 453 million, a 22.0 percent drop compared with 2012 revenue, due to lower sales mass and prices in the same period. The metal contributed 0.16 percent to total mining sales revenue in 2013. Local sales value decreased by 12.9 percent to

R 43.2 million, due to lower local uptake. Similarly, export sales value decreased by 23.1 percent, in-line with declining prices, large-scale ECB selling and stronger U.S markets.

FIGURE 22: MONTHLY AVERAGE SILVER PRICES, 2013.



Source: Silver fixings, LBMA, 2014

OUTLOOK

Global silver supply is expected to increase in 2014, exceeding the 3.4 percent growth in 2013, driven by stronger demand from fabrication. Total silver output is expected to increase, as global gold production surges, thus impacting on the recovered volumes of silver as by-product. Growth will be mainly driven by strong increases in South America as large projects are ramped up and additional by-product recovered from the metal's primary production. Scrap-supply is expected to grow as a result of unpredictable and vigorous changes in the silver prices. Global government sales are expected to increase, backed by strong demand for silver bullion bars.

In South Africa, silver output is expected to increase marginally, due to higher copper production. Stronger gold recovery resulting from higher recovered grades will aid local production. The silver price is expected to decrease by 0.116 percent to $ 23.7/oz, in line with a 52:67 internationally accepted price ratio of gold to silver.

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ENERGY MINERALS OVERVIEW

KL Revombo

SUPPLY - DEMAND

South Africa's coal and uranium resources are ranked among the top ten in the world. The country's uranium resources are ranked 5th globally, Africa's largest resources followed by Namibia and Niger. After updating the coal resources, South Africa's coal reserves that are located mainly in Mpumalanga, northern Kwazulu-Natal and Limpopo provinces are now ranked 5th. In 2013, South Africa was the 7th largest coal producer in the world and the 11th uranium producer. Uranium is mainly produced as a by-product from gold and copper mines.

The country has not yet fully quantified the deposits of oil and gas, but potentially hosts large quantities of shale gas in the Karoo basin and offshore. South Africa imports more than 60 percent of the feedstock required for liquid fuel production with the remainder derived from synthetic fuels, which are produced locally from coal and natural gas.

According to the BP Statistical Review of World Energy 2014 (BPSRWE, 2014), global oil production appreciated by 0.6 percent to 86.81 million barrels per day (mbpd) in 2013, from 86.15 mbpd in 2012. The Organization of Petroleum Exporting Countries' (OPEC's) output dropped by 1.8 percent to 36.83 mbpd whereas non-OPEC countries' production increased by 2.7 percent to 36.06 mbpd.

Global oil consumption increased by 1.4 percent to 91.33 mbpd in 2013. Non-OECD countries accounted for 51 percent of the global oil consumption and once again, this growth accounted for the net growth in global oil consumption. The OECD consumption declined by 0.4 percent (BPSRWE, 2014). The largest increases were recorded by the USA (400 thousand barrels per day (tbpd)) outpacing Chinese growth of 390 tbpd for the first time since 1999. The largest percentage decrease was Japan's 158 tbpd. Oil prices averaged $108.66 per barrel in 2013, a decline of 2.7 percent from $111.67 in 2012.

World natural gas output grew by 1.1 percent to 3 390.5 billion cubic metres (bcm) in 2013 from 3 364.1 bcm in 2012 (BPSRWE 2014). At 1.3 percent growth, the USA was the largest producer. However, Russia's 17.8 percent (12.4 bcm) was the world's largest volumetric increase, followed by China's 9.5 percent and Qatar's 5.4 percent (7.7 bcm). Due to the incessant sabotage of oil and gas assets, Nigeria recorded the largest volumetric decline at 16.4 percent, followed by India (16.3 percent) and Norway (5 percent).

Natural gas accounted for 23.7 percent of primary energy consumption in 2013 (BPSRWE, 2014), an increase of 1.4 percent to 3 347.6 bcm in 2013. China and the USA with growths of 10.8 percent and 2.4 percent respectively, recorded the largest increments in world consumption, together accounting for 81 percent of global consumption. In the OECD countries, consumption grew by 1.8 percent whereas in the

non-OECD countries, it increased by 1.1 percent. India's decline of 12.2 percent was the world's largest volumetric decline and the European Union's decrease of 1.1 percent was the lowest drop since 1999.

In 2013, coal production increased by 0.4 percent to 7 822.8 Mt (Coal Information, 2014), the weakest growth since 2002. Indonesia's 10.1 percent and Australia's 6.6 percent were the largest volumetric increments. Despite the marginal growth of 0.8 percent, China, at 3 560.7 Mt, remained the largest producer, followed by the USA (904 Mt), India (612.8 Mt) and Australia (459.3Mt).

Coal's share of global primary energy consumption reached 30.1 percent, the highest since 1970. Global coal consumption grew by 2.5 percent to 7 875.7 Mt in 2013 from 7 687.3 Mt in 2012 (BPSRWE, 2014). China accounted for 49.3 percent of global coal consumption, followed distantly by the USA's 10.7 percent and India's 10 percent. South Africa at 183.9 Mt was 5th. The OECD coal consumption decreased by 25.6 percent to 2 135.6 Mt owing to weaker demand in these countries. Total consumption in the non-OECD countries grew by 4 percent to 5 740 Mt mainly due to demand in China, which further strengthened its position as the world's largest coal-consuming country in 2013. Coal prices spiralled downward in 2013 owing to market oversupply.

World uranium mine production increased by 1.1 percent from 151.2 Mlb in 2012 to 152.9 Mlb U_3O_8 in 2013. When combined with secondary sources, this figure rose to 206 million pounds U_3O_8. Kazakhstan dominated world output, accounting for 38.2 percent of production, followed by Canada's 15.8 percent and Australia's 10.7 percent. Namibia was the largest producer in Africa accounting for 7 percent of world production, followed by Niger at 6.8 percent.

TABLE 27 SOUTH AFRICA'S PRODUCTION AND SALES OF ENERGY COMMODITIES, 2013

COMMODITY	YEAR	PRODUCTION	LOCAL SALES		EXPORT SALES		TOTAL SALES	
		kt	kt	R'000	kt	R'000	kt	R'000
Coal	2012	258 576	185 669	43 921 277	76 009	52 226 904	261 677	96 148 181
	2013	256 282	183 914	49 569 211	74 566	51 813 484	258 480	101 382 695
Uranium Oxide	2012	0.551	*	*	*	*	*	*
	2013	0.626	*	*	*	*	*	*
Subtotal	2012	258 576	185 669	43 921 277	76 009	52 226 904	261 677	96 148 181
	2013	256 283	183 914	49 569 211	74 566	51 813 484	258 480	101 382 695
Natural Gas	2012	934	934	2 195 735	-	-	934	2 195 735
	2013	660	660	1 755 972	-	-	660	1 755 972
Natural Gas Condensate	2012	89	89	910 269	-	-	89	910 269
	2013	61	61	705 006	-	-	61	705 006
Subtotal	2012	1023	1023	3 106 003	-	-	1023	3 106 003
	2013	721	721	2 460 977	-	-	721	2 460 977

Source: DMR, Mineral Economics Directorate

In 2013, South Africa's saleable coal production decreased by 0.9 percent to 256.3 Mt from 258.6 Mt in 2012, while uranium production surged by 13.7 percent to 626 t (Table 27). The country's natural gas production amounted to 0.66 Mt, a 29.4 percent decrease from 2012. Similarly, natural gas condensate

output plunged by 31 percent to 0.061 Mt from 0.089 Mt during the same period. South Africa's crude petroleum production fell by 59.5 percent to 138 928 barrels compared with 343 072 barrels in 2012, as a result of maintenance stoppages during the year.

EMPLOYMENT

Employment in South Africa's energy sector increased by 6.3 percent from 83 538 in 2012 to 88 784 in 2013 (Table 28). The coal industry continued to dominate with 87 768 (98.9 percent) jobs whereas the oil and gas accounted for the remainder (1 016 jobs). In 2013, total remuneration increased by 8.7 percent to R19.2 billion raising average annual earnings by 2.3 percent to R215 664 per employee.

TABLE 28: EMPLOYMENT AND GROSS REMUNERATION ON MINES AND PLANTS IN THE SOUTH AFRICAN ENERGY INDUSTRY, 2005 – 2013

YEAR	EMPLOYEE	REMUNERATION	
	Number	R'000	R'000/Employee
2005	57 185	6 558 129	114.7
2006	57 936	7 340 151	126.7
2007	60 698	8 778 627	144.6
2008	65 739	11 138 368	169.4
2009	70 970	12 947 469	182.4
2010	75 021	14 352 946	191.3
2011	78 761	16 242 879-	206.2
2012	83 538	17 612 592	210.8
2013	88 784	19 147 531	215.7

Source: DMR, Mineral Economics Directorate

OUTLOOK

It could take years to clear the oversupply of coal globally, because coal producers seem reluctant to cut output while low-cost mines are still making money in the weak pricing environment (SNL Metals and Mining). More than 50 Mt of coal needs to be taken off the global market to control the oversupply situation. Oversupply in global markets will continue for some time, awaiting either producer rationalization or sufficient demand growth to absorb the extra capacity. In 2014, prices will remain subdued due to the overcapacity of the international markets.

Gas is the fastest growing fossil fuel and its rapid growth is faster than that of the total energy growth while oil is the slowest. The fast growth of gases is supported by the rapid growth in shale gas, the fastest growing source of gas, supplying nearly half of the growth in global gas output. However, world oil supply is expected to increase in 2014 with most of the growth coming from producers outside the Organization of Petroleum Exporting Countries (OPEC) such as the United States, Canada and Sudan.

South Africa's coal consumption is expected to increase in 2014 following Eskom's commissioning of Medupi power station. Unit 6 of Medupi is planned to be connected and synchronized to the power grid in December 2014. While several new coal projects started operating in the first half of 2014, others are expected to start producing in the last quarter of the year. South Africa's coal production is forecast to grow by about two percent to about 262 Mt in 2014 from 256 Mt in 2013.

In the short to medium term, the country will continue to import gas and crude oil to meet its liquid fuel requirements, about 30 percent of which is met by Sasol's coal-to-liquid technology. In the medium term to long term the situation may change as a few companies were awarded exploration permits for oil and gas off the coast of South Africa. Exploratory hydraulic fracturing is still needed to determine the commercial prospects of shale gas which has a potential to contribute to the country's energy industry. According to the Energy Information Administration (IEA), South Africa hosts about 485 trillion cubic feet recoverable reserves. If shale gas reserves are proven and environmental concerns are alleviated, then development of the shale gas industry has a potential of contributing to South Africa's energy mix. Even though gas infrastructure and production are limited, the country has some experience in this sector and would be capable of ramping up the level of expertise required to manage the creation of a domestic gas industry.

The ever-present uranium stockpiles will affect the future development of uranium mining projects. However, the delay in the development of these projects could have positive spin offs in the medium to long term once local value addition intensifies consistent with the Beneficiation strategy.

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COAL

KL Revombo

SUPPLY - DEMAND

Global coal proven reserves increased by 7.8 percent to 928 075 Mt at the end of 2013 as Indonesia and South Africa updated reserve statements. Indonesia's proven reserves increased by 407 percent to 28 017 Mt while South Africa's grew by 121 percent to 66 700 Mt.

Total global coal production increased by 0.4 percent from 7 794.4 Mt in 2012 to 7 822.8 Mt in 2013 (Table 29), the weakest growth since 2002. Indonesia's 10.1 percent and Australia's 6.6 percent where the largest volumetric growths in production in 2013. Despite a marginal growth of 0.8 percent, China remained the largest producer contributing 3 560.7 Mt to world total, followed by the United States of America (USA) (904 Mt), India (612.8 Mt), Australia (459.3 Mt) and Indonesia (488.6 Mt).

TABLE 29: WORLD COAL RESERVES, PRODUCTION AND EXPORTS, 2013

COUNTRY	RESERVES[1]			PRODUCTION[2]			EXPORTS[2]			CONSUMPTION[2]		
	Mt	%	Rank	Mt	%	Rank	Mt	%	Rank	Mt	%	Rank
Australia	76 400	8.2	4	459.3	5.9	5	336.3	25.2	2	121.3	1.5	7
Canada	6 582	0.7	11	68.9	0.9	11	36.3	2.7	7	40.9	0.5	11
China	114 500	12.3	3	3 560.7	45.5	1	7.3	0.5	-	3 880.6	49.3	1
Colombia	6 746	0.7	10	85.4	1.1	10	74.3	5.6	6	7.1	0.1	12
India	60 600	6.5	6	612.8	7.8	3	1.5	0.1	-	791.2	10.0	3
Indonesia	28 017	3.0	9	488.6	6.2	4	426.1	32.0	1	62.5	0.8	10
Kazakhstan	33 600	3.6	8	119.9	1.5	9	32.7	2.5	8	87.5	1.1	8
Poland	5 465	0.6	12	142.8	1.8	8	11.1	0.8	-	144.5	1.8	6
Russia	157 010	16.9	2	347.2	4.4	6	140.8	10.6	3	234.8	3.0	4
South Africa*	66 700	7.2	5	256.3	3.3	7	74.6	5.6	5	183.9	2.3	5
Ukraine	33 873	3.6	7	65.8	0.8	12	5.6	0.4	-	75.9	1.0	9
USA	237 295	25.6	1	904.0	11.6	2	106.7	8.0	4	842.9	10.7	2
Other	101 287	10.9	-	711.1	9.1	-	80.0	6.0	-	1 402.6	17.8	-
Total	**928 075**	**100.0**	-	**7 822.8**	**100**	-	**1 333.3**	**100**		**7 875.7**	**100.0**	-

Source: [1]*BP Statistical Review of World Energy, June 2014*

[2]*Coal Information 2014, International Energy Agency – OECD/IEA*

**DMR, Mineral Economics Directorate – reserves, production and exports figures*

The Organization for Economic Co-operation and Development (OECD) countries' coal production dropped by 1.5 percent from 2 024.5 Mt in 2012 to 1 994.4 Mt in 2013 whereas the non-OECD countries which include China, Russia, Indonesia, Kazakhstan, India and Colombia experienced a marginal growth 1.01 percent to 5 828.4 Mt.

South Africa's total run-of-mine (ROM) production increased marginally by 0.36 percent from 330 Mt in 2012 to 331.2 Mt in 2013, owing to an increased number of producing coal mines that increased from 83 to

95. Opencast mining accounted for 61.80 percent of ROM production, followed by board and pillar's 35.95 percent, stooping's 1.73 percent and longwall at 0.52 percent. Saleable coal production decreased by 0.9 percent to 256.3 Mt from 258.6 Mt in 2012 (Table 29). The five major producers: Anglo Coal, Glencore Xstrata, Exxaro, SASOL and BHP Billiton Coal South Africa (BECSA) accounted for 84 percent of the country's total saleable production and, junior coal producers accounted for the remaining 16 percent. The four largest Black Economic Empowerment (BEE) companies, namely, Exxaro Resources, Optimum Coal Holdings, Umcebo Mining and Shanduka, accounted for 25.6 percent of the country's total saleable production. Overall, BEE companies and junior coal miners accounted for about 41.5 percent of South Africa's total saleable production.

TABLE 30: SOUTH AFRICA'S PRODUCTION AND SALES OF SALEABLE COAL, 2004 – 2013

YEAR	PRODUCTION	LOCAL SALES			EXPORT SALES		
		MASS	VALUE (FOR)		MASS	VALUE (FOB)	
	Mt	Mt	R'000	R/t	Mt	R'000	R/t
2004	242.8	178.3	13 606 151	76	67.9	13 490 623	213
2005	245	173.4	14 878 140	86	71.4	14 472 904	296
2006	244.8	177	16 245 861	92	68.7	21 155 176	316
2007	247.7	182.8	19 718 642	108	67.7	21 745 322	361
2008	252.7	197	30 104 161	153	60.6	44 706 204	737
2009	250.6	184.7	34 463 054	187	60.5	30 934 920	512
2010	257.2	186.4	33 702 229	181	66.8	37 477 184	561
2011	250.7	177.9	37 253 525	209	68.8	50 548 678	735
2012	258.6	185.7	43 921 277	237	76.0	52 226 904	687
2013	256.3	183.9	49 569 211	270	74.6	51 813 484	695

Source: Mineral Economics Directorate, DMR

At 61.7 percent of the total production, the Witbank coalfield remained the largest producer, followed distantly by the Highveld's 20.2 percent, Waterberg's 7.33 percent, and Sasol-Vereeniging's 7.29 percent. The Witbank, Ermelo and Sasol-Vereeniging coalfields' percentage production were lower compared to 2012, while the Waterberg and three of Kwazulu-Natal's coalfields (Utrecht, Nongoma and Klip River) improved their production in 2013. The Mpumalanga Central basin, which comprises of Witbank, Highveld and Ermelo coalfields, accounted for 83.5 percent of the country's production, a slight decline compared to 83.7 percent in 2012.

In 2013, South Africa's anthracite production grew by 20.5 percent to 3.62 Mt from 3.0 Mt in 2012. Anthracite production accounts for 1.4 percent of the country's overall coal production (Table 31).

TABLE 31: SOUTH AFRICA'S PRODUCTION AND SALES OF ANTHRACITE, 2004 – 2013

YEAR	PRODUCTION	LOCAL SALES			EXPORT SALES		
		MASS	VALUE (FOR)		MASS	VALUE (FOB)	
	kt	kt	R'000	R/t	kt	R'000	R/t
2004	1 247	545	224 882	412	917	235 667	257
2005	1 640	715	294 454	412	524	193 634	369
2006	1 584	821	374 113	455	672	258 063	384
2007	2 348	975	473 998	486	910	405 109	445
2008	2 207	961	581 207	604	1 265	762 064	602
2009	1 658	786	549 620	699	598	517126	863
2010	2 073.9	1 197.7	933,123	779	874	717,086	821
2011	2 553.6	1 259.4	1 127 675	895	983	892 137	907
2012	3 005.1	1 520.5	1 455 444	957	1 227	1 179 215	961
2013	3 621.3	1 727.6	1 593 658	922	1 141	1 025 465	899

Source: Mineral Economics Directorate, DMR

Bituminous coal production, which accounted for 98.6 percent of South Africa's total saleable coal production, decreased by 1.1 percent to 252.7 Mt compared with 2012 (Table 32).

TABLE 32: SOUTH AFRICA'S BITUMINOUS COAL PRODUCTION AND SALES, 2004 – 2013

YEAR	PRODUCTION	LOCAL SALES			EXPORT SALES		
		MASS	VALUE (FOR)		MASS	VALUE (FOB)	
	Mt	Mt	R'000	R/t	Mt	R'000	R/t
2004	241.5	177.8	13 381 268	75	67.9	14 237 236	212
2005	243.3	172.7	14 583 685	84	70.9	20 961 542	296
2006	244.8	176.2	15 871 748	90	68.1	21 477 286	315
2007	245.3	181.8	19 244 643	106	66.7	24 042 564	360
2008	250.5	196.1	29 522 953	151	59.4	43 944 138	740
2009	248.9	183.9	33 913 433	184	59.9	30 417 794	508
2010	255.1	185.2	32 769 106	177	65.9	36,760,098	558
2011	248.2	176.6	36 125 849	205	67.8	49 656 540	732
2012	255.6	184.1	42 465 833	231	74.8	51 047 689	683
2013	252.7	182.2	47 975 553	263	73.4	50 788 019	692

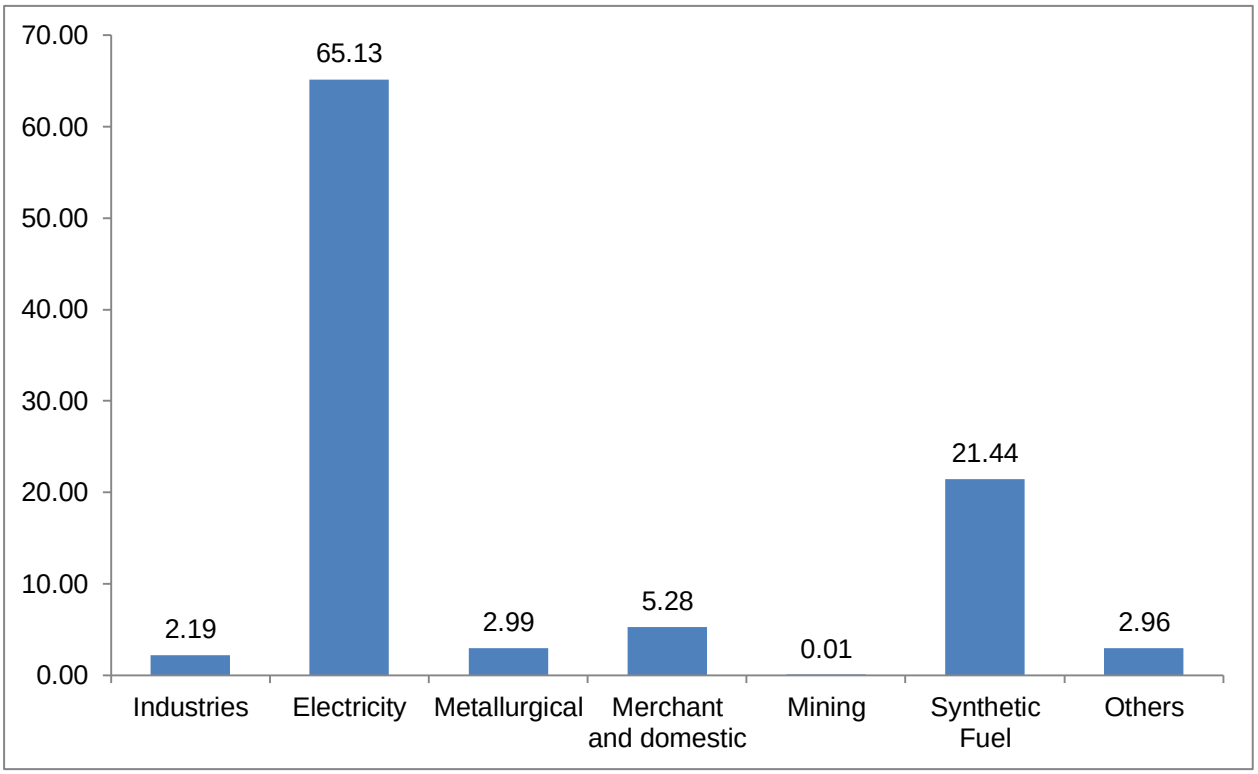
Source: Mineral Economics Directorate, DMR

In 2013, global coal consumption grew by 2.5 percent to 7 875.7 Mt from 7 687.3 Mt in 2012. China accounted for 49.3 percent of the total global consumption followed distantly by USA's 10.7 percent and India's 10 percent. Approximately 70 percent of the global coal consumption was accounted for by just

Three countries: China, USA and India. The OECD coal consumption decreased by 25.6 percent to 2 135.6 Mt owing to weaker demand in these countries. Total consumption in the non-OECD countries grew by 4 percent to 5 740 Mt mainly due to stronger demand from China, which further strengthened its position as the world's largest coal-consuming country in 2013.

In 2013, South Africa's coal consumption decreased by 0.97 percent to 183.9 Mt from 185.7 Mt in 2012. Bituminous coal, which accounted for 98.6 percent of the country's saleable production, saw its local sales volume fall by 1.1 percent to 182.2 Mt whereas anthracite local sales volumes rose by 13.6 percent to 1.7 Mt due to increased demand from steel makers.

FIGURE 23: LOCAL COAL CONSUMPTION BY SECTOR (PERCENTAGE), 2013



Source: DMR, Mineral Economics Directorate

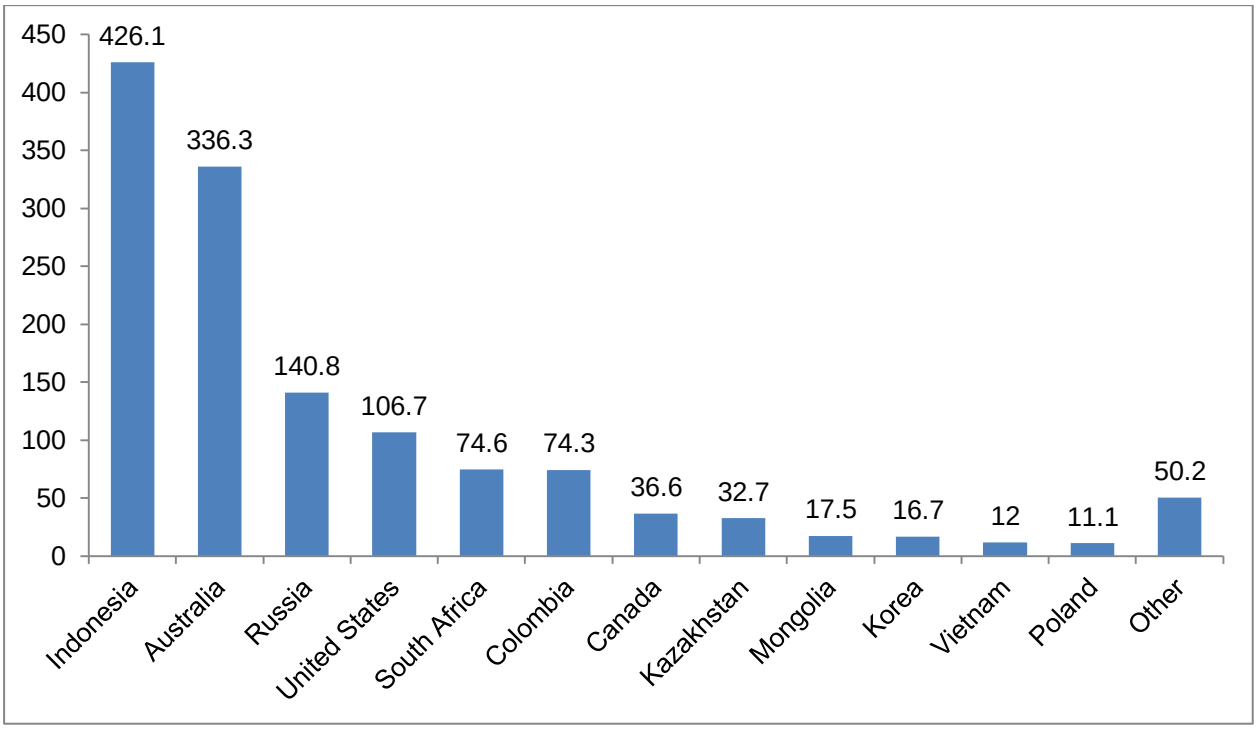
The electricity sector continued to be the leading consumer of coal in the country, accounting for 65.1 percent (119.8 Mt) of the South Africa's coal consumption followed distantly by the Synthetic Fuel sector's 21.4 percent (39.4 Mt) and Merchant and Domestic's 5.3 percent (9.7 Mt) as depicted in Figure 23. In 2013, industrial usage decreased to 4.02 Mt from 8.7 Mt in 2012.

According to International Energy Agency (IEA)'s Coal Information, global coal trade rose by 4.2 percent in 2013, to reach a record level of 1 333.3 Mt. Indonesia was the world's leading coal exporter with 426 Mt followed by Australia's 336.3 Mt and Russia's 140.3 Mt (Figure 24). Australia and Russia increased

exports by 34.8 Mt (11.5 percent) and 9.1 Mt (6.9 percent) while Indonesia increased exports by 38.7 Mt (10

percent). Exports from the USA, Colombia and South Africa all decreased slightly in 2013. The major importers were China (327.2 Mt), Japan (195.6 Mt), India (179.9 Mt) and Korea (126.5 Mt).

FIGURE 24: MAJOR COAL EXPORTERS (Mt), 2013

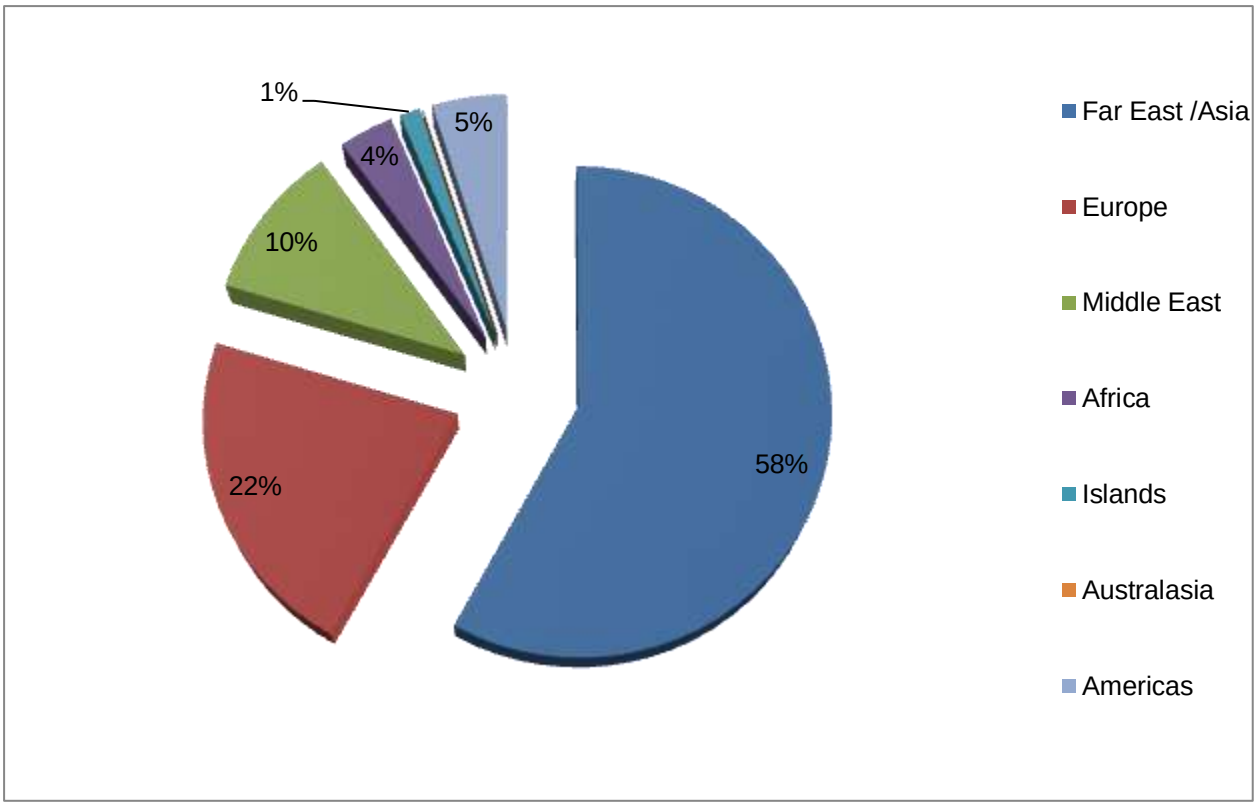


Source: Coal Information 2014

South African Figure: DMR Mineral Economics Directorate

South Africa's coal exports declined by 1.9 percent to 74.6 Mt in 2013 from 76 Mt in 2012. Bituminous coal exports dropped by 1.8 percent to 73.4 Mt, while anthracite exports plunged by 7 percent to 1.1 Mt. Despite Asian exports decreasing from highs of 61.5 percent in 2012, the continent continued to be the leading importer of South African coal accounting for 58 percent in 2013, followed by Europe's 22 percent and Middle East's 10 percent . The Americas' import of South Africa's coal also increased from 2.4 percent in 2012 to 5 percent in 2013. Exports to Africa remained solid with Mozambique accounting for about 40 percent of Africa's consumption, followed distantly by Senegal's 11 percent, Ethiopia's 7.2 percent and Kenya's 6.1 percent.

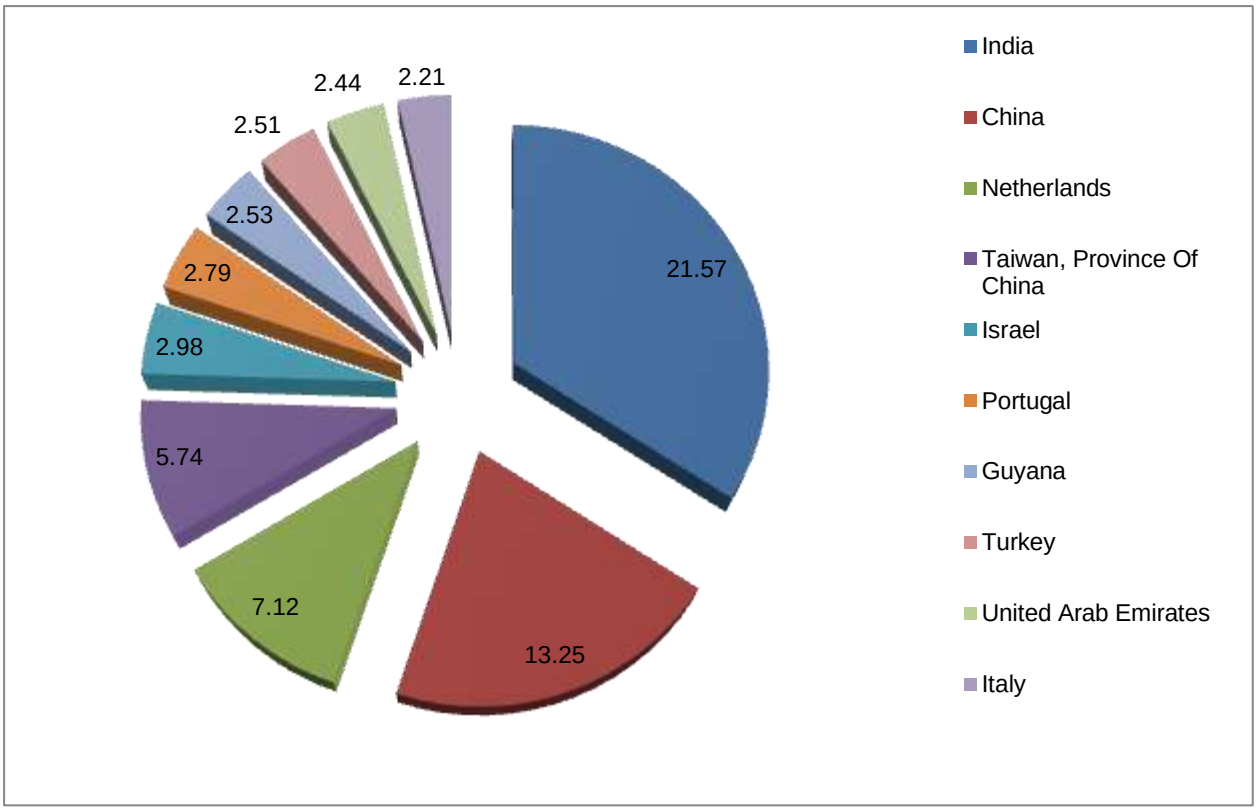
FIGURE 25: SOUTH AFRICA'S EXPORT VOLUMES BY REGIONAL DESTINATION, 2013



Source: South African Revenue Services Customs

India continued to be South Africa's leading customer by country, accounting for 28.3 percent (21.6 Mt) of the country's coal export sales followed by China's 17.4 percent (13.3 Mt) and Netherlands' 9.3 percent (7.2 Mt). In Africa, Mozambique was the largest consumer, importing 3.6 percent of South Africa's coal exports. Figure 25 depicts the top 10 countries which accounted for 82.8 percent of the country's exports.

FIGURE 26: TOP 10 IMPORTERS (Mt) OF SOUTH AFRICA'S COAL, 2013

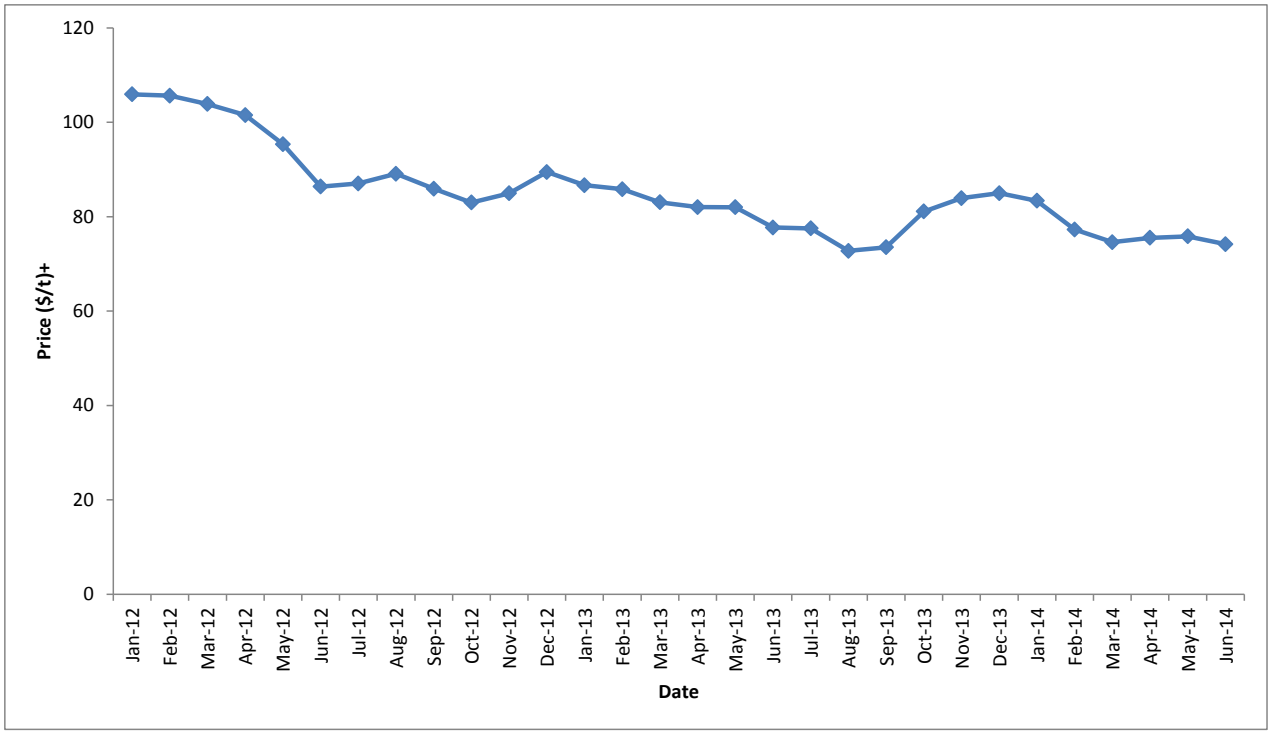


Source: South African Revenue Services Customs

PRICES AND REVENUE

In 2013, South Africa's coal export prices remained subdued owing to market oversupply and weaker demand. The average Richards Bay (FOB) export price of South African coal decreased by 13.2 percent to $80.9 /t in 2013 from $93.2 /t in 2012. However, in Rands per ton (R/t), the average export price increased by 2.29 percent from R762.39 /t to R779.89 /t owing to the weak rand that depreciated by 17.56 percent to R9.65 /$ in 2013 from R8.21 /$ in 2012. In US$ terms, coal prices started the year at $86.67 /t and gradually decreased to $73.5 /t by September 2013 due to weaker demand, especially from China and Europe, and high stock levels at India's ports (Fig 5). Prices recovered during the last quarter of the year boosted by European demand, reaching $84.97 /t by December.

FIGURE 27: RBCT MONTHLY COAL PRICES, JANUARY 2012 – JUNE 2014



Source: Global Coal website (www.globalcoal.com)

Domestic coal prices increased by 13.9 percent from R237 /t in 2012 to R270 /t in 2013 despite the marginal decline of 0.9 percent in local coal consumption. The lower demand in industrial usage and synthetic fuels compared to that in 2012 was offset by increased demand in the electricity sector and the merchants and domestic sector.

Coal continued to be the leading revenue earner accounting for R101.38 billion of the total mining revenue. Local sales value surged 12.9 percent from R43.9 billion to R49.6 billion owing to a higher unit value in 2013. Export sales, which earn the mining companies higher margins, recorded a decrease of 0.8 percent to R51.8 billion in 2013 from R52.6 billion in 2012 mainly due to lower sales volumes.

MAJOR DEVELOPMENTS IN 2012/2013

Australian and Johannesburg-listed coal development firm Resource Generation (ResGen) raised US$21 million for its Boikarabelo project in South Africa's Limpopo province after issuing debentures to Asian trading group, Noble Group. In addition to the future shares in the company, Noble also has the right to buy 3.0 Mtpa of coal from Boikarabelo Mine once production has commenced. Meanwhile the company began construction at Boikarabelo Mine at the beginning of February 2013. Construction activities include site infrastructure, roadworks, water and power connections. In July 2013, ResGen initiated the construction of a 38 km rail line that would connect its Boikarabelo Mine to existing infrastructure owned by Transnet. The rail line is seen as one of the lengthier tasks in establishing the mine. Boikarabelo Mine, a US$630 million coal project is expected to produce 12 Mtpa ROM during its first phase, scaling up to 18 Mtpa by 2018.

In another ResGen development, the company has signed a 20 year export off-take contract with Valu Investments, an Indian firm that recently took shares in the company. The contract is for 1 Mtpa increasing to 2 Mtpa when the second phase of Boikarabelo kicks off. This coal contract replaces a 0.5 Mt off-take agreement with Bhushan Steel. Valu will also conduct feasibility studies for the development of a 200 MW power plant and a larger 1 200 MW coal-fired power station both near Boikarabelo Mine. ResGen granted Valu the right to own, build and operate both power stations as an independent power project (IPP).

Furthermore, ResGen, the company increased its shareholding in Waterberg One Coal (WOC) from 70 percent to 74 percent. The company will pay its Black Economic Empowerment (BEE) partner; Lukale Mining R25 million in ResGen shares for the reduced shareholding in WOC to 26 percent. WOC's main prospecting right of Waterberg One is contiguous to Boikarabelo mining project, whose mining right is owned by Ledjadja Coal. In another transaction, a Singapore-based company, Blumont Group, agreed to take up a 15 percent holding in ResGen. Blumont's investment in ResGen is between $20 million and $25 million.

In a mineral rights swap deal, Wescoal sold its Vlaklaagte farm to Xstrata for R81.1 million in return for Xstrata's Elandspruit mineral right for which Wescoal paid R93.8 million. The transfer's effective date was end of July 2013. Wescoal is aiming for an output of 4 Mtpa by 2015. Elandspruit has a 12-year life of mine and hosts some 28 Mt of coal resource, enough to support production of 2.4 Mtpa.

The Department of Mineral Resources (DMR) executed a coal prospecting right allowing Ikwezi Mining to explore the 3 998 ha Assegaai tenement in the Ermelo coalfield in Mpumalanga province. Based on that company's management knowledge of the area together with historic borehole information, Ikwezi Mining anticipates an exploration target of about 150 Mt of coal. Subsequently, Ikwezi Mining started exploration work at Assegaai in the third quarter of 2013. Ikwezi Mining also holds 70 percent interest in the Ntendeka colliery in the Kwazulu Natal coalfields along with a 60 percent of the Dundee, Arcon and Assegaai projects. The Ntendeka colliery hosts a JORC compliant resource of about 221 Mt and an initial reserve of 14 Mt. Production is expected to run at 1.25 Mtpa. Ikwezi Mining was granted an Integrated Water Use Licence (IWUL) by the South African government in March 2013.

In the third week of January 2013, the US$33 billion merger of Glencore and Xstrata was approved by the competition authorities after uncertainty relating to coal supply to Eskom were resolved. Eskom and Glencore reached a confidential agreement, which effectively protects supply of thermal coal to the Hendrina, Majuba and Komati power stations. In an agreement with unions, the Competition Tribunal ruled that only 80 skilled workers and 100 semi-skilled workers could be retrenched as a result of the merger. A training fund, administered by a training committee, was also established by Glencore Xstrata.

Following the conclusions of negotiations with the National Union of Mineworkers (NUM) in December 2012, Johannesburg-listed South African Coal Mining Holdings (SACMH) suspended mining activities at its Umlabu colliery. The colliery was put on a care and maintenance programme and the company retained

minimal workforce to maintain the coal processing plant, as well as to ensure that the rehabilitation process proceeds and all environmental requirements and safety regulations were complied with.

In another development, Australian-listed coal development firm, Universal Coal was granted a mining right by the DMR for its 74 percent-owned Roodekop export thermal coal project in Witbank in Mpumalanga province. The project has already been granted a National Environmental Management authorization and is still waiting for the water use and waste discharge licences. Resources at Roodekop are estimated at 82.8 Mt of which 67.2 Mt are measured and 15.6 Mt indicated.

Also, Universal Coal concluded a sales agreement with Eskom in March 2013 to supply 2 Mtpa of coal from the company's Kangala project. The project was commissioned in the first quarter of 2014. This coal supply agreement was a major step for Universal Coal as it assisted with the financing of the A$49 million Kangala project.

A Johannesburg-listed firm, Village Main Reef (VMR) bought 19.9 percent of shares in ASX-listed South African thermal coal producer Continental Coal. In terms of the deal, VMR will conduct a private placement of 100 million shares for a total consideration of A$8 million, equal to a price of A$0.08 per Continental coal share. According to Continental Coal, this was a milestone ahead the finalization of a strategic partnership in the company's new project, De Wittekrans Thermal Coal. Furthermore, minority shareholders with shares below A$500 were also bought out by VMR at a price of A$0.052 per share, Continental's share price quoted on the ASX prior to 11 March 2013. Continental Coal expects to benefit from a reduction in administrative costs and an improvement in efficiencies with managing a smaller shareholder base. In addition, these minority shareholders will be afforded an opportunity to take advantage of a cost effective and convenient way of selling their shares without incurring brokerage fees. The acquisition was formally completed in April 2013. Continental Coal was awarded the De Wittekrans coal project mining right in September 2013 by the DMR. The project is expected to produce 2.4 Mtpa of export thermal coal, primarily for the Asian market.

In an effort to get coal off South Africa's roads, Eskom is busy with the construction of a 63 km railway line that would ensure that nearly all of the coal supplied to its Majuba power station would be railed, by 2015. This railway construction project, funded by the World Bank, is part of a much larger strategy by Eskom to convert its coal supply transportation from road to rail. Other power stations that will benefit from this strategy include Grootvlei, Camden and Komati.

In a regional development, South Africa's state-owned transport and logistics utility, Transnet, will extend its investment in the Waterberg coalfields to include a rail link to Botswana and provide that country with access to Richards Bay. The rail development would route coal from Botswana's Mmamabula coalfields to Lephalale in the Waterberg and pass through Thabazimbi to Ogies after which it will connect to the Richards Bay route. Transnet has targeted to link the Waterberg with Botswana by 2020. The company anticipates that it will be able to transport 10 Mtpa to 20 Mtpa of export coal from Botswana to Richards Bay in the next 10 to 15 years. This project is also part of a regional strategy by Transnet following a

similar cross-border agreement entered into in August 2012 with Mozambique and Swaziland that would more than double coal and magnetite exports through Maputo totalling some 6 Mtpa. In both developments, Transnet uses three regional networks, namely; the North West Corridor integrating Botswana, Zimbabwe and Namibia; the North-South Corridor integrating Zambia, Zimbabwe, South Africa and Democratic Republic of Congo; and the Maputo Corridor which integrates South Africa, Swaziland and Maputo.

Meanwhile the DMR granted a mining right to Exceed Resources for its 70 percent owned Moabsvelden thermal coal project, in the Witbank coalfield. The mine is forecast to have a life of mine of 14 years with first production targeted for the last quarter of 2014.

Coal of Africa Limited (CoAL) mothballed its Mooiplaats colliery, citing difficult geological conditions, poor productivity, weak coal prices and high logistics costs. The colliery racked up losses of just over R400 million over the last two financial years. The operation was placed on care and maintenance with section 189 process kicking off on the 4th June 2013. The colliery employed some 548 people, consisting of 290 employees and 258 contractors. The National Union of Mine Workers wanted the government to revoke CoAL's licence for the mine, arguing that another company should be able to use the licence and keep the site operating.

In August 2013, CoAL was granted an environmental permit by the government for Makhado, a coking coal project in Limpopo province. The detailed feasibility study of the Makhado project estimates initial ROM output of 12.6 Mtpa yielding sales of 2.3 Mtpa of hard coking coal and 3.2 Mtpa of thermal coal. This mine would cost about $400 million to build. Mine construction had not commenced at the time of writing.

Taking advantage of the opportunities provided from current regulatory developments in South Africa's minerals and energy sectors, Exxaro Resources plans to build a 600 MW power station in a joint venture with France's GDF SUEZ. Exxaro Resources plans to supply the venture with 3.8 Mtpa of coal from its proposed Thabametsi mine project. The projects will be located in the Limpopo province; with the power station situated 17 km North West of Lephalale, adjacent to Grootegeluk Mine, in the Waterberg coalfield. According to Exxaro Resources, the power station could be scaled up to 1 200 MW. Coal from Thabametsi would be transported by surface conveyor belt to the power station. Exxaro Resources also indicated that a conventional truck and shovel method of operation would be used for mining. The duration of coal supply would be determined by the duration of the power supply agreement although it is anticipated to be 25 years.

The Waterberg joint venture partners, ASX-listed Firestone Energy and Sekoko Resources continued with their definitive feasibility study (DFS) on the proposed development of an opencast mining operation that is anticipated to produce 10 Mtpa of coal. The first stage of the project, located in the Limpopo Province, is to develop the Smitspan thermal coal mine which is committed under a MoU to supply power utility Eskom for an initial term of 30 years. Based on discussions and arrangements and, subject to confirmation of funds,

project start-up and pre-production works commenced in January 2014, and coal production is expected to commence in the second half of 2015.

In October 2013, Australian-listed Waterberg Coal Company (WCC) acquired 45.88 percent shares of dual-listed Firestone Energy. Through this acquisition WCC also gained 480 million Firestone Energy shares from its 25 percent-owned subsidiary Sekoko Resources, representing a further 13.52 percent interest in Firestone Energy.

In December 2013, Transnet freight Rail (TFR) announced that it has ramped up the coal line from Mpumalanga to RBCT from 71 Mtpa to 75 Mtpa. This was achieved through the commissioning of TFR's 200-wagon Shongololo train system which by-passes the Ermelo yard and thereby reducing the circle times of locomotives and wagons. Trains were also increased from four per day to eight per day. TFR aims to reach its target of 81 Mtpa by 2015.

Eskom estimates that between 2014 and 2040, it would require 4 Billion tons (Bt) of coal, of which 1.97 Bt had been contracted while a further 2.1 Bt is still to be secured. The significant volumes of coal that Eskom has to secure for the long term, providing an increasing opportunity for the Junior coal mining companies to collaborate with each other as well as with Eskom, to further develop the mining sector of South Africa and also improve the security of supply from the Mpumalanga and the Waterberg coal fields. Table 33 lists some coal projects that have been in development over the past five years. Some of the projects, such as the Penumbra are already in production stage, whereas others are still in their feasibility studies phase or are currently under construction.

TABLE 33: SOME OF THE COAL MINES PROJECTS IN THE PAST FIVE YEARS

Nature of Investment	Project Name	Company	Value of investment	Project timeline	Full Production / Mtpa	Employment Implications	Status of project	Life of mine /Years
BD	Grootegeluk Mine	Exxaro Resources	R10.2 billion	2009 - 2016	14.6	5000	97 % complete	55
ND	Thabametsi Mine		ns	2012 - 2025	19.8	970	Pre-feasibility	30
ND	Belfast Coal Project		R3.8 billion	H2 2017	2.7	ns	Approved	ns
ND	New Largo	Anglo American Inyosi Coal	R16 billion to R20 billion	2017	11	ns	Feasibility study completed in 2012	40
ND	Penumbra	Continental Coal Ltd	R351-million	2012	0.75	198	Fully Operational (5 November 2013)	11
ND	De Wittekrans	Continental Coal Ltd	R355 million	2013 - 2015	3.8	1 200	Feasibility	30
ND	Leiden		R22.5 million	3 years	0.8	200	Pre-feasibility	10
ND	Boikarabelo Coal Mine	Resource Generation	$630-million	Q1 2013 - Q1 2016	14 (rom)	1092	Contruction in progress	20 - 100
BD	Vele Coal Mine	Coal of Africa Ltd	R450-million	Q4 2015	Production of 1 Mt at the start. Mine will ramp up to produce 5Mt.	ns	Operation stopped to carry on with Phase 2	16
GD	Makhado Coal Project		R3.96 billion	ns	12.6 (ROM)	1106	granted Environmental Authorization	16
GD	Impumelelo Coal Mine	Sasol Mining	R4.65 billion	Q4 2014	8.5	4000	On schedule	35
BD	Thubelisha Coal Mine		R3.39 billion	2012	10.6		Operating since May 2012	25
GD	Shondoni Colliery		R5.46 billion	2015	9.5		Just been approved	20
GD	Mbila Anthracite Coal Project	Zyl and Mbila Resources	A$85 million	Q2 2014	0.84	ns	Bankable feasibility Study	12
GD	Kangala Thermal Coal Project	Universal Coal	A$46.8-million	Q1 2014	2.4 Mt (ROM)	ns	Production started in February 2014	8.5
GD	Moabsvelden thermal coal project	Xceed Resource	R266-million	mid 2014	0.25 (ROM per month)	ns	ns	14
GD	Waterberg Coal Project	Firestone Energy (60%) and Sekoko Resources (40%)	R10 billion	Q4 2015	10	2000 (construction) 1500 thereafter	Definitive Feasibilty Study	100
GD	Wonderfontein Coal Project	GlencoreXstrata and Umcebo	$95 million	Q2 2014	3.6 (ROM), 2.5 Saleable	ns	ns	
BD	Tweefontein Optimisation Project	GlencoreXstrata	R8.2 billion	Q4 2014	7 Mt	ns	In November 2013, 58% complete	24
GD	Argent Colliery	Dialstat Trading 115 (Pty) Ltd	R500 million	2016	2.4 Mt	350	Awaiting Regulatory Approvals	12
GD	Manungu Colliery	Tshedza	R400 million	Apr-15	1.6 Mt	250	Contruction phase	14

Projects that are in conceptual, pre-feasibility and feasibility stages are not listed as they don't have most of the information. The jobs do not include the ones created during the construction of the project (and they are estimations). ND = New Development, GD= Greenfield Development, BD = Brownfield Development, ns = not statetd, rom = run of mine

Source: Creamer Research Channel online and DMR Mineral Economics D2 data collection:

There are other projects by different mining companies that are not yet approved. However, the projects listed in Table 33 will play an important role in the security of coal supply for the country's electricity generation in the medium term. The GMEP and New Largo are crucial because they will ensure that the new power stations; Medupi and Kusile, have the required coal supply for the next 30 to 40 years. Of significance, will be the development of the projects in Limpopo's Waterberg and Soutpansberg Coalfields. Resource Generation's Boikarabelo Coal mine and the Waterberg Joint Venture project between Sekoko Resources and Firestone Energy are the other two major projects that will open up the Waterberg coalfield. The projects will also play an important role in achieving some of the National Development Plan's objectives including; fighting inequality and poverty, and job creation.

EMPLOYMENT

In 2013, the number of employees in the coal sector grew by 11.7 to 87 768 accounting for 17.2 percent of the country's 510 099 mining workforce, owing to new coal mines and projects that were still under development. Male workers accounted for 90 percent of total employment in the coal sector whereas female workers accounted for 10 percent.

TABLE 34: EMPLOYMENT IN THE COAL SECTOR, 2004 – 2013

Year	Average number of employees			Earnings - R1 000		
	Total	Males	Females	Total	Males	Females
2004	50 327	48 106	2 221	5 863 461	5 582 370	281 091
2005	56 971	54 501	2 470	6 481 823	6 155 962	325 861
2006	57 778	54 933	2 845	7 269 836	6 854 933	414 902
2007	60 439	56 582	3 857	8 692 014	8 107 180	584 834
2008	65 484	60 804	4 680	1 1020 687	10 194 389	826 298
2009	70 791	65 227	5 564	12 815 351	11 717 347	1 098 004
2010	74 025	67 348	6 677	14 186 482	12 803 317	1 383 166
2011	78 580	71 545	7 035	16 094 850	14 523 209	1 571 641
2012	78 579	71 542	7 037	16 039 447	14 469 109	1 570 338
2013	87 768	79 020	8 748	18 864 018	16 776 492	2 087 526

Source: DMR, Mineral Economics Directorate

Correspondingly, earnings in this sector surged by 17.6 percent to R18.9 billion compared with R16 billion in 2012. The average per capita earnings was R214 930, which was 8.75 percent more than the mining industry's per capita of R197 632.

OUTLOOK

According to the World Coal publication, 2013 was a disappointing year for much of the global coal industry. The downward trend in prices that began in mid-2011 continued through to 2013 exacerbated by the excessive rapid growth on the coal supply side. It further asserts that in 2014, there will be producer consolidation leading to unchanged global developments that will inevitably lead to significantly greater coal consumption. The main driver of this trend is the constantly rising demand for electricity, as power is expected to remain the basis for civilization and progress. Globally, an estimated 280 GW coal-fired power plants are under construction and, an additional 190 GW coal-fired power plant are planned, all by 2017. Even if some of these power plants will replace existing capacities, it can be assumed that coal consumption will increase in 2014. The greatest increase will be in India and China where, by 2017, power plants with approximately 210 GW will become operational.

South Africa's domestic coal demand is expected to rise in 2014 due to the increased demand from power generation as Eskom commissioned the first unit of Medupi power station in the second half of 2014. This unit is due to be connected to the power grid in December 2014. South Africa's coal production grew at a marginal average growth rate of one percent over the past 10 years. It is against this background and the additional production from new coal mines that, South Africa's coal production is forecast to step-up by about one percent to reach 259 Mt in 2014. Domestic coal prices are expected to increase to an average of R237 /t in 2014, owing to the stronger demand from the electricity sector. The country's coal exports are expected to reach 77 Mt, driven mainly by India and China. Richards Bay FOB coal prices are forecast to remain subdued in 2014, averaging about $77 /t, due to excess coal in the global market.

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HYDROCARBON FUELS

Lerato Ramane

SUPPLY – DEMAND

World proven oil reserves increased by 1.14 percent to 1 687.9 billion barrels (bbl) in 2013 compared with 1 668.9 bbl in 2012 (Table 35). The Organisation of Petroleum Exporting Countries (OPEC) accounted for 71.9 percent of the world's oil reserves. Venezuela had the largest global oil reserves accounting for 17.7 percent, followed by Saudi Arabia's 15.8 percent and Canada's 10.3 percent.

TABLE 35 – WORLD RESERVES AND PRODUCTION OF OIL AND NATURAL GAS, 2013

	PROVED RESERVES				PRODUCTION			
	OIL		GAS		OIL		GAS	
	(bbl x10^9)	%	(m^3 x 10^{12})	%	(1000 bbl/d)	%	(m^3 x 10^9)	%
OPEC COUNTRIES								
Algeria	12.2	0.7	4.5	2.4	1 575	1.8	78.6	2.3
Angola	12.7	0.8	#	0.0	1 801	2.1	#	0.0
Ecuador	8.2	0.5	#	0.0	527	0.6	#	0.0
Iran	157.0	9.3	33.8	18.2	3 558	4.1	166.6	4.9
Iraq	150.0	8.9	3.6	1.9	3 141	3.6	0.6	0.0
Kuwait	101.5	6.0	1.8	1.0	3 126	3.6	15.6	0.5
Libya	48.5	2.9	1.5	0.8	988	1.1	12.0	0.4
Nigeria	37.1	2.2	5.1	2.7	2 322	2.7	36.1	1.1
Qatar	25.1	1.5	24.7	13.3	1 995	2.3	158.5	4.7
Saudi Arabia	265.9	15.8	8.2	4.4	11 525	13.3	103.0	3.0
United Arab Emirates(UAE)	97.8	5.8	6.1	3.3	3 646	4.2	56.0	1.7
Venezuela	298.3	17.7	5.6	3.0	2 623	3.0	28.4	0.8
Subtotal	**1 214.3**	**71.9**	**94.8**	**51.1**	**36 827**	**42.4**	**655.4**	**19.3**
OTHER SELECTED COUNTRIES								
Argentina	2.4	0.1	0.3	0.2	656	0.8	35.5	1.0
Australia	4.0	0.2	3.7	2.0	416	0.5	42.9	1.3
Brazil	15.6	0.9	0.5	0.2	2 114	2.4	21.3	0.6
Brunei	1.1	0.1	0.3	0.2	135	0.2	12.2	0.4
Canada	174.3	10.3	2.0	1.1	3 948	4.5	154.8	4.6
China	18.1	1.1	3.3	1.8	4 180	4.8	117.1	3.5
Europe and Eurasia (EE)	147.8	8.8	56.6	30.5	17 281	19.9	1 053.6	31.1
India	5.7	0.3	1.4	0.8	894	1.0	33.7	1.0
Malaysia	3.7	0.2	1.1	0.6	657	0.8	69.1	2.0
Mexico	11.1	0.7	0.3	0.2	2 875	3.3	56.6	1.7
Oman	5.5	0.3	0.9	0.5	942	1.1	30.9	0.9
United States of America (USA)	44.2	2.6	9.3	5.0	10 003	11.5	687.6	20.3
Other	40.1	2.4	11.2	6.0	5 880	6.8	419.8	12.4
Subtotal	**473.6**	**28.1**	**90.9**	**48.9**	**49 981**	**57.6**	**2 735.1**	**80.7**
TOTAL	**1 687.9**	**100.0**	**185.7**	**100**	**86 808**	**100**	**3 390.5**	**100**

Source: BP Statistical Review of World Energy, June 2014

Notes: [+] Includes crude oil, shale oil, oil sands and natural gas liquids and excludes liquid fuels derived from other sources such as coal

* Excludes gas flared or recycled

[#] Figure not available

Global oil production rose by 0.6 percent to 86.81 million barrels per day (mbl/d) in 2013, compared with 86.15 mbl/d in 2012. Saudi Arabia, at 13.3 percent remained the world's largest oil producer, followed by EE's 19.9 percent and USA's 11.5 percent. The USA, at 13.5 percent, recorded the largest growth globally.

Increases in Canada and Russia offset declines in Syria, the United Kingdom, Norway and Australia. Africa's output fell by 5.7 percent as a result of a drop in production from both Libya (34.5 percent) and Nigeria (4 percent).

South Africa's proven crude oil reserves amounted to 15 mbl in 2013 and are located offshore in the Bredasdorp Basin and off the west coast of the country near the maritime border with Namibia. In 2013, South Africa's crude petroleum production declined by 59.50 percent to 138 928 barrels (bl) compared with 343 072 bl in 2012. The decline can be attributed to maintenance stoppages which started in April 2013. South Africa refines approximately 690 000 bbl/d of crude oil, and has the second largest refining capacity in Africa surpassed only by Egypt (726 250 bbl/d). Major refineries include Sapref (169 000 bbl/d) and Enref (118 000 bbl/d) in Durban, Chevref (110 000 bbl/d) in Cape Town, and Natref (88 000 bbl/d) in Sasolburg. Including, the country's two synfuels facilities, i.e.; Sasol (160 000 bbl/d) which uses the coal to liquid fuels technology and PetroSA (45 000 bbl/d) which uses the gas to liquid fuels technology.

The world's proven gas reserves decreased to 185.7 trillion m^3 in 2013, compared with 187.3 trillion m^3 in 2012. At 30.5 percent, Europe and Eurasia (EE) had the largest reserves in the world, followed by Iran's 18.2 percent and Qatar's 13.3 percent. Global natural gas production rose by 1.1 percent to 3 390 billion m^3, compared with 3 33.9 billion m^3, despite volumetric declines in Nigeria (16.4 percent), India (16.3 percent), and Norway (5 percent). Growth was below average in most regions except EE. The USA, at 20.3 percent, remained the world's leading producer, followed by Iran's 4.9 percent and Canada's 4.6 percent.

South Africa has very limited proven natural gas reserves, but potentially large shale gas resources. The country's natural gas production dropped to 0.66 Mt in 2013 compared with 0.98 Mt in 2012, while natural gas condensate output amounted to 61.2 kt from 89.3 kt in the same period, due to lack of recovery from the wells.

Global primary energy consumption increased by 2.3 percent in 2013, Qatar recorded the largest increase at 9.5 percent followed by Portugal's 7.3 percent and Denmark's 5.3 percent. China, at 22.4 percent, was still the largest consumer of energy followed by the USA's 17.8 percent. Africa's energy consumption was still the lowest at 3.2 percent. Oil and natural gas contributed 56.6 percent of the fuels required for energy production.

Global oil consumption grew by 1.4 percent to 91.33 mbl\d in 2013, compared with 89.77 mbl\d. The USA at 19.9 percent remained the largest consumer of oil, followed by China's 12.1 percent and Japan's 5 percent. The USA (400 000 bl/d) recorded the largest growth to global oil consumption in 2013, outperforming China's growth (390 000 bl/d) for the first time since 1999.

World natural gas consumption grew by 1.4 percent to 3 347.6 billion m^3 in 2013, compared with 3 314.4 billion m^3 in 2012. Growth was below average in every region except North America. China, at 10.8

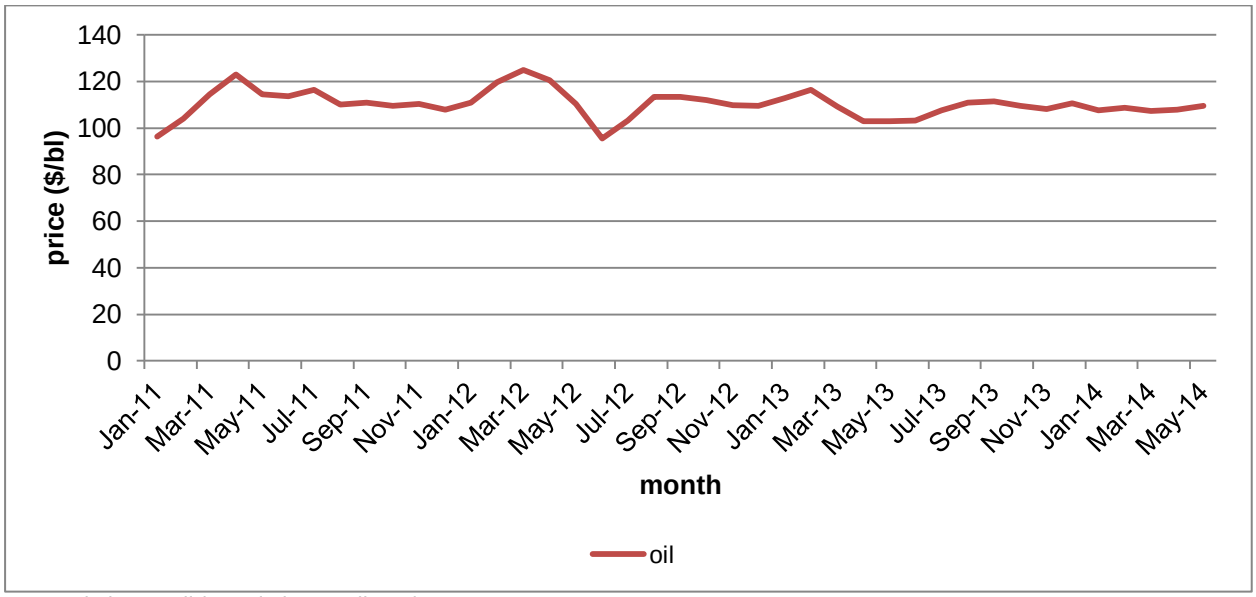
percent, and the USA at 2.4 percent recorded the largest growth in the world. Globally, natural gas accounted for 23.7 percent of primary energy consumption.

In South Africa, crude oil and natural gas are used for the production of liquid fuels (diesel, petrol, jet fuel etc.). About 64 percent of oil produced in the country is used to meet the liquid fuels demand. While the balance (34 percent) is met by synthetic fuels (synfuels), which are produced locally, largely from coal and from natural gas.

PRICES AND REVENUES

The Brent crude oil price continued to rise from 2011 where it averaged $110.95/bbl. This upsurge in price was due to supply shortages as a result of disruptions in Libya and other major oil producing countries in the Middle East. The price continued to rise in 2012, reaching an annual average of $111.96/bb, as a result of the lack of Iranian production. However in 2013, the average oil price dropped to $108.85/bbl, attributed to the rise in global oil production. Prices declined further in the first quarter of 2014, reaching $107.41/bbl in March but recovered to $109.68/bbl in May (Fig.1). High levels of Chinese crude oil imports in recent months and the ongoing tensions in Libya and Ukraine contributed to the upward Brent crude oil price swing.

FIGURE 28: MONTHLY AVERAGE BRENT CRUDE OIL PRICES, JANUARY 2011 – MAY 2014

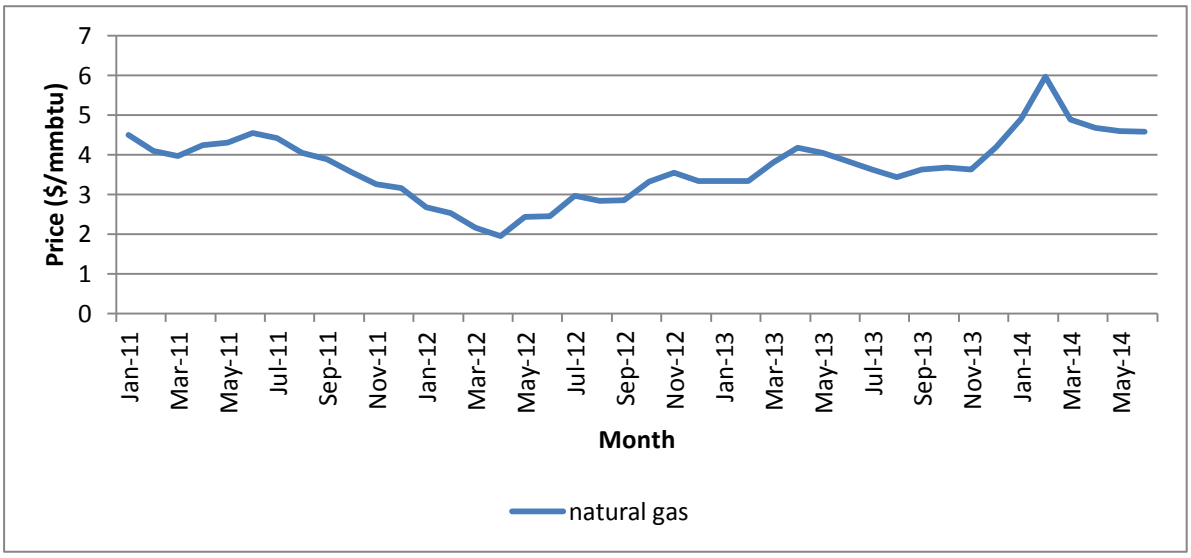


Source: indexmundi (www.indexmundi.com)

The average price of crude petroleum in South Africa fell by 3.6 percent to R855/b in 2013, compared with R887/b in 2012. The local sales revenue generated also declined by 43.5 percent to R164.8 million from R291.5 million in the same period. This is attributed to the loss in oil production for the most part of 2013.

The discovery of vast new resources of natural gas from shale formations and other unconventional reservoirs have put pressure on the gas price for the past couple of years. Prices fell by 31 percent to $2.75/ Million Metric British Thermal Unit (MMBtu) in 2012, compared with $3.99/ MMBtu in 2011 (Fig.2). Prices began to rise in May 2012 and continued on that trend throughout 2013 reaching an average of $3.72/ MMBtu, due to the colder than normal winter in the USA. Gas prices continued to rise in 2013, peaking at $5.97/ MMBtu in February 2013 and then spiralling down to $4.57/ MMBtu in June of the same year.

FIGURE 29: MONTHLY AVERAGE NATURAL GAS PRICES, JAN 2011 – JUNE 2014



Source: indexmundi (www.indexmundi.com)

In South Africa the average price for natural gas and natural gas condensate increased by 13.2 and 13 percent to R2 662/t and R11 520/t in 2013, compared with R2 351/t and R10 196/t in 2012, respectively. However, natural gas condensate revenue fell by 22.5 percent to R705 million in 2013 from R910 million in 2012, due to a combination of factors including lower production and rand weakness.

EMPLOYMENT

The hydrocarbons industry in South Africa employed about 236 people in 2013, a decrease of 1.1 percent compared to 2012 and only 9 percent of this workforce was female. The total payments declined by 2.6 percent in that period, due to the decline in production. Per capita earnings also fell by 1.5 percent as a result (Table 36).

TABLE 36: EMPLOYMENTS IN THE HYDROCARBONS SECTOR

YEAR	TOTAL EMPLOYMENT	TOTAL PAYMENTS	PER CAITA EARNINGS
2012	239	135 349 521	566 316
2013	236	131 847 710	557 692
Change (%)	-1.1	-2.6	-1.5

Source: DMR, Directorate Mineral Economics

DEVELOPMENTS

Project Ikhwezi is set to play an instrumental role in sustaining the life of the gas-to-liquids (GTL) refinery in Mossel Bay. This project involves tapping into gas reserves in Petro SA's F-O field, which is located 40km south-east of its F-A production platform off the south coast of South Africa. PetroSA has invested R3.7 billion in Ikhwezi, which is expected to begin producing natural gas in June 2015. Drilling of wells that form part of this project has already commenced and it has an estimated 1.3 trillion cubic feet of gas reserves, enough to feed the refinery for about six years. The project will create temporary jobs during construction and drilling. It is expected that the project will provide feedstock, which will prolong the life of the GTL refinery, and maintain existing jobs at the GTL refinery.

Project Mthombo is one of PetroSA's key growth initiatives, which aims at addressing the supply gap in the liquid fuels sector by building a world class refinery in the Coega Industrial Development Zone in the Eastern Cape Province. The Presidential Infrastructure Coordinating Commission (PICC), a committee tasked with implementing the National Infrastructure Plan, identified Project Mthombo as one of the Strategic Integrated Projects aimed at driving economic development and service delivery in the Eastern Cape. PetroSA and China Petrochemical Corporation, Sinopec, concluded a Joint Study Agreement (JSA), where the two companies jointly developed a business case for Project Mthombo. The first phase of the JSA saw the completion of pre-feasibility studies where the refinery configuration and capacity of 300 000 barrels per day were approved by both companies. The project is now gearing up for the second phase of the JSA, which involves conducting a feasibility study to assess the viability of Coega refinery and its related infrastructure. The feasibility study will also define the project scope, identify additional partners and develop a more accurate cost estimate. The project is expected to create between 12 000 and 21 000 direct & indirect jobs during construction & between 2 000 & 5 000 when operational.

Another important landmark reached during the year under review was the signing of the Framework Agreement between PetroSA and Sinopec in March 2013. The agreement paves the way for co-operation beyond Project Mthombo, to include oil and gas exploration as well as the development and production of projects in South Africa and surrounding countries. Other areas of co-operation include the investigation of downstream opportunities in the Southern African region, as well as the development and acquisition of storage and logistical infrastructure. This strategic partnership is expected to yield results that will contribute positively towards achieving PetroSA's objectives of growth and sustainability.

The tariffs on refined product pipelines have been increased to finance the construction costs for a new multi-fuel pipeline between Durban and Johannesburg, which will replace the existing ageing infrastructure and increase pipeline capacity. The new fuel standards, coupled with the increase in pipeline tariffs, may raise refiners' operational costs. However, most crude oil refineries have already began upgrading, ahead of the implementation of these new Clean Fuel 2 (CF2) specifications.

Shell and BP are pursuing a multibillion-rand project to upgrade the Sapref refinery to produce fuels that meet the incoming CF2 specifications. Additionally, Sasol estimated that it would need to invest R11.7-billion at the Natref refinery and Sasol Synfuels, to comply with the CF2 specifications. The proposed improvements by petroleum companies will cost a collective investment of about R40 billion. These new specifications do not only provide environmental benefits but cleaner fuels are necessary for modern fuel efficient cars, according to the automotive sector.

The South African government is confident that shale gas could be a significant 'game changer' in terms of South Africa's energy situation if the reserves are proved economic, and has assured anti-fracking lobbyists that exploration will proceed in an environmentally and socially responsible manner. Furthermore, the National Planning Commission recommended that exploratory drilling take place within the next five years as part of the short-term steps that the National Development Plan 2030 (NDP) suggests, are necessary to move South Africa to a diverse energy environment by 2030. The NDP asserts that this will help determine whether economically recoverable shale gas reserves exist in the Karoo, while environmental investigations will ascertain whether exploitation of the resource is environmentally sustainable. Assuming reserves are proven and environmental concerns are alleviated, the NDP promotes fast-tracking the development of the shale gas industry, as a result of its significant potential to contribute to South Africa's energy needs.

OUTLOOK

The global economy remained fragile and highly uncertain during the 2013 financial year, weighed down by escalating geopolitical tensions in the Middle East, the USA/EU economic sanctions against Iran over its nuclear programme, and the persistent EU sovereign debt crisis. However, a measure of economic recovery was seen in some parts of the world over the same period, mainly in the USA, Germany, India and China.

According to the BP statistical energy outlook, primary energy demand is expected to increase by an average of 1.5 percent per annum (p.a) from 2014 reaching 41 percent by 2035. The increasing energy demand is a result of very high energy consumption growth, driven by the industrialization and electrification of non-OECD economies, particularly China. Although the past decade recorded the largest ever growth of energy consumption in volume terms over any ten year period, this is unlikely to be surpassed in the medium to long term. There is a clear shift in energy growth from the OECD to the non-OECD countries. Almost 95 percent of the projected growth is in the non-OECD, with energy consumption

growing at 2.3 percent annually in contrast to the OECD's 0.2 percent. However, India's contribution is expected to grow faster, almost matching that of China in the next 10 years or so.

At 1.9 percent annually, gas is the fastest growing fossil fuel and the only one to grow more rapidly than total energy while oil (0.8 percent p.a.) shows the slowest growth. However, worldwide oil supply is expected to increase by 1.7 million bbl\d in 2014 with most of the growth coming from producers outside the Organization of Petroleum Exporting Countries (OPEC). Non-OPEC production is expected to rise by 1.3 million bbl\d in 2014, with continued increased production from the USA and Canadian oil sands. North America is estimated to account for two thirds of the projected growth for non-OPEC supply.

The escalating conflict in Iraq and high levels of Chinese crude oil imports in 2013, as well as ongoing delays for Libyan oil exports have contributed to upward price pressures. The forecast Brent crude oil price averages $110/bbl in 2014 and $105/bbl in 2015. According to the US Energy Information Administration (EIA), natural gas prices are likely to remain near current levels until the start of the next winter. Natural gas prices are expected to average $4.77/MMBtu in 2014 and $4.50/MMBtu in 2015.

Global demand for natural gas will grow by 1.9 percent p.a. from 2014 reaching 497 Bcf/d by 2035, mainly due to growth in non-OECD. In the OECD, gas could become a dominant fuel by 2031, accounting for 31 percent in primary energy by 2035. However in the non-OECD, gas remains in third place, behind coal and oil, with a 24 percent share of primary energy in the same period.

Global natural gas supply is expected to grow by 1.9 percent p.a. from 2014, reaching 497 Bcf/d by 2035. At 6.5 percent, shale gas is the fastest growing source of gas, supplying nearly half of the growth in global gas output. Gas supply growth is concentrated in the non-OECD accounting for 73 percent of global growth. Almost 80 percent of non-OECD growth is from non-shale sources. Demand is expected to grow the fastest in Asia and the Middle East. Significant increases in supply are expected from China and the US.

Due to South Africa's diminishing reserves, crude oil production is likely to drop to approximately 100 000 bbl/y by 2015. Nonetheless, this decline could be offset by rising synthetic oil production, which is expected to add more than 200 000 bbl\d and crude oil imports. South Africa's demand for crude oil is anticipated to reach 600 000 bbl\d by 2021, with 300 000 bl/d coming from Project Mthombo. Consumption is expected to rise steadily over this period in line with economic growth. Natural gas production is expected to increase in 2015, when PetroSA's project Ikhwezi is fully operational.

The potential benefits of a "gas boom" provides a major push for South Africa to encourage exploration for and production of gas, to help create employment, boost the local energy market and grow the economy. By 2030, the Integrated Resource Plan (IRP 2010) aims to have cut South Africa's overwhelming reliance on coal, raising the contribution of nuclear, renewables and natural gas to the country's energy mix.

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URANIUM

Mpumzi Bonga

WORLD RESOURCES

World identified uranium resources, recoverable at $130/kg, were estimated at 5.5 MtU in 2013. Australia has the world's largest known recoverable uranium resources accounting for 31 percent, followed by Kazakhstan's 12 percent and Canada's and Russia's 9 percent (Table). South Africa, at 5.5 percent, is ranked 5th in the world and hosts Africa's largest resources followed by Namibia and Niger.

TABLE 37: WORLD URANIUM RESOURCES AND PRODUCTION, 2011

	URANIUM RESOURCES*			PRODUCTION+			
	RAR#		Rank	2012	2013		
COUNTRY	(ktU)	%			(Mlb U)	%	Rank
Australia	1 673	31.0	1	18.3	16.3	10.7	3
Canada	485	9.0	3	23.4	24.3	15.9	2
China[e]	171	3.2	9	3.9	3.9	2.6	9
Namibia	284	5.3	6	10.7	11.2	7.0	4
Niger	272	5.0	7	11.8	10.4	6.8	5
Kazakhstan	651	12.0	2	55.5	58.5	38.2	1
Russia	480	8.9	4	7.5	8.2	5.4	6
South Africa	295	8	5	655	582	1.1	11
Ukraine[e]	105	1.9	11	2.5	2.4	1.6	10
USA	207	3.8	8	4.1	5.0	3.2	8
Uzbekistan	111	2.1	10	6.3	6.3	4.1	7
SUBTOTAL	5 093	-	-	51 872	52 240	-	-
Others	311	5.8		1 791	1 254		
World Total	**5 404**	**100**		**151.2**	**152.9**	**100**	

Sources: **OECD's NEA & IAEA, Uranium 2013: Resources, Production and Demand*

+ *World Nuclear Association, Market Report data, 2013*

Notes: *#Reasonably Assured Resources (RAR) plus Inferred Resources, to $130/kg U*

e: Estimate

WORLD SUPPLY- DEMAND

World uranium mine production increased by 1.1 percent from 151.2 Mlb in 2012 to 15.9 million pounds U_3O_8 in 2013, (Table). When combined with secondary sources, this figure rises to 206 million pounds U_3O_8. At 38.2 percent; Kazakhstan dominated word output, followed by Canada's 15.8 percent and Australia's 10.7 percent. Together, these countries accounted for 64.8 percent of the global uranium output. Africa accounts for more than 20 percent of world output. The continent's uranium production is dominated by Niger and Namibia, respectively accounting for 6.8 percent and 7.0 percent of total world output, followed by Malawi and South Africa at third and fourth place respectively. While uranium production rose in all the major uranium producing countries in Africa, South Africa's continued to decline despite the country having the largest resources in the continent.

South Africa produces uranium mainly as a by-product from gold mines, and this is exported by Anglo-American's Nuclear Fuel Corporation (Nufcor) as uranium oxide (U_3O_8). The country's uranium output has been trending downward owing to the persisting decline in gold output resulting from rising input costs and lower gold prices..

Global uranium demand is mainly driven by nuclear power generation, which has been growing at an accelerated rate driven by Climate Change concerns (Table 37). This nuclear power was generated from 434 nuclear reactors globally. The US, at 23 percent (100 reactors) has the highest number of reactors, followed by France's 13 percent (58 reactors) and Japan's 11 percent (50 reactors). The US derived 19.4 percent of its electricity from nuclear energy, while France and Japan drew 73.3 percent and 1.7 percent respectively. South Africa generates 5.7 percent of its electricity from two nuclear reactors. Uranium consumed in nuclear energy reactors was 65.9 kt in 2013 globally. During the same year, there were 71 reactors under construction while 173 were on order and 314 proposed. Locally, demand remained stagnant at 1800tU from the two reactors at Koeberg. There are, however, plans afoot to raise nuclear energy contribution to the country's energy mix to 14 percent by 2023, which could raise the number of reactors by at least six. As efforts to exploit locally produced vital input raw materials intensify, the local market could tighten and later swing into deficit if current output levels are maintained.

TABLE 38: WORLD NUCLEAR POWER REACTORS AND URANIUM REQUIREMENTS, 2013-2014

	NUCLEAR ELECTRICITY GENERATION 2013		REACTORS OPERABLE 2013		URANIUM REQUIRED 2013	REACTORS OPERABLE 2014		URANIUM REQUIRED 2014
COUNTRY	billion kWh	% of elec	No	MWe	(t U)	No	MWe	(t U)
USA	790.2	19.4	100	98 951	19 622	100	99361	18816
France	405.9	73.3	58	63 130	9 320	58	63130	9927
Japan	*14.0*	1.7	50	44 396	366	48	42569	2119
Germany	*92.1*	15.5	9	12 003	1 889	9	12003	1889
Korea (South)	132.5	27.6	23	20 787	4 218	23	20656	5002
Russia	161.7	17.5	33	24 253	5 090	33	24253	5456
UK	64.1	18.3	16	10 038	1 828	16	10038	1738
China	104.8	2.1	18	14 962	6 711	20	17055	6296
Spain	54.3	19.7	7	7 002	1 357	7	7 002	1274
Canada*	94.3	16.0	19	13 553	1 764	19	13553	1784
Sweden	63.7	42.7	10	9 508	1 505	10	9508	1516
Ukraine	78.2	43.6	15	13 168	2 352	15	13168	2 359
Belgium	52.1	40.6	7	5 943	1 017	7	5 943	1017
South Africa	13.6	5.7	2	1 830	305	2	1 830	305
SUBTOTAL	2 121.5		367	339 524	57 344	367	325 294	57 139
Others	237.5		67	34 533	7634	67	49 319	8 769
World	2 359	13.5	434	374 057	64 978	434	374 611	65 908

Notes:

% of elec: *percent contribution to national electricity production*

MWe: *Megawatt net (electrical as distinct from thermal)*

kWh: *kilowatt-hour*

*** *estimate*

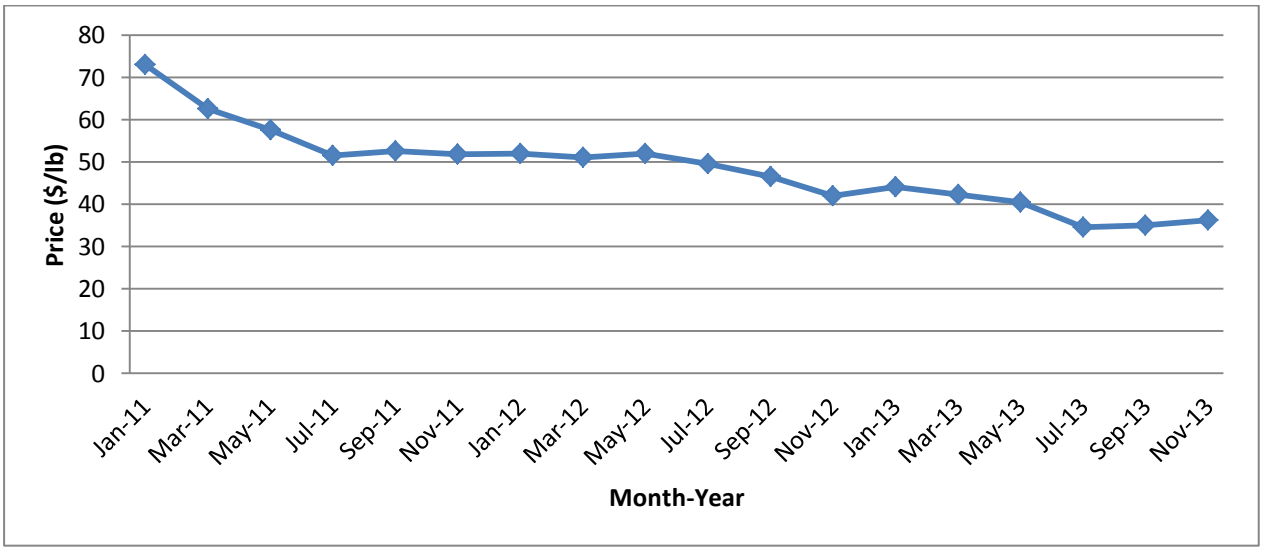
Sources: *World Nuclear Association, 2013-14*

PRICES

Uranium prices continued trending downward in 2014 as the average price for January 2014 amounted to $42.75/lb, $10/lb lower than in January 2013. The decline continued in the second term, with prices averaging $40/lb by June and deteriorated to $34.5/lb by July suppressed by more supplies brought to the market. Although prices recovered to $36.5/lb in November, this quickly faded back to $34.5/lb by December owing to continued market excess (Fig.1) and raising questions of whether this new plateau accentuates the suspected similarities between the post Chernobyl and post Fukushima uranium market behaviours. After the Chernobyl disaster, planned reactors were scratched globally, leading to inventories build up. The entry of Russian and the CIS supplies together with the announcement of US intention to sell about 90 Mlb of uranium exacerbated an already oversupplied market resulting in a downward spiral in prices, which plateaued at around $10/lb. Prices remained suppressed at around the $10 mark until 2004 when prices started recovering encouraged by a series of production disruptions. Prices peaked at around $137/lb, arrested by the onset of the US financial crisis in 2007, which precipitated the subsequent global economic crisis.

Thereafter, a confluence of factors including availing of additional uranium supplies by the US and investor funds intent on liquidating their uranium holdings, pulled prices down to $40/lb. Prices rallied to $70/lb in 2010 on expectations of stronger demand from China. However, the Fukushima Daiichi accident dampened demand as Japan announced its intention to close several plants and other nations, most notably Germany, announced plans to phase nuclear energy out in favour of renewable energy. The improvement of safety standards by IAEA saved the situation leading to more countries planning to build more reactors while Japan was reported to be considering reopening the closed plants. The combination of the afore-stated could conspire to exert an upward pressure on uranium prices, which seem to have bottomed out.

FIGURE 30: AVERAGE MONTHLY SPOT URANIUM PRICES, 2011-2013



Source: Metal Bulletin

DEVELOPMENTS IN AFRICA

Etango uranium project in Erongo, Namibia is reinterpreting the ore and waste boundaries to decide whether more selective ore modeling will better represent the mining configuration adopted in the DFS as a result of an internal review. A potential outcome of the greater selectivity may be a higher ore feed grade to the processing plant. Environmental approval has been granted while the DFS has been lodged in support of an existing mining license.

Langer Heinrich uranium mine expansion project, Erongo region Namibia,. is a 2.6-million-pound-a-year uranium mine in the Namib desert, about 80 km east of Swakopmund, which was officially opened on March 2007. Detailed designs for the tailings storage facility (TSF3) were completed during December 2012 and construction work started during this period.

Husab uranium project, near Swakopmund, Namibia has begun work with a groundbreaking ceremony at the Husab project on April 18 2013. Swakop Uranium has been working on the construction and development of the mine since the signing of the Engineering, Procurement and Construction Management (EPCM) contract, in Beijing in November 2012. The contract was awarded to the Husab Project Joint Venture (HPJV), which comprises several international engineering and project management companies

Norasa- Forsys Metals Corp. announced that it had completed an updated mineral resource estimate for it Norasa project in Namibia. New measured resources amount to 103 Mlb at an average grade of 0.0197 percent U_3O_8 while inferred resources amount to 22 Mlb at an average grade of 0.0198 percent U_3O_8

SOUTH AFRICA

Peninsula Energy announced that it has completed the acquisition of ARSA held mineral properties that form part of the Karoo uranium projects in the Western Cape The 36 prospecting rights comprise 5 600 km^2 of uranium and molybdenum bearing sandstone channels in the Karoo basin. Over the last twelve months, Peninsula has compiled a resource estimate, completed scoping studies on projects and recently commenced a prefeasibility study on the project.

The DoE's recently released draft Integrated Energy Plan, which focuses on 2010 to 2050, for public comment expects that South Africa's energy requirements, including electricity demand, will increase significantly until 2050. Consequently, the country is targeting several energy sources to help boost electricity generation capacity in coming years, with Independent Power Producer Procurement Programme having gained traction. Further, despite many delays to the country's nuclear power ambitions and the continuing downward trending uranium output, plans are still afoot to add six new nuclear power stations, with a combined 9.6 GW of generating capacity, to the grid by 2030. The department asserts further that nuclear power remains an affordable base-load energy option that is likely to help SA meet its Copenhagen commitments. Various vendors are reported to be gearing their companies up to participate in the country's nuclear expansion programme when the procurement process starts. Although concerns

have been raised about the affordability of the programme, the local economy could benefit immensely from the localisation of the programme.

A number of companies are reported to be involved in uranium prospecting, exploration and mining. Cooke uranium has agreed to sell its West Rand underground and surface operations to Sibanye Gold in exchange for a 17 percent share in Sibanye. Meanwhile, Gold One announced its plans to undertake a feasibility study to see if the recommissioning of the Cooke 4 plant to treat uranium bearing ore could provide an opportunity to treat production from Cooke 1-4 shafts. Estimated Cooke 4 indicated uranium resources amounted to 11.1 million pounds while inferred resources amounted to 11 million pounds.

Having bought Dominion Reefs' assets, Shiva Uranium, which resumed uranium mining in 2011 through three underground shafts, extracts gold and uranium through an on-site plant with a monthly capacity of 250 kt. Peninsula Energy, an Australian company with prospecting rights in the Karoo announced that its drilling programme along the Ryst Kuil channel turned up good results. The company's Jorg compliant results in the area were estimated at 50.1Mlb with indicated resources of 15.7 Mlb. The company plans to develop a conventional mining and milling operation by 2016/17.

West Wits Mining, which was formed to explore and evaluate gold and uranium in the Wits Basin, sold the majority of its exploration leases for $9 million in 2012 in order to focus on its remaining South African lease, namely the DRD and the Rand leases. Also, the Witwatersrand Consolidated Gold Resources is reported to have 14 prospecting rights over 1 200 km^2 area. The company continues to focus on De Bron Merriespruit (DBM) and Bloemhof projects. These two projects, which produce uranium as a by-product have a total indicated resources of 21.7 Mt and an inferred resources of 75.6 Mt

OUTLOOK

The Japanese government has decided to restart the reactors shut down after the Fukushima-Daiichi accident upon issuance of new safety standards and approval of the safety of each unit. If this expectation materialises, it is expected to have a significant positive impact on the uranium markets. This together with the additional plants currently under construction could raise world uranium demand. All the major producing countries are planning to raise uranium output, while several projects are expected to come on stream resulting in higher world production between 2014 and 2015. When this is combined with the supplies from secondary sources and other inventories, supplies could still exceed demand.

The World Nuclear Association (WNA) forecasts a 73 percent increase in power demand by 2035. World uranium demand is expected to be about 180 Ml during the 2014. During the same period, primary production is forecast to amount to 153Mlb while supplies from secondary sources including from US government inventories, Russian government stockpiles, tails enrichment, enricher underfeeding as well as mox and reprocessed uranium could amount to more than 30Mlb. Uranium market performance is less likely to be coruscating owing to the expected supply excess and depressed prices. However, the WNA expects demand to range between 240 and 260Mlb by 2020 while total supply is likely to be 200Mbl. The

71 reactors that are under construction are likely to contribute significantly to the anticipated higher uranium demand in the short term while the 491 reactors that are currently proposed are likely to significantly raise demand affecting the current market situation in the long term. Barring for any unforeseen market vicissitudes, the afore-stated could absorb a significant amount of the current excess resulting in 40-60Mbl market shortfall by 2020. However, poor knowledge of the inventories estimates together with the timing of their release makes it difficult to determine the net impact of the behaviour of supply and demand. When this is combined with the possibility of plant underfeeding resulting in lower feed uranium requirements, the prediction of the impact of substitutability between technology and uranium gets more complicated. Also, if the planned uranium mining projects materialise, the expected market deficit could be short-lived, swinging the market back into tightness. The potential closure of NPPs from Germany, which promised to phase nuclear energy out by 2022 and draw 80 percent of its energy requirements from renewable sources by 2050 and the continuing decline of nuclear power in the US owing to the cost competitiveness of the shale gas are likely to significantly moderate the expected demand rise, swinging the market into excess.

Prices are expected to remain under sustained pressure from the market excess keeping them flat throughout 2014. Some analysts believe that the planned restarting of Japan's nuclear plants could push prices to or beyond $70/lb, particularly if those nations that had been differing uranium purchases return to the market. However, the release of inventories from investment funds could pull prices down to about $32/lb. While the expected further price decline to $30/lb will not aleotoric but caused by more aggressive suppliers selling into the excessively oversupplied market not due to any epistemic reasons but desire to reduce stockpiles. Owing to the ubiquitous presence of inventories, uranium mining projects could be put on hold while certain operations could be closed. This could affect South Africa's projects that are currently being developed and delay their operationalization. However, since the country has committed to expand the role of nuclear energy in its energy mix, local demand is likely to significantly improve in the medium to long term as the first reactor becomes operational by 2023. Local uranium demand could rise, particularly if the country could insist on the consumption of locally produced uranium in the production of nuclear fuel. As the drive for local value addition intensifies consistent with the Beneficiation Strategy, demand for locally produced uranium is likely to rise thus reviving the local uranium mining sector. The growth of downstream industries could help accelerate the re-industrialisation of the economy and job creation.

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NON-FERROUS METALS AND MINERALS OVERVIEW

M Ikaneng and L Ramane

INTRODUCTION

South Africa hosts rich resources of non-ferrous minerals, some of which are rated amongst the largest in the world. The country is the second biggest producer of titanium and zircon minerals in the world and is ranked fourth and second, respectively, in terms of global reserves of these minerals. South Africa is also the producer of copper, cobalt, nickel, lead, zinc and antimony. Titanium and zircon resources are found in heavy mineral sands in Kwa-Zulu Natal, Eastern Cape and Western Cape. Copper is mainly mined in the Palabora Complex in the Limpopo Province, with zirconium and nickel being produced as by-product. Lead and zinc deposits associated with copper are mined near Aggeneys, Northern Cape. Nickel deposits are mined in the Uitkomst Complex near Badplaas in the Mpumalanga Province. Antimony deposits are located in the Limpopo Province. Cobalt, copper and nickel base metals are also produced as by-products of platinum mining in the Bushveld Complex.

PRODUCTION AND SALES

In 2013, South Africa's production of primary non-ferrous metals and minerals, excluding titanium and zircon, decreased by 0.8 percent to 207.7 kt compared with the previous year, primarily as a result of weak global demand and declining ore grades (Table 39). Local and export sales volumes declined by 1.5 and 22.8 percent to 65.0 kt, and 134.5 kt, respectively. Total sales volume declined by 10.3 percent to 199.6 kt. Local sales revenue rose by 3.1 percent to R5.3 billion, while export revenue increased by 9.6 percent to R7.1 billion. Total sales revenue increased by 6.8 percent to R1billion.

South Africa's total production of non-ferrous metals and minerals (primary and processed), excluding titanium and zircon minerals increased by 39.2 percent to 1 226 kt in 2013 when compared with 2012. Total sales volumes excluding titanium and zircon minerals as well aluminium and zinc metals, declined by 10.3 percent to 199.6 kt and while associated revenues increased by 6.8 percent to R12.4 billion. Local sales volumes decreased by 1.5 percent to 65.0 kt while exports volumes increased by 14.0 percent to 134.6kt. Local and export sales revenue increased by 3.1 percent and 9.6 percent to R5.3 billion and R7.1 billion, respectively.

TABLE 39: SOUTH AFRICAN PRODUCTION AND SALES OF NON-FERROUS METALS AND MINERALS, 2012 AND 2013

COMMODITY	PRODUCTION		LOCAL SALES (FOR)		EXPORT SALES (FOB)		TOTAL SALES	
	Year	(t)	(t)	R'000	(t)	R'000	(t)	R'000
	2013	2 405	9	777	2 267	149 553	2 276	150 330
Antimony (mic)	2012	3 066	38	1 974	2 600	183 435	2 638	185 409
	2013	1 294	51	11 868	740	193 226	791	205 093
Cobalt	2012	1102	33	7 439	614	147 320	647	154 759
	2013	80 821	56 039	4 056 792	26 239	1 761	82 278	5 817
Copper	2012	69 859	54 633	3 575 955	26 594	1 579	81 227	5 155
	2013	41 848	0	0	37 816	683 219	37 816	683 219
Lead	2012	52 489	0	0	53 628	811 498	53 628	811 498
	2013	51 208	8 924	1 216 372	40 646	5 741 253	49 570	6 957 625
Nickel	2012	45 945	11 308	1 539 962	35 507	4 892 384	46 815	6 432 346
	2013	2 604 157	2 681 810	2 712 307	100 269	1 028 312	2 782 079	3 740 619
Titanium minerals	2012	2 800 678	2 621 524	2 315 424	95 508	1 450 750	2 717 032	3 766 174
	2013	30 145	0	0	26 881	335 687	26 881	335 678
Zinc (mic)	2012	37 034	0	0	37 646	444 536	37 646	444 536
	2013	224 446	11 277	125 326	437 642	4 819 625	448 919	4 944 952
Zirconium minerals	2012	367 190	7 014	132 761	213 656	4 008 161	220 670	4 140 922
	2013	**3 036 324**	**2 758 110**	**8 123 442**	**672 500**	**12 952 636**	**3 430 610**	**17 023 333**
Primary subtotals	**2012**	**3 377 363**	**2 694 550**	**7 573 515**	**465 753**	**11 939 663**	**3 160 303**	**15 940 799**
	2013	823 783	***	***	***	***	***	***
Aluminium metal	2012	667 576	***	***	***	***	***	***
	2013	***	***	***	***	***	***	***
Titanium slag	2012	***	***	***	***	***	***	***
	2013	0	0	0	0	0	0	0
Zinc metal	2012	3 425	3 744	63 845	0	0	3 744 000	63 845
Processed	2013	823 783	***	***	***	***	***	***
subtotals	2012	671 001	***	***	***	***	***	***
Non-Ferrous	**2013**	**3 860 107**	**2 758 110**	**8 123 442**	**672 500**	**12 952 636**	**3 430 610**	**17 023 333**
Totals	**2012**	**4 048 364**	**2 694 550**	**7 573 515**	**465 753**	**11 939 663**	**3 160 303**	**15 940 799**

Source: DMR, Directorate Mineral Economics

*** *Withheld*

PRICES

In 2013, most non-ferrous metals prices continued to experience a declining trend due to the fragile global economy which is fuelled by the Euro zone debt woes, the slowing Chinese economy, excess supply, high London Metal Exchange (LME) inventory levels and negative market sentiments. In 2013, average annual nickel price dropped by 14.6 percent to $15 018/t when compared with 2011.

Zinc prices decreased by 2.1 percent to $1 912/t, aluminium prices fell by 8.6 percent to $1 849/t, copper decreased by 7.8 percent to $7 336/t and cobalt decreased by 5.8 percent to $13.17/lb. Average lead prices increased by 3.7 percent to $ 2 141/t.

EMPLOYMENT

Employment in the South African non-ferrous metals and minerals sector decreased by a marginal 0.2 percent to 15 535 in 2013 compared with 15 573 employees in 2012 (Table 40), following the unprotected strike experienced in July 2013 and labour reallocation at Consolidated Murchison Mine. Total remuneration fell by 13.6 percent to R3.6 billion due to lower employment and average remuneration per person. Average remuneration per person fell by 13.3 percent to R231 028 from R266 598.

TABLE 40: SOUTH AFRICA'S NON-FERROUS METALS AND MINERALS: EMPLOYMENT AND GROSS REMUNERATION, 2009-2013

YEAR	EMPLOYEES	REMUNERATION	
	Number	R'000	Per Capita Payments
2009	16 158	2 736 715	169 372
2010	15 805	3 573 415	226 094
2011	16 027	4 303 902	268 540
2012	15 573	4 154 738	266 598
2013	15 535	3 589 019	231 028

Source: DMR, Directorate Mineral Economics

OUTLOOK

The global demand for nonferrous metals and minerals is expected to be gloomy in 2015, due to the continued slowdown in China's economy and a weakening European economy. China accounts for more than 40 percent of base metals consumption and is a significant producer of base metals. Tightened credit condition and slowing investment in infrastructure which is a key metal consuming industry, contributed to weaker metal consumption in China while weak manufacturing activity and low demand levels in Europe continued to weigh down on base metals consumption. The economic growth rates in China and Europe will lead to an uncertain outlook for base metals price recovery in 2015. Additionally, the strength of the US dollar, market perceptions and other political events will continue to influence prices going forward. The base metals industry is expected to stabilize over the next year, prohibiting further deterioration up to mid-2016.

In South Africa, the production of nonferrous minerals is expected to increase slightly as labour relations improves at several large-scale mines in the country, particularly in the PGM sector. Since nonferrous minerals are mostly consumed in the construction and technology sectors, their demand will mostly be as a result of the country's infrastructure development programme, which continues to create jobs and grow the economy. Government is planning to spend R813.1 billion on infrastructure over the next three years.

Additionally, consumption of these minerals will further be boosted by governments' plan to increase local value addition. In his 2015 state of the nation address, the president of the republic announced that operation Phakisa will now be explored in the mining industry, where the private sector is expected to work hand in hand with government to come up with a winning solution for beneficiation.

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ALUMINIUM

Mathabo Ikaneng

SUPPLY - DEMAND

According to the World Bureau of Metal Statistics (WBMS), world refined aluminium production rose by 3.5 percent to 47.5 Mt in 2013 compared with 2012 (Table 41), due to increased new capacity from China. At 47.7 percent, China remained the largest producer, followed by Russia's 7.8 percent and Canada's 6.2 percent. Refined aluminium output increased by 6.8 percent in Asia and 4.1 percent in Africa, driven by robust growth in light-weighting of vehicles. Europe, Oceania and the Americas registered declines of 5.9 percent, 4.0 percent and 1.2 percent, respectively. South Africa contributed 1.7 percent and was ranked 10th in terms of global output. South Africa's aluminium production grew by 23.4 percent to 824 kt in 2013 compared with 668 kt in 2012.

TABLE 41: WORLD ALUMINIUM SMELTER CAPACITY, PRODUCTION AND EXPORTS, 2013

COUNTRY	SMELTER CAPACITY	PRODUCTION			EXPORTS		
	kt	kt	%	Rank	kt	%	Rank
Australia	1 770	1 777	3.7	5	1 543	7.6	3
Bahrain	970	913	1.9	9	-	-	
Brazil	1 700	1 304	2.7	7	420	2.1	8
Canada	2 880	2 967	6.2	3	2 630	12.9	2
China	30 200	22 646	47.7	1	572	2.8	5
India	2700	1 571	3.3	6	385	1.9	9
Norway	1 230	1 202	2.5	8	1 254	6.1	4
Russia	4 450	3724	7.8	2	5 258	25.7	1
South Africa	900	824	1.7	10	528	2.6	6
USA	2 680	1 948	4.1	4	515	2.5	7
Other	12 420	8 630	18.2		7 324	35.9	
TOTAL 2013	61 900	47 506	100		20 429	100	
2012	55 900	45 900			21 144		

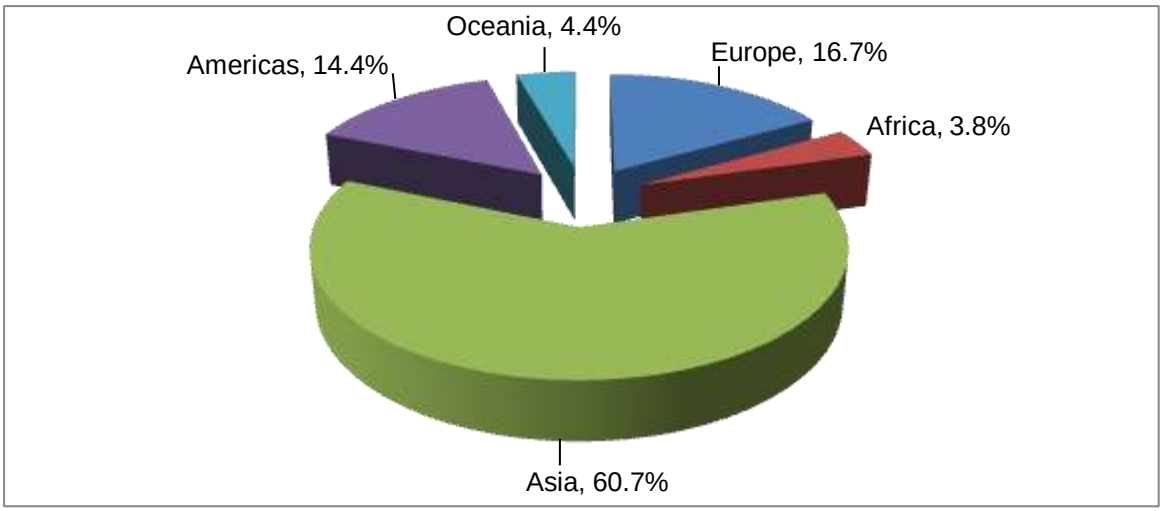
Sources: United States Geological Survey, 2014

**Department of Mineral Resources (DMR), Directorate Mineral Economics*

World Bureau of Metal Statistics 2014

World aluminium production fell by 1 percent in 2013. Regionally, production increased in Africa (10.3 percent) and the Gulf region (6.1 percent). Europe and Asia registered declines of 5.2 percent and 3.8 percent. Europe, at 30.6 percent continued to dominate world aluminium output, followed by the Americas' 27.8 percent and Gulf Region's 15.8 percent.

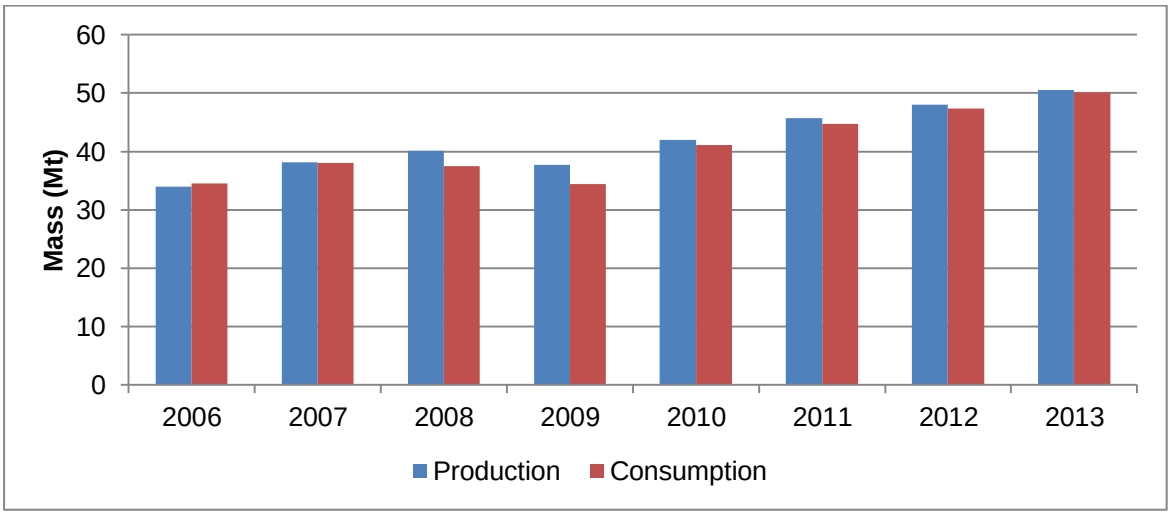
FIGURE 31: WORLD REFINED ALUMINIUM PRODUCTION BY REGION, 2013



Source: WBMS, 2014

Global aluminium consumption increased by 1.2 percent to 46.5 Mt in 2013 (Fig. 2) compared with 46.0 Mt in 2012, fuelled by demand in the aerospace and transportation sectors. Growth in the transportation sector is driven by EU's requirements for lighter fuel efficient vehicles in a bid to curb carbon dioxide emissions. Since 2008, the production of aluminium is slightly more than consumption, mainly due to the growing output coming out of Africa and Asia (Fig.2).

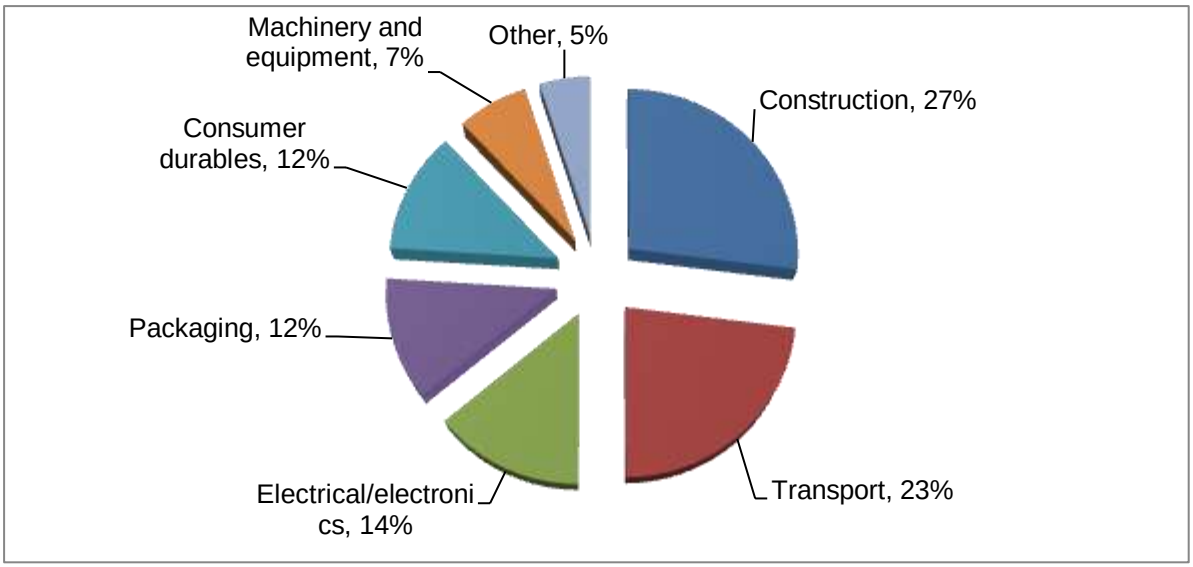
FIGURE 32: WORLD ALUMINIUM SUPPLY AND DEMAND 2006-2013



Source: CRU, 2014

Demand for refined aluminium was driven by the construction sector, which accounted for 27 percent of total consumption, followed by the transport sector (23 percent) and the electrical sector (14 percent) as depicted in Figure 32. Packaging sectors and consumer durables each consumed 12 percent while machinery and equipment accounted for 7 percent.

FIGURE 33: INDUSTRIAL DEMAND FOR HIGH GRADE PRIMARY ALUMINIUM, 2013



Source: Alufer mining

TRADE

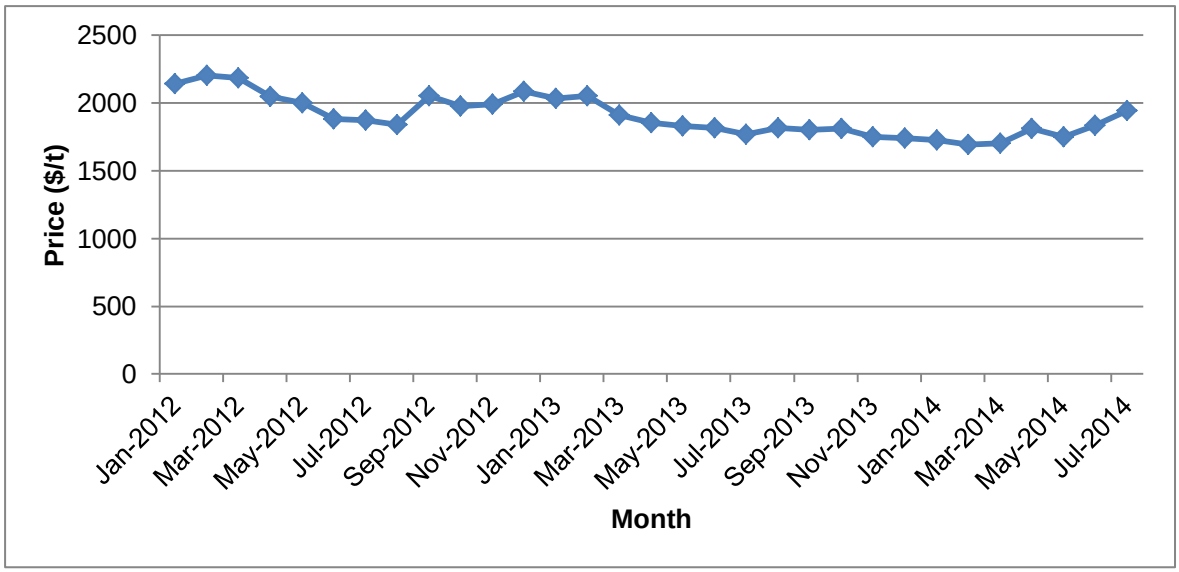
In 2013, world refined aluminium exports declined by 3.4 percent to 20.4 Mt compared with 2012. Russia's exports, the world's largest exporter of aluminium, fell by 3.6 percent to 5.3 Mt. Canada's exports, the second major exporter, surged by 9.6 percent to 2.6 Mt. South Africa's primary aluminium exports rose by 24.4 percent to 573 kt in 2013. South Africa exported 69.5 percent of refined aluminium produced and the balance was consumed locally which indicates that the country still exports electricity and jobs, which is inconsistent with current national objectives.

World aluminium imports declined by 0.6 percent to 20.7 Mt in 2013 compared with 2012. USA and Germany dominated the world aluminium imports accounting for 14.0 percent 12.1 percent respectively. South Africa's imports of beneficiated aluminium fell by 20.4 percent to 51.6 kt.

PRICES

Over the past three years, aluminium market forces have failed to drive supply rationing of the scale needed to tighten fundamentals. This is evidenced by the subsequent downward trend in London Metal Exchange (LME) cash settlement prices. During 2013, aluminium (LME) cash settlement prices declined by 8.6 percent to an annual average of $1 849.25/t compared with 2012 (Fig.4), as a result of consecutive years market surplus and high inventory levels. The monthly average price of aluminium fell by 15.2 percent from $2 035.52/t in January to $1 767.63/t in Jul 2013. The average price rebounded to $1 814.76/t in August, representing an increase of 2.7 percent before spiralling downward and settling at $1 738.78/t in December. From January to June 2014, the price remained in a narrow range of between $1 726.48/t and $1 836.40/t.

FIGURE 34: LONDON METAL EXCHANGE CASH SETTLEMENT PRICE (MONTHLY AVERAGES), 2012 TO 2014



Sources: Metal Bulletin, 2012-2014

South Africa's local and export unit sales surged by 9.4 percent and 12.7 percent to R19 178/t and R17 955/t in 2013 compared with 2012. As a result, local and export sales revenues increased by 28.8 percent and 36.9 percent to R4.65 billion and R10.2 billion.

EMPLOYMENT

Total employment in South Africa's aluminium smelters decreased by 23.9 percent to 3 481 employees compared with 4 576 in 2012, as a result of a 44.6 percent decline in contract employment, which offset the 12.3 percent increase in permanent employment (Table 42).

TABLE 42: EMPLOYMENT AND REMUNERATION IN SOUTH AFRICA'S ALUMINIUM SMELTERS IN 2013

YEAR	EMPLOYEE	REMUNERATION		PRODUCTION
	Number	R'000	Per Capita Earnings R'000	Labour Productivity t
2009	3 557	640 351	180 026	235
2010	3 652	1 168 219	319 885	222
2011	4 111	1 537 938	374 103	197
2012	4 576	1 761 178	384 873	146
2013	3 481	1 334 484	383 362	237

Sources: DMR, Directorate Mineral Economics

Total remuneration fell by 24.2 percent to R1.33 billion due to a decrease in contractor earnings. Average earnings declined by a 0.39 percent in 2013 indicative of the percentage contribution of contractor earning to total remuneration. The 62 percent increase of employee productivity to 237 t/employee compared with 146 t/employee recorded in 2012 led to high total production.

RECENT DEVELOPMENTS

In January 2014, BHP Billiton announced the commencement of process to consult employees about the proposed halting of aluminium smelting and associated services at the Bayside smelter in Richards Bay, KwaZulu-Natal. The company acknowledged that it was the first time it has proposed the "closure" of the smelter to employees. The closure will have significant implications for the downstream metals industry in South Africa, including for the country's crucial automotive sector, a strategic industrial project of government. The company's announcement came after Hulamin, a major aluminium manufacturer, put out a cautionary notice stating it had entered into negotiations with BHP Billiton over the future of aluminium slab supply from Bayside. BHP Billiton pronounced that to support the continuing supply of the metal to local customers, the cast-house at Bayside will continue to operate with supply from Hillside, while the company assesses its options. BHP Billiton undertook a review of Bayside, its oldest smelter in South Africa, in September 2012 to explore various options to dispose of the operation because of low aluminium prices, high operating costs and increasing production in China, as well as the continuing energy supply challenges faced by industry in South Africa.

In August 2014, global resources group BHP Billiton announced plans to create an independent global metals and mining company based on a selection of its high-quality aluminium, coal, manganese, nickel and silver assets, including most of the assets in South Africa. BHP Billiton plans to create a new flexible company that will seek growth opportunities in Southern Africa and elsewhere. The new entity, Newco, will house BHP Billiton's aluminium and manganese businesses. These include aluminium smelters in South Africa and Mozambique; the Cerro Matoso nickel business in Colombia; the thermal coal mines in South Africa; and the Illawarra Metallurgical Coal and Cannington silver, lead and zinc mines in Australia. The company is also considering the disposal of its Nickel West, New Mexico Coal and smaller petroleum assets Newco headquarters will be based in Perth, Australia with a primary listing on the Australian Stock Exchange (ASX) and an inward secondary listing on the Johannesburg Stock Exchange (JSE). However, BHP Billiton will retain its JSE listing, and listings in London and Australia. Subject to final board approval to proceed, shareholder approval and the receipt of satisfactory third party approvals, the demerger is expected to be completed in the first half of the 2015 calendar year.

In November 2013, the London Metal Exchange (LME) board approved proposed changes to its warehousing policy designed to cut queues at warehouses, following a three-month consultation with the global metals industry. The LME has closely engaged with the FCA to ensure that the changes are consistent with the LME's regulatory requirements. The metal exchange said it will attempt to challenge a ruling in favour of United Co. Rusal, the world's largest aluminum producer, to block the planned reforms the warehousing system designed to cut excessive delays to metal deliveries. The proposed warehouse policy would affect all warehouses with queues of more than 50 days. The long delays to accessing metal at LME warehouses have helped support aluminium prices in an otherwise oversupplied market. Ending those delays could result in price declines, which would hurt producer companies.

OUTLOOK

BREE Resources and Energy Quarterly 2014, predicts an increase of 0.4 percent to total 48 Mt in global aluminium production in 2014 and by a further 3.5 percent to 49.7 Mt in 2015, driven by the restart of idle capacity from China's Xinfa Group's two Shanxi refineries Jiaokou Feimei Aluminium and Xinfa Chemical. However, capacity reduction programmes implemented in response to lower prices, higher production costs and market oversupply mainly in Europe are expected to offset the production increases in China in 2014. In 2015, production is forecast to increase in China in line with its 12th Five Year Plan targets and remain steady in the United States, with restarts of curtailed capacity in Canada. Production growth in the Middle East will also support the increase in world production.

The global demand for aluminium is experiencing strong growth, underpinned by the increase of the world population along with a rapid development and urbanization of the developing countries. World aluminium consumption is expected to increase by 4.2 percent to 48.1 Mt in 2014 and a further 3.3 percent 49.7 Mt in 2015. China is the key market expected to drive this growth increase, underpinned by forecast ongoing expansion in the automotive and construction industries as well as other aluminium intensive consumer items. Other consumption increases are expected from India driven by investment in infrastructure, the US's improving economic conditions resulting in higher car production and construction activity and Europe as its economic activities improve.

According to the South African Mining Report, the proposed warehousing policy aimed at reducing delivery queues at warehouses at the London Metal Exchange (LME), presents a downside risk to the relatively bearish price forecasts, particularly for aluminium. Aluminium prices are forecast to remain constrained in 2014 hovering around US$1 800/t mark due to market surpluses. This is particularly the case given the potential impact of the reform of the LME warehouse system could have on the aluminium supply from stockpiles in coming months.

South Africa's aluminium production is expected to be stagnant in 2013 due to low prices and high electricity cost, but is expected to rise due to the anticipated Rosslyn expansion in the manufacture of aluminium vehicles in the medium term.

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ANTIMONY

Linda Maphango

SUPPLY - DEMAND

The US Geological Survey (USGS) estimated the world antimony reserves at 1.8 Mt in 2013. China's reserves of about 950 kt remains the biggest in the world, followed by Russia (350 kt), Bolivia (310 kt), Tajikistan (50 kt) and South Africa (27 kt). Global mine output of antimony decreased by 6.2 percent to 163 kt in 2013 when compared with the previous year, mainly due to production restrictions in China. At 130 kt, China is still the major producer of antimony concentrate and accounted for about 79.6 percent of the global supply, followed by Russia's 4.0 percent, Bolivia's 3.1 percent, Tajikistan's 2.9 percent and South Africa's 1.5 percent.

TABLE 43: WORLD RESERVES AND PRODUCTION OF ANTIMONY CONCETRATES, 2013

COUNTRY	RESERVE			PRODUCTION		
	kt	%	Rank	kt	%	Rank
Bolivia	310	16.9	3	5	3.1	3
China	950	51.7	1	130	79.7	1
Russia	350	19.0	2	6.5	4.0	2
South Africa	27	1.5	5	2.4	1.5	5
Tajikistan	50	2.7	4	4.7	2.9	4
Other	150	8.2	-	15.0	9.2	-
Total 2013	**1 837**	**100.0**		**163.5**	**100.0**	
2012	**1 837**			**174.3**		

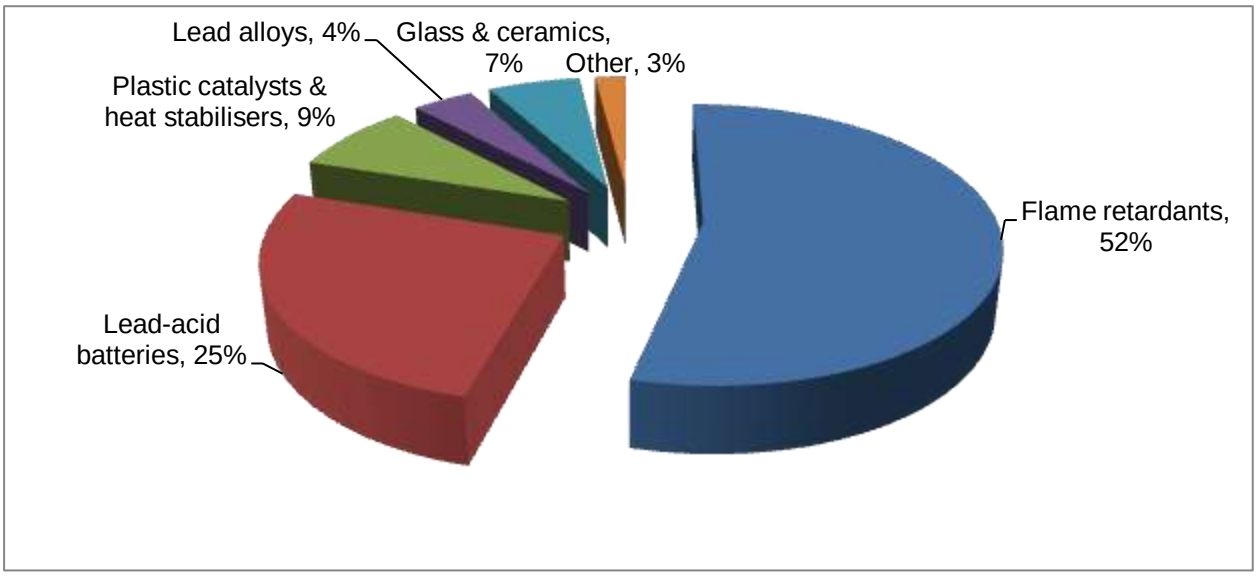
Source: USGS, Mineral Commodity Summaries, January 2014

Developments in the Chinese antimony market continued to have an influence on the global antimony market dynamics as China supplies and consumes most of the world's antimony. Hunan Province, the largest antimony-producing province in China, embarked on a special action to inspect environmental facilities of all antimony producers in the province, according to the local government of Hunan. This action was carried out by the office of Environmental Protection of Hunan Province from March 2013 until the end of the year. As a result, China's production declined by about 10.3 percent to 130 kt in 2013 when compared with 2012. The inspections had an adverse effect on global supply as the province contributes approximately 60 percent to global production.

In 2013, South Africa's production of antimony concentrate declined by 24.3 percent to 2 405 t when compared with 2012. The decline in production is attributable to the introduction of trackless machinery as well as infrastructure and equipment upgrades at Cons Murch Mine, the only producer of antimony in South Africa. Village Main Reef owns 74 percent of the mine and the remaining 26 percent is held by the Employee Share Trust. According to Village Main Reef, current operations at Cons Murch have a mine life of about 11 year at current production rates.

Despite the drop in primary antimony supplies, world demand for antimony and antimony products was muted in 2013, mainly due to softening demand from China and weak global economy which was suffering from the hangover of the Eurozone debt crisis. In 2013, global consumption of primary antimony was estimated at 160 kt per annum. According to China's official customs data, that country's imports of antimony concentrate decreased by 3.3 percent to 66.3 kt in 2013 compared with the previous year. This further explains the weakening demand from China, a country that consumes more than 50 percent of global antimony supplies.

FIGURE 35: GLOBAL ANTIMONY CONSUMPTION BY SECTOR, 2013



Estimates from various sources

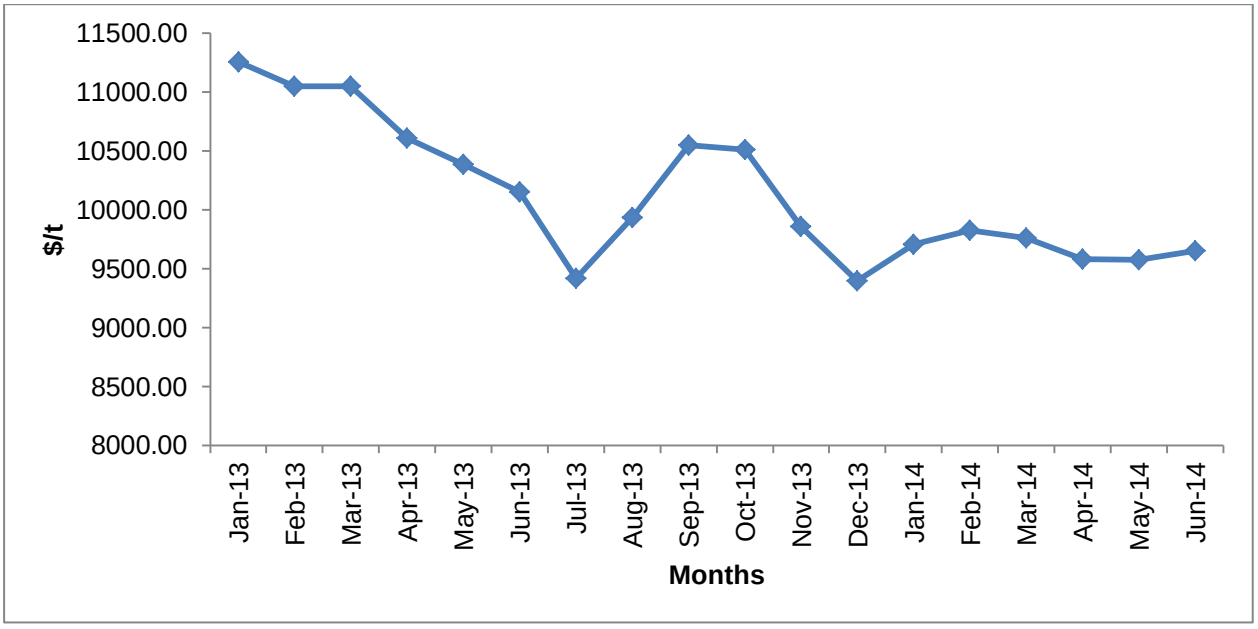
Property and automobile sectors were still the main drivers of global antimony consumption but their demand for antimony was lacklustre for most part of 2013. Approximately 80 percent of antimony mined in the world is used in the production of antimony trioxide, which is principally used in flame retardants as a synergist (Fig. 1). The flame retardants sector contributed 52 percent to global primary antimony demand, followed by lead-acid-batteries (25 percent), plastic catalysts & heat stabilisers (9 percent), glass and ceramics (7 percent), and lead alloys (4 percent).

In 2013, global demand was also negatively affected by substitutes, following historically high prices in preceding years. Dirk Rimaux of Campine, articulated the impact of substitution on demand for antimony at the International Minor Metals Conference in London, indicating that consumption of antimony trioxide has declined by about 25 to 30 percent from its historic level of approximately 130 kt per annum between 2010 and 2011. He also indicated that roof membrane, flooring and other consuming sectors switched out of using antimony trioxide because of higher costs, to using zinc borate as a flame retardant and smoke reduction additive. In recent years, demand for antimony in South Africa has been stagnant but it fell by 76 percent to only 9t in 2013.

PRICES

During the first half of 2013, the price of antimony trended downwards but became volatile in the second half (Fig. 2). The downward price trajectory was due to sustained weak demand from plastic and battery producers, the major consumers of antimony, as well as lower domestic consumption in China. The monthly average price of antimony fell by a compounded annual rate of 2.9 percent from $11 259/t in January to $9 417/t in Jul 2013. The average price rebounded to $9 936/t and $10 550/t in August and September, representing increases of 5.5 percent and 6.2 percent month-on-month, respectively.

FIGURE 36: ANTIMONY METAL BULLETIN, FREE MARKET PRICES, 2013 – 2014



Source: Metal Bulletin Free Market, 2013 – 2014

The price improved after China Minmetals, a government owned company, started buying up antimony stocks from both Chinese and European warehouses in July 2013, as reported by Industrial Minerals. The monthly average price remained almost unchanged in October before dipping and closing the year at $9 395/t in December 2013 as a result of soft demand in Europe and slower than expected economic activity in China.

In January and February 2014, the price recovered to $9 705/t and $9 825/t and respectively, as consumers replenished inventories. From February to July 2014, the price remained in a narrow range of between $9 825/t and $9 520/t. According to recent market reports, the price growth of minerals used in flame retardants, including antimony is slowing on the backdrop of softening demand growth from electronics manufacturing and construction mainly in Asia. The yearly average price of antimony decreased significantly by 23.5 percent from $12 786/t in 2012 to $10 347/t in 2013.

South Africa's local and export unit sales fell by 46.1 and 10.3 percent to R51 943/t and R70 552/t in 2013 compared with 2012. Despite the lower unit values, local sales revenues generated increased 104.6

percent to R1.97 million supported by higher sales volumes. However, both export volumes and revenue fell by 3.7 and 13.6 percent to 2 600t and R183.4 million, respectively, due to weaker demand as a result of weakening global economy.

EMPLOYMENT

Total employment in antimony sector fell 9.6 percent to 865 employees in 2013 compared with a 957 employees in 2012 due to retrenchment at Cons Murch Mine, resulting in a 2.1 percent decline in total earnings to R129 million (Table 44).

TABLE 44: EMPLOYMENT AND REMUNERATION IN THE ANTIMONY SECTOR IN 2013

YEAR	EMPLOYEE	REMUNERATION	
	Number	R'000	Per Capita Earnings
2010	942	91 630	97 272
2011	971	121 015	124 629
2012	957	131 687	137 604
2013	865	128 871	147 827

Sources: DMR, Directorate Mineral Economics

While female employment increased by 9.4 percent in 2013, the total female workforce constituted only 8.9 percent of the entire antimony sector employment. Per capita earnings increased by 7.4 percent in 2013 indicating an improvement of salary levels.

DEVELOPMENTS IN SOUTH AFRICA

Miners at Cons Murch Mine embarked on an unprotected strike for 10 days demanding either a lump sum payout from an Employee Share Trust, or dividend payment as participants in the Trust. According to that company, it was not yet in a position to pay dividends to all its shareholders, including the Employee Share Trust, as a result of heavy capital investments and upgrades at the mine. In May 2014, Australian Stibium Resources bought a 76.6 percent stake in Village Main Reef's Cons Murch antimony/gold mine for R150 million ($15 million). The remaining 23.4 percent is in the Cons Murch employee trust. Stibium Resources will assume 49 percent ownership and management control of Cons Murch as part of the staged acquisition of the 76.6 percent of the asset.

Stibium Resources will make an initial payment of $8.4 million to Village Main Reef upon getting regulatory and shareholder approval. The remaining $6.6 million will be paid after the Minister of Mineral Resources has given the green light on the transaction, in accordance with the Minerals and Petroleum Resources Development Act (MPRDA). In terms of the sale agreement, Stibium Resources will also fund the first $2 million rehabilitation liability shortfall and Village Main Reef will pay the balance. Village Main Reef expects

the sale of the mine to be put to shareholder vote by the end of September 2014. Stibium plans to start improving plant infrastructure, upgrading the trackless underground fleet and putting capital into underground development to make more stope faces available at Cons Murch Mine as soon as it takes charge of operations.

OUTLOOK

Demand is forecast to strengthen in 2014 and beyond, due to the anticipated improvement in the global economy. According to Metal-Pages, producers are optimistic about the future prospects of the antimony market and prices of antimony are expected to pick up in 2014. Producers' bullish outlook is premised on the view that the market is likely to fall into a significant deficit due to rising consumption of fire-retardants coupled with the dwindling Chinese resources. According to Metal-Pages, global demand for antimony is projected to rise to about 250 kt by 2016. According to a study conducted by the US-based research firm, Fredonia Group, global demand for flame retardant additives is forecast to grow by 6.1 percent per annum, reaching 2.2 Mt tones by 2014.

Roskill's report predicts metallurgical markets to increase by 2 percent per annum fuelled by increasing use of lead alloys in construction applications in emerging economies. The report also expects non-metallurgical markets for antimony to rise by approximately 4 percent per annum through to 2016, mainly driven by higher growth in flame retardants, plastic catalysts and heat stabilisers. However, lower growth in ceramics and other uses is anticipated. New uses of antimony in solar panels and memory devices are expected to support the growth of global demand for antimony in the future. These developments bode well for South Africa's antimony industry as they have the potential to extend Cons Murch's life of mine. South Africa's production of antimony is expected to increase in 2014, as production costs are reduced and efficiencies improved during the year as the result of the new technology employed for extraction of the mineral.

Freedonia Group predicts global demand for flame retardants additives to rise by 6.1 percent to 2.2 Mt in 2014. However, prices could be suppressed due to an exponential increase in the price of antimony during the last 10 years, prompting consumers to switch to substitutes in a bid to cut costs.

National stockpiling and environmental inspection are expected to continue to restrict output of antimony in China. Metal-Pages anticipates that long-term demand for antimony could rise as nanocrystal technology has the potential to allow antimony metal to be used in the next generation of sodium-ion batteries in smartphones, laptops and other portable electronic devices. China is contemplating introducing compulsory standards for flame retardants which could boost world consumption of antimony and its price, going forward. World consumption of antimony in flame retardants is expected to grow significantly in the next couple of years as consumers increasingly demand safer products across the globe. Antimony prices are expected to stabilise in 2014 and beyond. Global antimony demand hinges on the developments in Chinese consumption on account benign demand in other countries.

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COBALT

Lerato Ramane

SUPPLY - DEMAND

World cobalt reserves amounted to 7.2 Mt in 2013 (Table 45). The Democratic Republic of Congo (DRC) at 47.2 percent, still had the world's largest cobalt reserves, followed by Australia's 13.9 percent and Cuba's 6.9 percent. Globally, 57 percent of cobalt was derived from nickel mining, 37 percent sourced from copper mining while; the balance was sourced from primary cobalt operations and other sources.

World cobalt mine production rose by 10.1 percent to 120 kt in 2013, compared with 109 kt in 2012 (Table 45), due to additional production from new projects and expansions of existing operations. The DRC was the world's largest producer of cobalt accounting for 47.5 percent, followed by Canada's 6.7 percent and China's 5.9 percent. South Africa, at 1.1 percent was ranked 11th.

TABLE 45: WORLD RESERVES AND MINE PRODUCTION OF COBALT, 2013

	RESERVES			MINE PRODUCTION		
COUNTRY	kt	Percent	Rank	t	Percent	Rank
Australia	1 000	13.9	2	6 500	5.4	5
Brazil	89	1.2	8	3 900	3.3	8
Canada	260	3.6	5	8 000	6.7	2
China	80	1.1	9	7 100	5.9	3
Cuba	500	6.9	3	4 300	3.6	7
DRC	3 400	47.2	1	57 000	47.5	1
Morocco	18	0.3	10	2 100	1.8	10
New Caledonia	200	2.8	7	3 300	2.8	9
Russia	250	3.5	6	6 700	5.6	4
South Africa[±]	*	*	*	1 294	1.1	11
Zambia	270	3.8	4	5 200	4.3	6
Other	1 133			14 606		
TOTAL 2013	**7 200**			**120 000**		
2012	**7 500**			**109 000**		

Sources: USGS, January 2014

[±]DMR, Mineral Economics Directorate (mine production)

[*]unknown

South Africa's cobalt is derived from nickel and platinum-group metals (PGMs) mining. Cobalt production increased by 17.4 percent to 1 294 t in 2013, compared with 1 102 t in 2012 due to improved plant recoveries and efficiencies (Table 46).

TABLE 46: SOUTH AFRICA'S LOCAL AND EXPORT SALES OF COBALT, 2004-2013

YEAR	PRODUCTION	LOCAL SALES			EXPORT SALES		
		Mass	Value (FOR)		Mass	Value (FOR)	
	t	t	R' 000	R/t	t	R' 000	R/t
2004	309	19	5 671	306	310	83 232	269
2005	268	33	4 439	136	241	51 615	214
2006	267	44	8 882	200	221	46 975	213
2007	307	30	10 578	350	249	99 539	400
2008	244	43	26 231	608	261	167 774	642
2009	238	75	20 435	272	183	63 181	346
2010	840	58	16 110	278	493	135 424	275
2011	862	43	10 789	251	450	114 457	254
2012	1 102	33	7 439	227	614	147 320	240
2013	1 294	51	11 868	233	740	193 226	261

Source: Directorate Mineral Economics, DMR

In 2013, world refined cobalt production increased by 11.4 percent to 85.9 kt compared with 77.1kt 2012, largely due to new capacity from Ambatovy production from Madagascar and a resurgent production from China (Table 47). Higher production was recorded in Belgium (28.9 percent), China (21.1 percent), South Africa (17.4 percent) and Norway (14.5 percent). China, at 42.0 percent, remained the largest global refined cobalt producer, followed by Finland's 11.7 percent and Canada's 6.5 percent. The increase in Chinese production indicated the recovery of that market following two years of weaker growth. Africa, collectively contributed 14.8 percent to global output.

TABLE 47: REFINED COBALT PRODUCTION BY COUNTRY, 2012 AND 2013

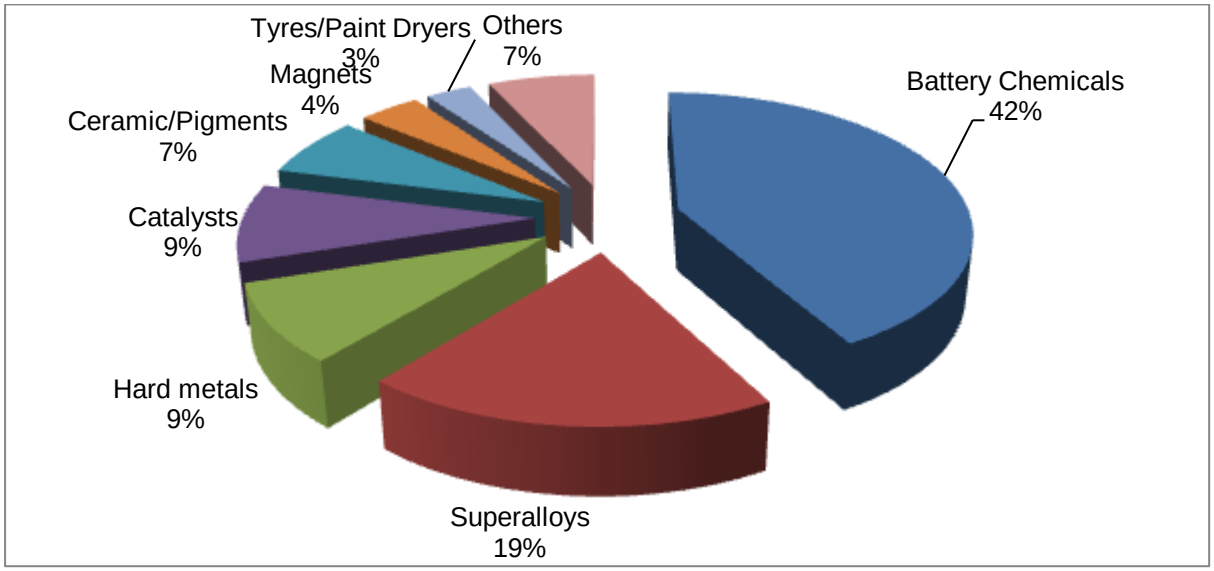
COUNTRY	2012		2013		
	t		t		Rank
Australia	4 769	6.2	4 981	5.8	6
Belgium	4 200	5.4	5 415	6.3	4
Canada	5 682	7.4	5 559	6.5	3
China	29 784	38.6	36 062	42.0	1
D R of Congo	2 999	3.9	3 000	3.5	8
Finland	10 547	13.7	10 010	11.7	2
Japan	2 542	3.3	2 747	3.2	9
Madagascar	0	0.0	2 083	2.4	11
Morocco	1 214	1.6	1 353	1.6	12
Norway	2 969	3.9	3 400	4.0	7
Russia	2 186	2.8	2 368	2.8	10
South Africa*	1 102	1.4	1 294	1.5	13
Zambia	5 665	7.3	5 000	5.8	5
Other	3 432	4.5	2 632	3.1	
TOTAL	**77 091**	**100.0**	**85 904**	**100.0**	

Source: Cobalt News April 2014

**Mineral Economics Directorate, DMR*

World cobalt demand increased by 4.4 percent in 2013; reaching an estimated 77.8 Mt, despite the restrained levels seen in previous years. Growth from the rechargeable battery market was still the biggest driver. At 42 percent, batteries were the largest consumer of cobalt, followed by superalloys (19 percent), hard metals (9 percent), catalysts (9 percent) and others (21 percent) (Figure 37).

FIGURE 37: COBALT CONSUMPTION BY END USE, 2013



Source: Darton Commodities Ltd

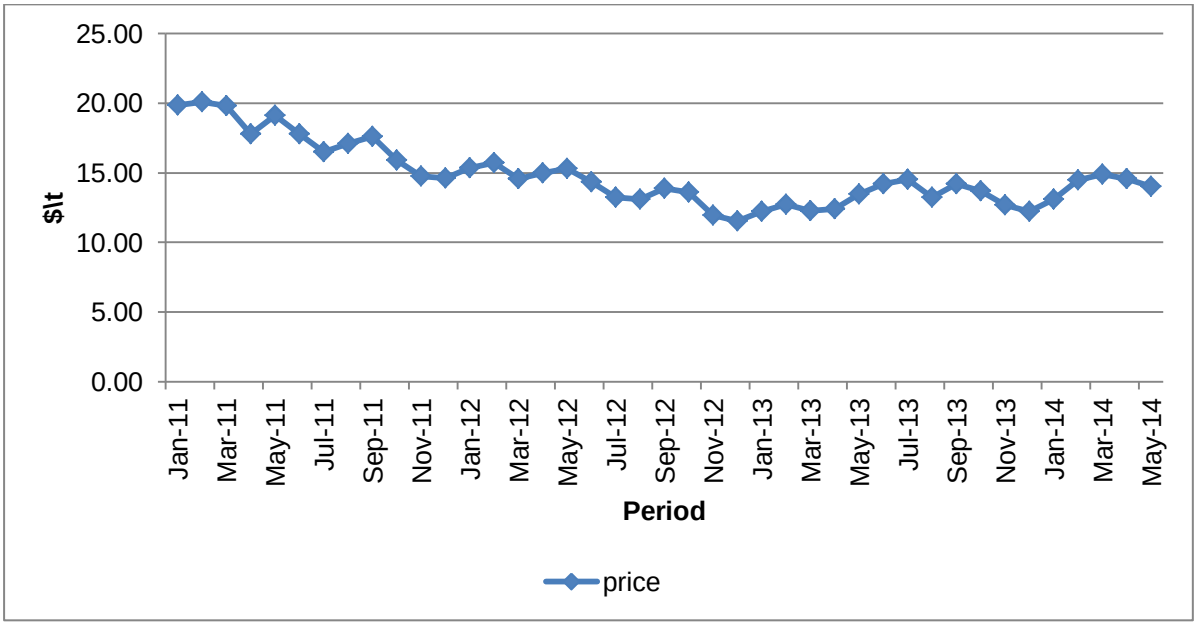
Approximately 94 percent of cobalt output in South Africa is exported, while only 6 percent is consumed locally. However, local sales volumes rose by 55.5 percent to 51 t, compared with 33 t in 2012, due to stronger demand from consuming markets (Table 46). Domestically, Cobalt is used for the manufacture of alloys in the aircraft industry and in batteries. Sasol also uses cobalt as a catalyst for its gas-to-liquid process.

PRICES

Recently, global cobalt production has been higher than consumption, resulting in a market surplus and a downward pressure on prices. The cobalt price averaged $17.58/lb in 2011 and continued to fall reaching an average of $13.97/lb in 2012. Prices improved slightly, reaching $14.52/lb in July 2013; but declined to $12.24/lb by December of the same year (Figure 38).

A number of key factors contributed to the persistent weakness seen in cobalt prices in 2013. Demand weakness, which kept the market in excess for three consecutive years undermined market performance. The substitution of cobalt metal by intermediates or salts in the battery sector exacerbated the situation further. Prices, which declined to $13.11/lb in January, reached $14.91/lb by March but dropped to $14.02/lb May 2014.09.15

FIGURE 38: COBALT PRICE, 2011 – 2014



Sources: Metal Bulletin

Despite the falling global cobalt prices, South Africa's local and export unit sales values increased by 2.6 and 8.8 percent in 2013 to R233/t and R261/t, respectively. As a result , the local and export sales revenues increased by 59.5 and 31.2 percent to R11.87 million and R193.2 million in 2013, respectively, owing to higher sales volumes and unit sales values.

DEVELOPMENTS

Of the additional supply seen in the cobalt industry, approximately 3 900 kt was produced from new projects. The combined production from Madagascar's Ambatovy mine, Papua New Guinea's Ramu nickel mine and Vale New Caledonia projects increased output as all three operations saw their first full year of production during 2013.

Going forward other significant projects includes the following projects: Telferscot Resources Inc's Kolwezi project located in Katanga Province in the Democratic Republic of Congo (DRC). It is located in an area containing many active and past-productive copper-cobalt deposits, including some of the largest and highest-grade deposits ever discovered. The Kolwezi Project includes four exploration permits covering approximately 149 km^2. Telferscot is actively pursuing additional projects in the Kolwezi area both by way of joint venture and through direct acquisition from the government of the DRC.

Idaho Cobalt Project (ICP) is 100 percent owned by Formation Metals located in the state of Idaho in the USA and aims to produce 1 500 Mt p/a of cobalt. This project comprises of the development of a mine and construction of a concentrator and an electro winning plant. Construction commenced in early 2010 and since then, construction activities have continued at the mine site and the refining complex. It managed to keep critical construction activities going during 2012 utilizing cash on hand, meanwhile continuing to pursue and raise additional capital to resume construction at full scale.

However, in May 2013, Formation Metals announced a decision to put this project on hold until market conditions improve and further mine financing has been secured. Meanwhile Formation Metals is focusing its activities on maintaining the project in good standing to ensure the retention of all developments and mining permits. In order to raise additional capital, Formation Metals concluded the sale of its primary asset, the Sunshine Precious Metals Refinery in September 2013, for $12 million. In combination with additional austerity measures Formation aims to preserve cash so that it can revisit its flagship project once market conditions improve and cobalt prices recover. On that note, Formation Metals' bankable feasibility study was based on a cobalt price of more than $20/lb and, given the challenging market conditions to attract funding for a primary cobalt project; commercial production from Idaho Cobalt Project is not expected to come on stream in the short term.

The Boleo project is an advanced stage copper/cobalt/zinc/manganese development located in Baja California Sur, Mexico. Baja Mining currently owns a 70 percent stake in the mine. The remaining stake is held by a Korean syndicate of industrial companies including Korea Resources Corporation, LS-Nikko Copper, Hyundai Hysco, SK Networks and Iljin Materials. The project is currently in the construction phase which started in June 2011. Production was projected to begin by March 2014, but this has been put back to the second half of the same year, partly due to labour shortages. The mine has an estimated life of 23 years and the project is now estimated to cost up to US$1.79 billion.

OUTLOOK

The cobalt market has been oversupplied since late 2009 and remains in surplus. According to Roskill, this situation could continue throughout 2014 and 2015 as the ramping up of new projects and expansions continues. Despite the potential for further new supply sources and expansion projects coming on stream, demand is forecast to grow at a higher rate than supply. However, it could take several years to bring the market back to equilibrium. This is likely to keep prices in check over the medium term.

Future demand for cobalt is expected to grow at more than 6 percent per annum until 2018; supported by strong growth in China, the world's biggest refined cobalt producer. As a result, cobalt demand could reach over 110 kt in that period. Demand for cobalt in battery applications is expected to drive consumption growth and is forecast to grow at 9.2 percent per year.

Prices are expected to continue trending downwards in 2014 with the ramping up of new projects in Madagascar and the Philippines, bringing additional material into the market and compounding the current oversupply situation. Thereafter, prices are expected to rise year-on-year due to high grade cobalt prices increasing at roughly 3.6 percent per annum to 2018.

South Africa's production of cobalt is expected to continue to rise, due to improved performances at the Nkomati mine as well as the recovery in the platinum industry after 5 months of labour disruptions in the first half of 2014. Exports of cobalt from South Africa have been rising since 2010 and will continue to grow as demand eclipses supply in major consuming countries.

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COPPER

Silungiselelo Mnyameni

SUPPLY AND DEMAND

In 2013, global copper reserves were estimated at 680 Mt. Chile, at 27.9 percent, held the largest reserves, followed by Australia (12.6 percent), Peru (11.2 percent) and the USA (5.7 percent). South Africa accounted for 1.6 percent of world reserves and was ranked 11th (Table 48). World copper mine production increased by 7.1 percent to 18.2 Mt in 2013 compared with 17 Mt in 2012, according to World Bureau of Metal Statistics (WBMS). The recovery in production levels after three years of relative stagnation was a result of new mine projects deferred during the financial crisis coming on stream. Chile continued to be the world's largest copper mine producer, contributing 5.8 Mt to total output, followed by China at 1.7 Mt and Peru at 1.4 Mt. In the continent, Zambia, Democratic Republic of Congo and South Africa were the largest producers of copper collectively contributing 1.7 Mt.

TABLE 48: WORLD RESERVES, MINE PRODUCTION AND EXPORTS OF COPPER IN 2013

COUNTRY	RESERVES			PRODUCTION					
	Mt	%	Rank	kt	%	Rank	kt	%	Rank
Australia	86	12.6	2	990	5.4	5	404	4.8	3
Canada	10	1.5	12	632	3.5	9	171	2	9
Chile	190	27.9	1	5 776	31.6	1	2 586	30.6	1
China	30	4.4	5	1 707	9.3	2	293	3.5	7
DRC	20	2.9	9	812	4.4	7	***	***	***
Indonesia	28	4.1	7	485	2.7	11	71	0.8	11
Kazakhstan	7	1	13	538	2.9	10	371	4.4	5
Peru	76	11.2	3	1 376	7.5	3	288	3.4	8
Poland	26	3.8	8	429	2.3	12	344	4.1	6
Russia	30	4.4	5	720	3.9	8	390	4.6	4
South Africa	11	1.6	11	81	0.4	13	26	0.3	12
USA	39	5.7	4	1 255	6.9	4	116	1.4	10
Zambia	20	2.9	9	864	4.7	6	735	8.7	2
Other	107	15.7	-	2 629	14.4	-	2 660	31.5	
TOTAL 2013	680	100		18 294	100		8 455	100	
2012	680	-	-	17 085	-	-	8 680	-	-

Sources: USGS, February 2014

WBMS, 2014

Directorate Mineral Economics: Copper concentrate

*Notes: *** Not available*

South Africa's copper production increased by 15.7 percent to 81 kt in 2013 compared with 2012 (Table 49). This was mainly due to improved operational capacity at Palabora Mining Company (PMC), which accounts for more than 60 percent of the country's output, after refurbishment during the second half of 2012. Production from Platinum Group Metals (PMGs) mines remained at 25.6 kt in 2013. Local consumption increased by 3.5 percent to 57 kt compared with 2012, while export sales decreased by 2.3 percent to 26 kt. About 50 percent of copper rod sold locally is converted into copper cables, 26 percent consumed is domestic wiring while about 9 percent is consumed in the automobile industry. The remainder of local copper output is used in the transformer, telecommunication, cord sets transportation and other segments.

TABLE 49: SOUTH AFRICA'S PRODUCTION, LOCAL SALES AND EXPORT OF COPPER 2004-2013

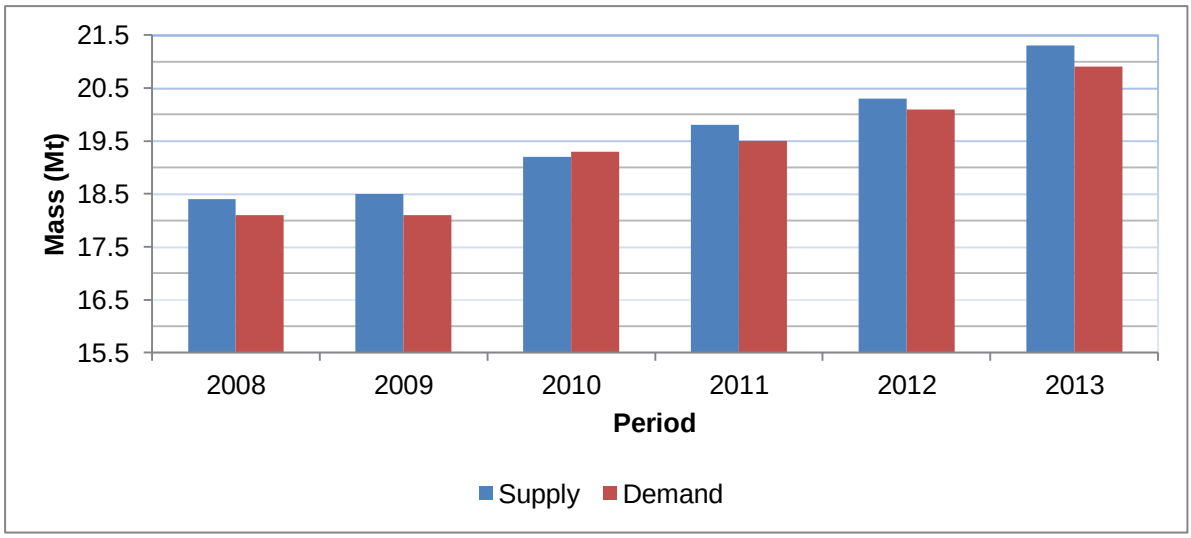
YEAR	PRODUCTION	LOCAL SALES			EXPORT SALES		
	Mass	Mass	Value (FOR)		Mass	Value (FOR)	
	kt	kt	R'000	R/t	kt	R'000	R/t
2003	121	76	1 073 734	14 114	46	567 502	12 229
2004	103	84	1 542 829	18 381	29	583 293	16 495
2005	99	82	1 926 378	23 496	30	656 721	21 882
2006	110	84	3 892 035	46 452	24	1 064 092	43 598
2007	113	77	4 025 725	52 242	36	1 772 305	49 683
2008	97	68	4 120 564	60 168	33	1 507 356	45 860
2009	93	68	2 835 737	41 695	27	1 022 782	38 152
2010	84	57	3 160 029	55 750	25	1 209 297	48 718
2011	89	60	3 937 749	65 168	26	1 495 100	58 581
2012	70	55	3 575 956	65 454	27	1 598 770	59 562
2013	81	57	4 090 333	72 358	26	1 760 669	67 104

Sources: Directorate Mineral Economics, 2013

Notes: Exports include cathode. Blister and concentrates. The mass shown is that of metal and contained metal

Global refined copper production increased by 4.9 percent to 21.3 Mt compared with 20.3 Mt in 2012 due to the restoration of production that was curtailed in 2012, emanating from maintenance and operational shutdown in some regions. Additional output was attributed to increases in DRC (36.4 percent), China (16 percent) and Peru (16 percent), which offset the declines in Chile (5.1 percent), India (10.2 percent) and Spain (16.9 percent). Regionally, Africa's refined copper production rose by 15.9 percent while Asia and Oceania recorded increases of 9 percent and 3 percent of output, respectively. Europe's output decreased by 4.1 percent, due to economic slowdown from industrial sectors.

FIGURE 39: GLOBAL REFINED COPPER PRODUCTION AND CONSUMPTION, 2008 – 2013



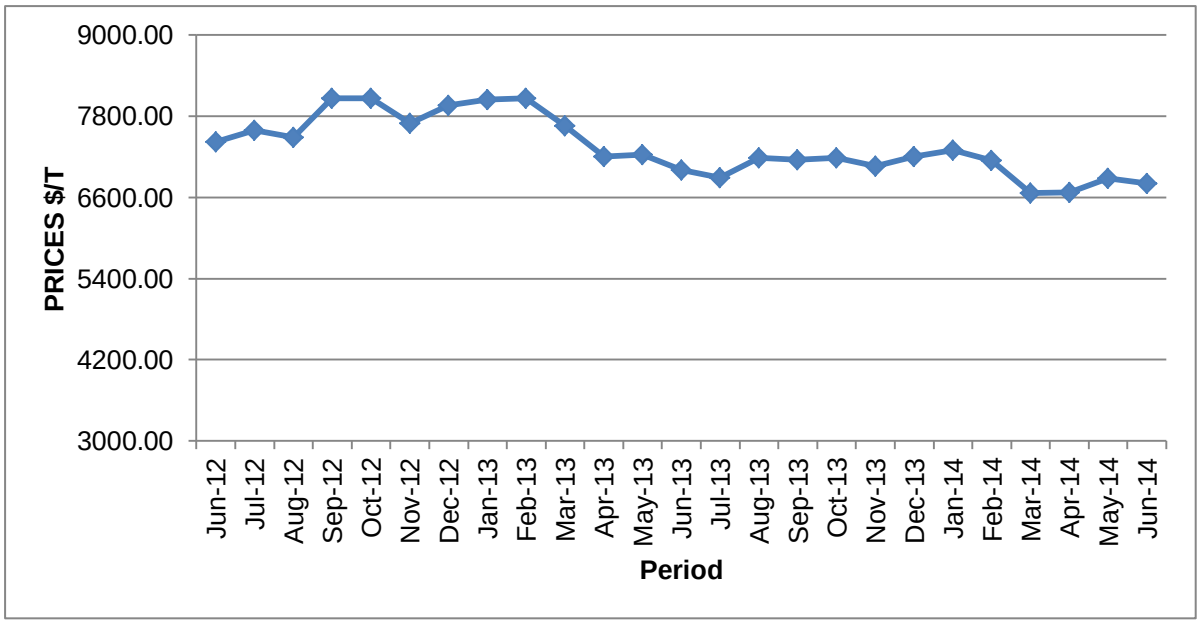
Source: World Bureau of Metal Statistics, 2014

Demand for copper rose by 4.3 percent to 21.0 Mt in 2013, due to continued investment in power and rail infrastructure. Copper consumption was dominated by China and the USA, accounting for 46.9 percent and 8.8 percent of world usage, respectively. China's copper consumption rose by 10.5 percent to 9.8 Mt while the USA's demand grew by 4.6 percent to 1.8 Mt in 2013. China's strong growth was from power generation and distribution industry as well as rail network, while growth from the USA was attributed to automobile industry. Regionally, consumption rose by 6.8 percent to 14.1 Mt in Asia and by 3.6 percent to 2.9 Mt in the Americas, while Africa and Oceania's usage declined by 20.9 percent to 193 kt and 29.2 percent to 80 kt, correspondingly. European usage decreased by 1.6 percent to 3.5 Mt as a result of slow recovery of the economy from the Euro-zone sovereign debt crisis.

PRICES

Copper prices slumped in the first quarter of 2013 and continued to trade within a bound range throughout the year. Annual London Metal Exchange (LME) copper cash settlement prices on average decreased by 7.8 percent to $7 326/t compared with 2012 (Fig. 2). This was due to the slowdown of the China's industrial activity as copper prices are often influenced by China's economic performance as the world's biggest consumer. The depressed copper market pulled prices down to a low level of $6 893 /t in June 2013, while the highest price on average was recorded in February 2013, at $8 070/t.

FIGURE 40: LME CASH SETLEMENT COPPER PRICES (MONTHLY AVERAGE), 2012-2014



Sources: DMR, Directorate Mineral Economics
London Metal Exchange (LME)

Local unit values increased by 10.5 percent to R72 358/t, while export unit values went up by 13 percent to R65 454/t (Table 49). As a result, local revenues increased by 14.4 percent to R4.09 billion, while export sales revenues went up by 11.5 percent to R1.76 billion owing to higher prices despite lower export volumes.

EMPLOYMENT

Total employment in South Africa's primary copper mines decreased by 0.4 percent to 3 474 employees compared with 3 487 in 2012, as a result of a combination of higher costs pressure and lower global copper prices (Table 50).

TABLE 50: EMPLOYMENT AND REMUNERATION IN SOUTH AFRICA'S COPPER MINES IN 2013

YEAR	EMPLOYEE	REMUNERATION		PRODUCTION
	Number	R'000	Average Earning R	Labour Productivity t
2009	3 325	726 490	218 494	28
2010	3 540	839 712	237 207	24
2011	3 638	1 058 697	291 011	24
2012	3 487	1 163 107	333 555	20
2013	3 474	1 243 166	357 849	23

Sources: DMR, Directorate Mineral Economics

Total remunerations increased by 6.9 percent to R1.24 billion due to an increase in average earnings per person. Average earnings increased by 7.3 percent in 2013 indicating an improvement of salary levels. Employee's productivity rose by 15 percent to 23 t/employee compared with 20 t/employee recorded in 2012 and to R357 849 per employee on average. Female employees rose by 25.7 percent, increasing to 352 from 280 employees in 2012.

DEVELOPMENTS

Palabora Copper (Pty) Limited, a subsidiary of Palabora Mining Company, located in the town of Phalaborwa in Limpopo Province, South Africa, completed a bankable feasibility study on a block-cave development project known as Lift ll project in May 2014. The project is expected to extend the life of mine by another 20 years to 2033 at expected capital investment of R9.3 billion. Proceeding to full execution with the Lift ll project awaits the approval by the new shareholders who acquired the business in August 2013. Pending the shareholders decision, Lift ll project is one of South Africa's largest mining development projects.

In the region, Metorex Limited, a subsidiary of Jinchuan Group, completed a feasibility study in 2012 to determine the viability of the Kinsendi copper project, located in the border town of Kasumbalesa, in the Democratic Republic of Congo (DRC). The $307.1 million Kinsendi projects ranks as one of the world's highest grade copper deposits with estimated reserves of 20.7 Mt at 5.6 percent copper. The project is estimated to produce approximately 24 kt of copper per annum for a period of 10 years. Metorex obtained the approvals required by the DRC Mining Law regarding the project's environmental impact assessment and associated management plans. Construction work commenced in April 2013, while production is expected in the first quarter of 2015.

Also, in 2013, Metorex completed a pre-feasibility study on the Musonoi project, a copper and cobalt green-field project in the mining town of Kolwezi in DRC. The study concluded that an underground mine producing 1 000 kt of ore per annum with a life of more than 20 years could be established on the property. The project's reserves were estimated at 31.7 Mt at a grade of 2.8 percent of copper and 0.9 percent cobalt. Environmental Impact Assessment (EIP) as well as Environmental Management Plan (EAP) are due to be submitted to DRC authorities for approval in 2014.

In Zambia, Grindrod Limited, a subsidiary of Grindrod Mauritius, signed an agreement with a Zambian company Northwest Rail (NWR) to build, operate and maintain a new 590 km railway from Chingola in the heart of the old Zambian Copper-belt to the Angolan border. The project plan consists of two phases. Phase I extending from Chingola to the Kansanshi, Lumwana and Kalumbila mines (290 km of track), and Phase II to connect with the Benguela line on the Zambian-Angola border near Jimbe, Angola. The new mine development in the central and western copper-belt area of Zambia will need to transport ore up to 300 km for processing. Due to poor road infrastructure, transport costs become prohibitive. The rail transport solution will be both economic and less damaging to the local environment. The capital cost for

the project is estimated at $989 million. Construction is expected to commence during 2014, subject to the conclusion of the bankable feasibility study, which is currently underway.

OUTLOOK

World copper mine production strong growth is expected to continue through to 2015, after a 7 percent growth was realised in 2013, owing to additional output from mine projects deferred during the financial crisis and expected new capacity. World mine production is expected to grow by 5 percent in 2014 and a further 7 percent in 2015 to 18.9 Mt and 20.3 Mt, respectively, according to the International Copper Study Group (ICSG).

In 2014, world refined copper production is expected to increase by 5 percent to 22.1 Mt and by a further 4.1 percent to 23.1 Mt in 2015. This will be mainly due to the expanded capacity at electrolytic plants in China and expanded solvent extraction and electro winning (SX-EW) capacity in Africa. Demand for refined copper is expected to grow by 5 percent to 22.4 Mt in 2014. Demand from China is expected to increase by 7 percent due to the anticipated recovery of the industrial sector. The market is expected to be in excess of about 400 kt of refined copper.

Copper prices are expected to be volatile in 2014 as a result of uncertainty about the China's economic performance. LME warehouses, particularly in China, have been piling up while the industrial activity is muted. Analysts expect prices to be relatively lower, hitting an annual average below $7 000 /t mark in 2014, while falling prices are likely to trigger the selling of stock, which might push prices further down.

More than 60 percent of the total copper produced in South Africa is sold locally. Demand from electricity industry, the largest consumer of copper, is forecast to increase due to the ongoing infrastructure development. The Lift ll project could help increase the country's copper output pushing it higher in the production rankings.

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LEAD

Silungiselelo Mnyameni

SUPPLY DEMAND

Deposits of lead ore are always associated with zinc and to lesser extent silver and copper minerals. More than 20 occurrences of lead deposits have been reported in South Africa, but these are mainly small and economically insignificant. The most significant occurrence is on the farm Aggeneys, in the Namaqualand and Bushman-land regions in the Northern Cape Province, where Black Mounting Mine is currently operating. The Black Mountain Mine comprises of three ore bodies, Broken Hill, Gamsberg and Swartberg. In 2013, global lead reserves were estimated at 110 Mt. Australia, at 32.7 percent, held the largest reserves followed by China (12.7 percent) and Peru (6.8 percent). South Africa accounted for 0.3 percent of the world reserves and was ranked in 11th position (Table 51). World lead mine production increased by 5.4 percent to 5 433 kt in 2013 compared with 5 249 kt in 2012, according to the International Lead and Zinc Study Group (ILZSG). The slight increase was principally due to the reported 21.3 percent increase in Australia, after the re-opening of the Paroo Station mine (previously known as Magellan) as well as expansion at Mount Isa. The global increase was offset by decrease of 65.6 percent in Canada as well as 19.2 percent in South Africa (Table 51). South Africa's production decrease was due to low head grade realised throughout the year at Black Mountain Mine. Africa collectively accounted for 1.6 percent (87 kt) of the world total. South Africa, at 42 kt, had the continent's largest lead mine production followed by Morocco at 23 kt.

TABLE 51: WORLD RESERVES, MINE PRODUCTION AND EXPORTS OF LEAD, 2013

COUNTRY	RESERVES			PRODUCTION			EXPORTS		
	Mt	%	Rank	kt	%	Rank	kt	%	Rank
Australia	36	32.7	1	711	13.1	2	216	12.4	1
Canada	0.5	0.5	8	22	0.4	20	148	8.5	2
China	14	12.7	2	2 850	52.5	1	22	1.3	6
India	3	2.7	6	105	1.9	7	-	-	-
Ireland	0.6	0.5	8	43	0.8	12	-	-	-
Mexico	6	5.5	4	253	4.7	5	140	8.1	3
Morocco	0.1	0.1	10	23	0.4	18	10	0.6	8
Peru	7.5	6.8	3	267	4.9	4	84	4.8	4
South Africa	0.3	0.3	9	42	0.8	13	4	0.2	9
Sweden	1	0.9	7	60	1.1	10	65	3.7	5
USA	5	4.5	5	340	6.3	3	21	1.2	7
Other	36	32.7	-	717	13.2	-	1 027	59.1	-
TOTAL	110	100	-	5 433	100	-	1 737	100	-

Sources: ILZSG, October 2014
USGS, Mineral Commodity Summaries February 2014
DMR, Directorate Mineral Economics

Note: * World Bureau of Metal Statistics, Exports of Refined Lead
X Not specified but estimate have been included in other countries

South Africa's lead mine production decreased by 19.2 percent to 42 kt in 2013 compared with 52 kt in 2012. The decrease in production was due to low head grade realised throughout the year. As a consequence of the decrease in production, export sales decreased by 29.6 percent to 38 kt in 2013 compared with 2012 (Table 52). South Africa exports all its lead mine production to China, France and Switzerland.

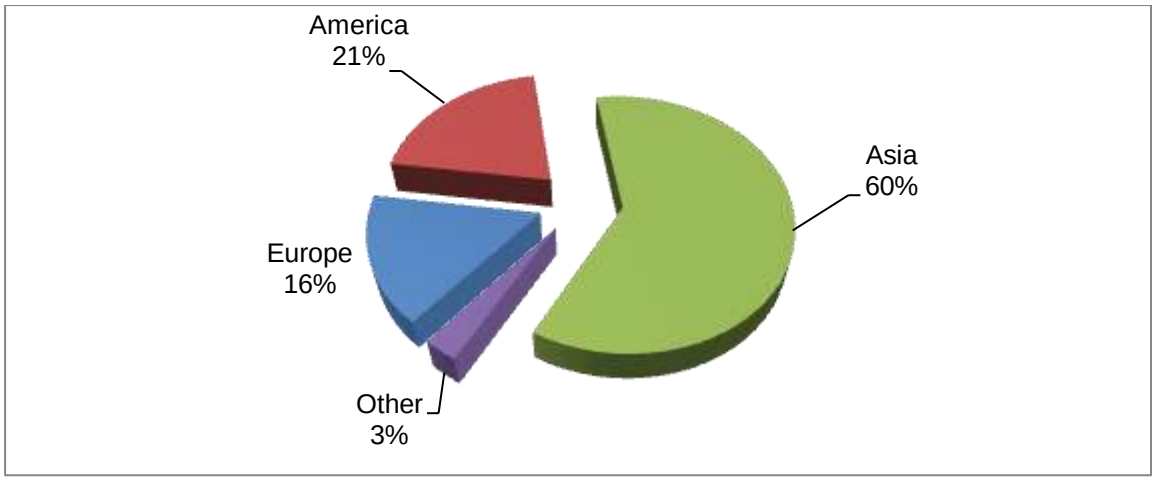
TABLE 52: SOUTH AFRICA'S PRODUCTION, LOCAL SALES AND EXPORTS OF LEAD 2004-2013

YEAR	PRODUCTION	LOCAL SALES			EXPORT SALES		
	Mass	Mass	Value (FOR)		Mass	Value (FOB)	
	kt	t	R'000	R/t	kt	R'000	R/t
2004	37	-	-	-	31	120 599	3 895
2005	42	-	-	-	47	211 458	4 497
2006	48	-	-	-	46	313 232	6 809
2007	42	-	-	-	37	492 678	13 315
2008	46	-	-	-	50	612 042	12 180
2009	49	-	-	-	44	482 903	11 002
2010	51	-	-	-	53	696 738	13 123
2011	54	-	-	-	52	762 929	14 569
2012	52	-	-	-	54	811 498	15 132
2013	42	-	-	-	38	683 219	18 066

Source: DMR, Directorate Mineral Economics

Global refined lead production increased by 5.6 percent to 11 121 kt compared with 10 530 kt in 2012. The global increase was due to 30.4 percent increase from Italy after the re-opening of the Porto Vesme lead plant in February 2013. As a region, Asia dominated lead metal production contributing 60 percent to total output followed by America's 21 percent and 16 percent from Europe (Fig. 1). Africa's refined lead production decreased by 8.1 percent to 91 kt compared with 99 kt in 2012, accounting for 0.8 percent of the global production. At 52 kt, South Africa was the largest producer in Africa, even though the country's production was 3.7 percent lower compared with 2012.

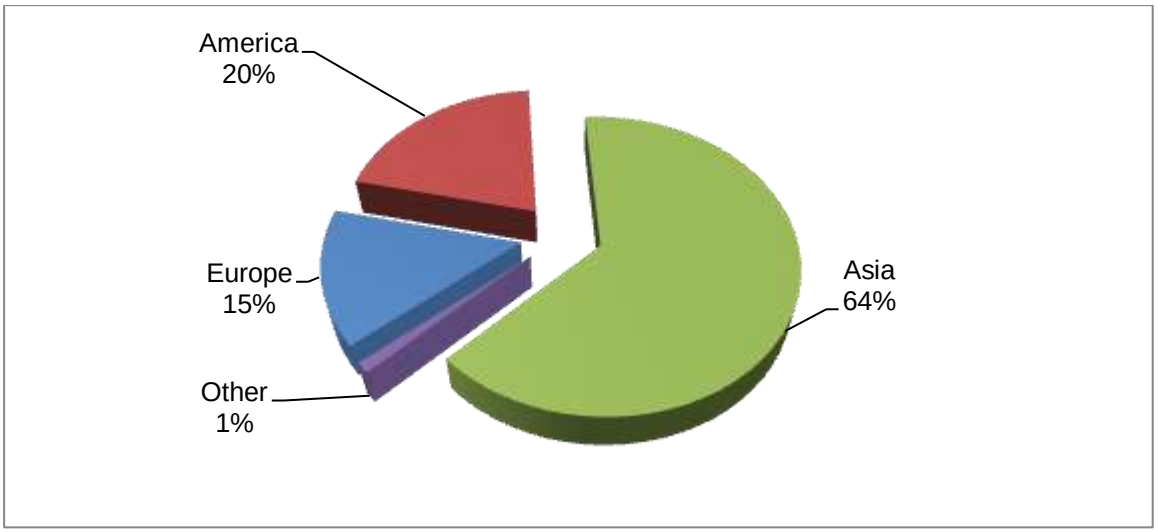
FIGURE 41: REFINED LEAD PRODUCTION IN 2013



Sources: ILZSG, October 2013

World refined lead metal consumption grew by 6.6 percent to 11.16 Mt in 2013 compared with 10.47 Mt in 2012. Asia continued to dominate global lead consumption accounting for 63.2 percent, followed by the America's 20.7 percent and Europe's 15.1 percent (Fig. 2). Africa's consumption declined by 2 percent to 98 kt in 2013 and contributed 0.9 percent to global lead usage. South Africa dominated Africa's consumption accounting for 69.4 percent of the continent's usage, followed by Algeria at11.2 percent. Asia's domination in lead consumption is driven by higher demand from China, accounting for 44.7 percent of total world usage.

FIGURE 42: REGIONAL LEAD METAL CONSUMPTION IN 2013

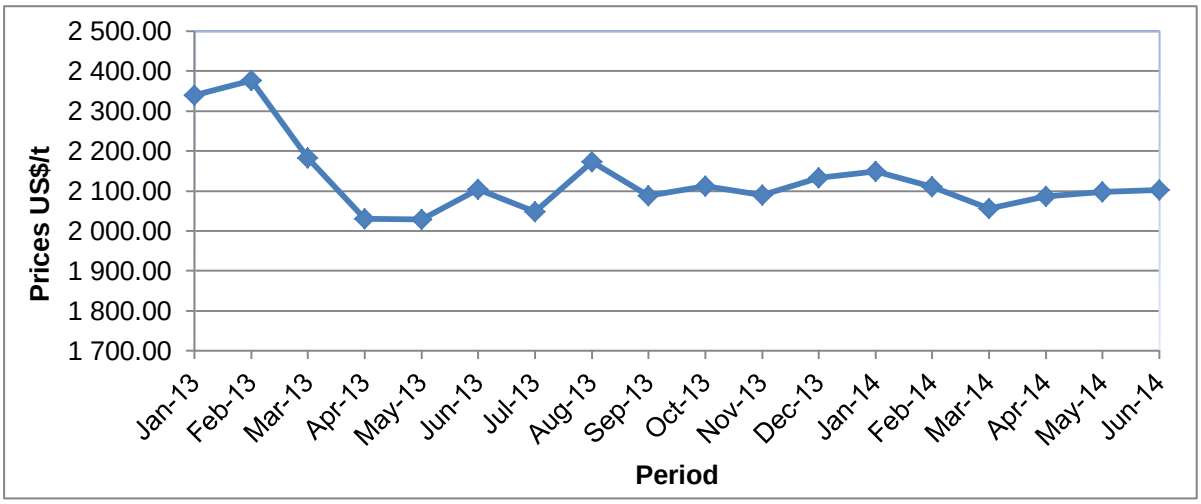


Sources: ILZSG, October 2013
DMR, Mineral Economics Directorate

PRICES

In 2013, the lead market was in balance. The annual London Metal Exchange (LME) lead prices averaged $2 141.14/t, showing a 3.9 percent increase compared with 2012. This increase was mainly due to the recovery of the auto industry in the US, the world's second biggest market for lead. The lowest lead cash settlement on average recorded was in May 2013, at $2 028.29/t while the maximum average price was recorded in February at $2 376.20/t (Fig.3). Prices are expected to continue to rise marginally through 2014/15, as a result of the recovery of the global market demand.

FIGURE 43: LEAD CASH SETTLEMENT PRICES (MONTHLY AVERAGE) IN 2013



Source: DMR, Directorate Mineral Economics
London Metal Exchange

South Africa recorded a 29.6 percent decrease in export sales volumes to 38 kt compared with 2012. Revenues decreased by 15.8 percent to R683 million in 2013 compared with R811 million recorded in 2012, (Table 52). Despite the increase in unit values by 19.4 percent from R15 132 in 2012 to R18 066 recorded in 2013, the fall in production and subsequent export sales volumes resulted in lower revenues generated.

EMPLOYMENT

Total employment in South Africa's lead mines increased by 8.6 percent to 1 437 employees in 2013 compared with a 1 323 employees in 2012. Total remuneration rose by 11.5 percent to R205 million due to an increase in employment and average earnings per person (Table 53).

TABLE 53: EMPLOYMENT AND REMUNERATION IN SOUTH AFRICA'S LEAD MINES IN 2013

YEAR	EMPLOYEE	REMUNERATION		PRODUCTION
	Number	R'000	Average Earnings R	Labour Productivity t
2009	2 020	144 605	71 587	25
2010	1 893	156 456	82 650	27
2011	1 312	167 552	127 707	40
2012	1 323	184 164	139 212	40
2013	1 437	205 403	142 939	29

Sources: DMR, Directorate Mineral Economics

Average earnings per person increased by 2.7 percent in 2013 indicating an improvement of salary levels. Female employment also rose by 11.4 percent to 196 employees compared to 176 employees in 2012. A decrease in lead mine production due to low head grade realised throughout the year, resulted in a 27.5 percent decrease in employee's productivity to 29 t compared with 40 t per employee in 2012.

DEVELOPMENTS

In South Africa, Black Mountain Mine, a subsidiary of Vedanta Resources plc, located in the Northern Cape Province, completed a technical feasibility study on the Gamsberg project, in September 2013. Owing to the nature and structure of the ore body, the study proved that high levels of production can be achieved economically from an open pit operation, where a projected 360 kt per annum of zinc concentrate at full capacity can be generated. However, continuing with mining activities at a zinc price below $2 500/t will not be viable as per the technical feasibility study that was completed in September 2013. A definitive Feasibility Study on a smaller operation is currently in progress. The projected mine production of 40.5 Mt of ore at 0.5 percent of lead and 6.5 percent of zinc with a ten year life of mine is expected to create between 600 – 1000 full time jobs, 500 – 800 support and services and 2000 – 3000 temporary labour during the construction phase.

In the region, North River Resources plc, has concluded a Mine Development Plan which was undertaken by Snowden Mining Industry Consultants (Snowden) for the production of lead, zinc and silver from the Namib Lead Zinc Project, in Swakopmund, Namibia. The project is centered on the underground Namib Lead Mine which was abandoned in 1992. The project's reserves are estimated at 1.5 Mt at a grade of 2.4 percent of lead and 6.4 percent of zinc. The company announced that it has been granted an environmental clearance by the Namibia Ministry of Environment and Tourism for the environmental assessment and management plan for the proposed recommissioning of its Namib Lead Mine. Production is expected to commence in 2015.

OUTLOOK

Global lead mine production is forecast to increase by 2.4 percent to 5.56 Mt in 2014, following a 5.6 percent rise in 2013, (ILZSG). This is primarily as a consequence of higher output in Australia and China. Australian production has benefited from the re-opening of the Paroo Station mine in March this year which is expected to produce 85 kt per year when in full capacity as well as the expected production from the expansion of Mount Isa's operations.

World refined lead production increased by 4.7 percent in 2013 and is forecast to rise marginally by 1.5 percent to 11.29 Mt in 2014. The main influence in the reduction of output is due to the closure of the United States' Doe Run's Herculaneum primary plant in Missouri at the end of 2013 and the shutdown of Exide Technologies secondary plant in Vernon, California in March 2014. Additional capacity is expected from the Republic of Korea, currently the third world's largest producer of lead metal behind China and the United States. Republic of Korea plan to increase production by 5.7 percent to reach half a million tonnes of lead metal. Additional production will also come on line from Belgium, China, France, India, Italy and Kazakhstan. It is anticipated that global refined lead consumption will increase by 1.4 percent in 2014 to 11.33 Mt, driven mainly by the growth in China where consumption is forecast to increase by 2.5 percent in 2014, due to stronger demand from automotive and e-bike sectors as well as the development of the world largest 4G network. Demand in Europe is forecast to increase by 1.8 percent in 2014, mainly driven by a forecast recovery in Italian demand while the US's consumption is expected to rise by a modest 0.6 percent.

Taking into consideration the projected lead supply and demand trajectories, the global refined lead metal market is expected to be in deficit by 38 kt (ILZSG). Vehicle sales in China and the US have been strong, boosting demand of original equipment lead-acid batteries, while replacement batteries provide a regular source of demand (Sucden Financial). The development of new technologies in recent years is a potential growth area for the future.

LME stock levels have been declining since the second half of 2013 and are currently relatively low while mine supply is constrained. The auto industry looks strong in the US and in China while a recovery in Europe is in progress. These could lead to market tightening, edging prices higher.

South Africa's lead mine production is expected to increase following the re-opening of the Swartberg mine in May 2014. Currently a relatively small mining operation is underway at approximately 20 kt a month. The Swartberg project is expected to increase Black Mountain Mine's life by 10 – 15 years.

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NICKEL

Lerato Ramane & Mathabo Ikaneng

SUPPLY - DEMAND

World nickel reserves were estimated at 74 Mt in 2013. At 24.3 percent, Australia has the world's largest reserves followed by New Caledonia's 16.2 percent and Brazil's 11.4 percent. South Africa accounts for 5 percent of world reserves and is ranked 7th (Table 54).

World nickel mine production rose by 15.7 percent to 2.49 Mt in 2013, compared with 2.1 Mt in 2012, boosted by new nickel projects. Indonesia and the Philippines at 17 percent each were the largest producers of nickel, followed by Russia at 10 percent. South Africa at 5 percent was ranked 11th.

TABLE 54: WORLD NICKEL RESERVES AND MINE PRODUCTION, 2013

COUNTRY	RESERVE			MINE PRODUCTION		
	kt	Percent	Rank	kt	Percent	Rank
Australia	18 000	24.3	1	240	9.6	4
Brazil	8 400	11.4	3	149	6.0	8
Canada	3 300	4.5	8	225	9.0	5
China	3 000	4.1	9	95	3.8	8
Colombia	1 100	1.5	11	75	3.0	9
Cuba	5 500	7.4	5	66	2.7	10
Indonesia	3 900	5.3	6	440	17.7	1
Madagascar	1 600	2.2	10	26	1.0	12
New Caledonia	12 000	16.2	2	145	5.8	7
Phillippines	1 100	1.5	12	440	17.7	2
Russia	6 100	8.2	4	250	10.0	3
South Africa	3 700	5.0	7	*51.2	2.1	11
Other	6 300	8.5		287.8	11.6	
TOTAL	74 000	100		2 490	100	
Australia	70 000			2 100		

Source; USGS, Mineral Commodity Summaries, Nickel

**DMR, Mineral Economics Directorate*

In South Africa, nickel production increased by 11.5 percent to 51.2 kt in 2013, compared with 45.9 kt in 2012, due to enhanced efficiencies and an increase in overall plant recoveries at Nkomati Mine, the only nickel primary producer (Table.55). Local sales volumes declined by 21.2 percent to 8.9 kt, compared with 11.3 kt in 2012, owing to weaker demand from major consumers.

TABLE 55: SOUTH AFRICA'S PRODUCTION AND SALES OF NICKEL, 2003 – 2013

YEAR	PRODUCTION	LOCAL SALES			EXPORT SALES		
	Mass	Mass	Value	Unit Value	Mass	Value	Unit value
	kt	kt	R'000	R/t	Kt	R'000	R/t
2003	40.8	24.0	1 647 992	68 666	16.1	1 081 275	67 160
2004	39.9	25.0	2 139 682	85 587	17.8	1 513 381	85 021
2005	42.4	20.3	1 909 468	94 062	22.2	2 013 553	90 701
2006	41.8	25.6	4 154 730	162 294	18.2	2 620 855	144 003
2007	37.9	15.5	3 724 689	240 303	21.4	5 599 739	261 670
2008	31.7	6.7	1 151 894	171 924	23.5	4 103 711	174 626
2009	34.6	9.0	949 855	105 539	27.3	3 251 353	119 097
2010	40.0	7. 3	1 073 290	147 168	33.1	4 911 462	148 522
2011	43.3	14.5	2 326 440	160 924	26.6	4 075 750	152 962
2012	45.9	11.3	1 539 962	136 182	35.5	4 892 384	137 786
2013	51.2	8.9	1 216 372	136 303	40.5	5 743 349	141 741

Source: DMR, Mineral Economics Directorate

In 2013, global refined nickel production increased by 7.8 percent to 2.00 Mt supported by increased output from Africa and Asia. China, at 35.5 percent, was the world's largest producer of refined nickel, followed by Russia's 13.3 percent and Japan's 8.9 percent. South Africa contribution declined to 1.6 percent of global refined nickel production and was ranked 12th.

TABLE 56: WORLD REFINED NICKEL PRODUCTION, 2013

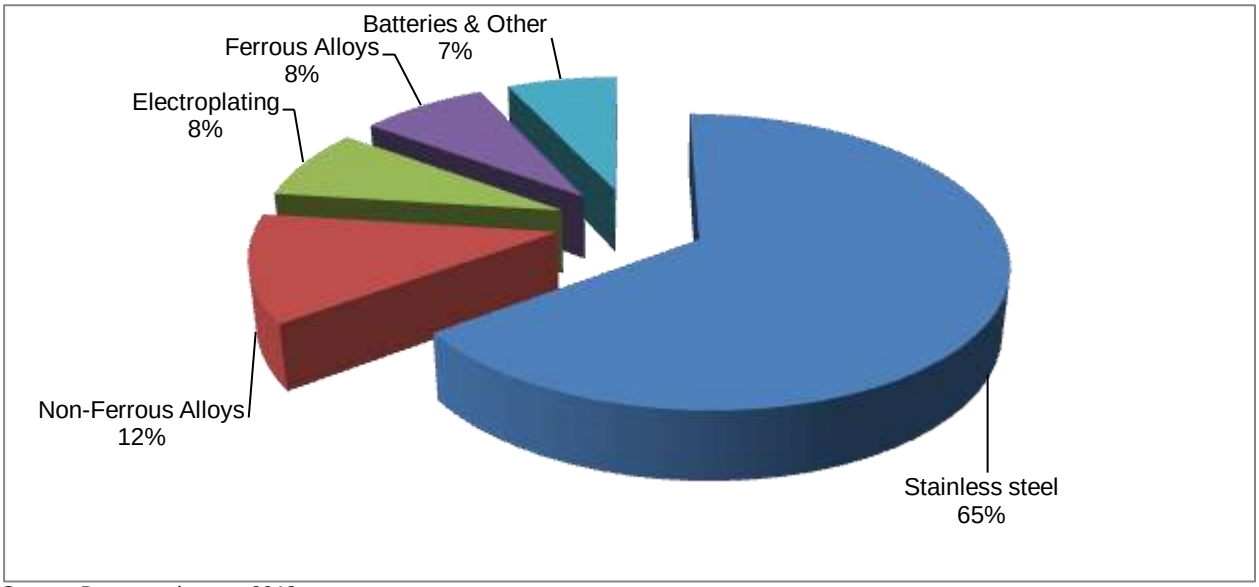
COUNTRY	REFINED PRODUCTION		
	kt	Percent	Rank
Australia	142.0	7.1	4
Brazil	59.1	3.0	7
Canada	137.4	6.9	5
China	710.7	35.5	1
Colombia	49.4	2.5	8
Cuba	28.0	1.4	13
Finland	44.3	2.2	10
Japan	177.8	8.9	3
New Caledonia	48.4	2.4	9
Norway	91.0	4.5	6
Russia	266.4	13.3	2
South Africa	32.3	1.6	12
UK	40.4	2.0	11
Other	174.5	8.7	
TOTAL:2013	2 001.7	100.0	
2012	1 856.2		

Source: World Bureau of Metal Statistics(WBMS) , 2014

The stainless steel industry is the largest consumer of nickel, accounting for 65 percent of the metal global consumption (Fig.1), followed by the manufacture of nonferrous and ferrous alloys respectively accounting for about 12 percent and 8 percent. The swelling of Chinese production of NPI, a cheaper substitute that makes nickel less appealing has affected demand for nickel. The situation is exacerbated by the increased use of stainless steel scrap in Europe.

South Africa produces about 500 kt per annum of stainless steel, of which only 150 kt are converted locally into value-added products while the balance is exported. The catalytic converter industry is the highest consumer of stainless steel in South Africa.

FIGURE 44: THE PRIMARY END-USES FOR NICKEL 2013



Source: Basemetals.com, 2013

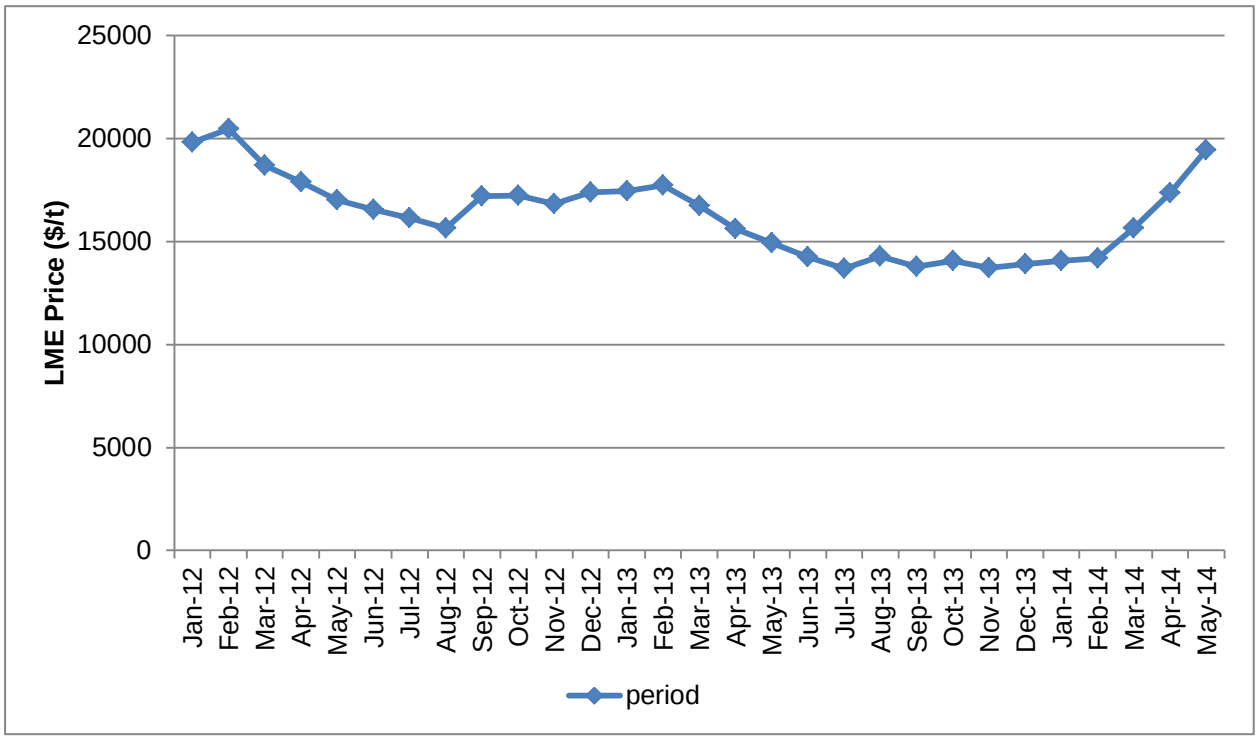
PRICES

The nickel market excess which was experienced throughout 2012 continued into 2013. Consequently, nickel prices depreciated further in 2013 despite the slow global economy recovery, reaching an average of $17 577/t. The downward price trend, which lasted 11 months, was briefly interrupted in February when prices rose to $17 728/t (Fig.2). By November, the cash price had fallen to $13,725/t; the price drop was accompanied by the gradual build up of stocks in LME warehouses to record high levels.

However, in 2014 the nickel market broke out of its five year price slump with a vengeance, with the cash price significantly increasing from $14 076/t in January to $19 434/t in May. This was as a result of increasing supply tightness due to the implementation of the Indonesian export ban on unprocessed ores since January 2014 and increased geopolitical tensions resulting from the Ukranian crisis.

In line with the LME nickel prices, South Africa's local and export unit sales values gradually increased by a respective 0.1 and 2.9 percent to R136 303/t and R141 741/t in 2013 compared with 2012. As a result of lower sales volume, local sales revenue fell by 21 percent to R1.22 billion. However, both export volumes and revenue increased 14.1 and 17.4 percent to 40.5 kt and R5.74 billion, respectively, due to growing demand as the nickel market tightened (Table 55).

FIGURE 45: MONTHLY AVERAGE NICKEL PRICES, 2012- 2014



Source: Metal Bulletin

EMPLOYMENT

In 2013, South Africa's primary nickel industry employed 3 149, 3.2 percent more than in 2012, due to expansions at Nkomati mine. Female employment which rose by 13 percent, accounted for only 15 percent of total employment in this sector. Total remuneration increased by 6.2 percent to R5.71 billion, compared to R5.38 billion in 2012. However, female remuneration only accounted for 12 percent of the total earnings indicative of the levels that women occupy in this sector. Nevertheless per capita earnings rose by 2.9 percent in the same period (Table 57).

TABLE 57: EMPLOYMENT IN THE PRIMARY NICKEL SECTOR

YEAR	TOTAL EMPLOYEES	TOTAL REMUNERATION (R)	PER CAPITA PAYMENTS
2011	2 695	514 292 608	190 832
2012	3 051	538 039 800	176 349
2013	3 149	571 601 731	181 518

Source: DMR, Mineral Economics Directorate

NB: Employment figure excludes sector where nickel is produced as a by-product

RECENT DEVELOPMENTS

In January 2014, Indonesia barred the export of unprocessed nickel ores. This has driven prices upwards, creating opportunities for nickel projects elsewhere in the world to supply countries such as China, which is a significant nickel importer. It is also likely that the ban will stay in place following Indonesia's presidential elections in July 2014, where policies implemented will remain unchanged.

URU Metals owns 100 percent of the Zebediela Nickel Sulphide Project following the completion of the acquisition of shares of Umnex Minerals Limpopo (Pty) Ltd in April 2014. The project is located in the Limpopo Province of South Africa close to the platinum mining town of Mokopane. This is a world-class project with combined inferred and indicated resources of over 1.5 billion tonnes of nickel. A Preliminary Economic Assessment (PEA) was completed in 2012 showing indicated resources of 485.4 Mt averaging 0.245 percent Ni with additional inferred resources of 1 115.1 Mt at a grade of 0.248 percent Ni. On commencement of production, the Zebediela Nickel Sulphide Project will be the 12th biggest nickel mine in the world. The capital investment required for this project is estimated at $708 million. Eventually, if all activities occur as scheduled, URU will apply to convert its exploration licences to mining licences early in 2017, where the development timeframe required for production is expected to be about 24 months.

URU Metals also owns 50 percent of the Burgersfort nickel project, a joint venture between SAN and BSC Resources; it is located in the Mpumalanga Province of South Africa. Previous exploration of this site by Goldfields and Falconbridge identified several shallow disseminated nickel targets and three deeper massive sulphide nickel targets. Three major targets have been identified on the property. Diamond drilling was done at these locations. However, this project has been put on hold pending an arbitration process undertaken by URU partners. Table 58 depicts other developments in the nickel mining industry in other parts of the world.

TABLE 58: GLOBAL NICKEL MAJOR PROJECTS

Project	Country/Region	Operators/Owners	Potential start year	Nickel production (kt/a)	*Project Cost
Koniambo Laterite Nickel Mine	New Caledonia	Xstrata Plc	2014	60	$51 billion
Mindoro Laterite Nickel Project	Philippines	Intex Resources ASA	NA	53	$2.45 billion
Long Harbour Hydrometallurgy Nickel Smelter	Canada	Vale S.A	2014	50	$3.5 billion
Minago Nickel Project	Canada	Victory Nickel Inc.	2014	11	$523 million
Honeymoon Well Nickel Project	Australia	OJSC MMC Norilsk Nickel	2017	40	$1.5 billion
Taganito Hpal Nickel Refinery	Philippines	Sumitomo Metal Mining Co.Ltd	2013	30	$1.4 billion
Feni Haltim Nickel Project	Indonesia	PT Antam Tbk	2015	27	$1.6 billion
Acoje Laterite Nickel Mine	Philippines	DMCI Holdings Inc	2014	24.5	$33.6 million
Fenix Laterite Nickel Operation	Guatemala	Solway Group	2014	24.3	$170 million
Agata Laterite Nickel Project	Philippines	TVI Pacific Inc	NA	17.2	$308 million
Decar Nickel Project	Canada	Cliffs Natural Resources Inc	NA	37.4	C$1,384 million
Dumont Nickel Project	Canada	Royal Nickel Corporation	2016	47	$1.6 billion
Kalgoorlie Laterite Nickel Project	Australia	Heron Resources Limited		23	A$356 million
Marlborough Laterite Nickel Project	Australia	Gladstone Pacific Nickel Ltd	2015	63	$3.5 billion
Mayaniquel Laterite Nickel Mine	Guatemala	Anfield Nickel Corp		36.5	$946 million
Ronnbacken Nickel/PGE Project	Sweden	IGE Resources AB	2015	26	$1.2 billion
Turnagain Nickel Project	Canada	Hard Creek Nickel Corporation	2016	39.5	$1.3 billion
Wingellina Laterite Nickel Deposit	Australia	Metals X Limited	NA	40	$2.3 billion

Source: KPMG, 2013

- *Various sources*

OUTLOOK

Mine production is expected to drop by 2.5 percent in 2014 to 2 093 kt due to declines in mine production from Indonesia which is expected to fall by about 17 percent annually to 368 kt in 2014 as a result of lower demand for Indonesian laterite ore which is used to produce NPI. Notwithstanding projected nickel prices, the Indonesian government's move to ban unprocessed ore exports will further drive production cutbacks.

Global refined nickel production is expected to decrease by 2.8 percent to 1.781 kt in 2014, compared with 2013, owing to the restrictions on refined nickel in response to the projected oversupply and China's elimination of excess capacity to achieve energy saving and environmental goals. China is expected to continue as the world's largest producer of refined nickel in the medium term. However, China's production of NPI, which is produced from lower-grade nickel laterite ore, could decline in the medium term, as reserves start depleting. Prices of NPI are sensitive to prevailing global nickel prices, which are expected to increase due to the banning of exports of unprocessed nickel ore in Indonesia since the beginning of 2014. This could affect Chinese production as ore exports from Indonesia account for 60 percent of its ore imports expected to have solid growth in consumption in 2014 and 2015 if its economy maintains its growth trajectory.

Prices are expected to remain low in 2014 as the market excess. In the medium-term, increased construction activity in emerging Asian economies and a rebound in European economic activity could increase demand and drive refined nickel prices upwards. Moreover, global stocks of nickel are expected to decline as the growth in refined production from Africa and South America is expected to be offset by the increase in demand. Further influencing the outlook is Indonesia's enacted ban on unprocessed ore exports which may limit NPI production.

In South Africa, the production of nickel will continue on a positive trajectory, due to enhanced efficiencies at the Nkomati Nickel Mine. Additionally, it is likely to raise the country's output and the country ranking improves. These projects are likely to also contribute to temporary jobs in their construction phase and permanent jobs during their operational phase. Additionally, more output is expected from the platinum sector as labour relations stabilise.

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TITANIUM

Mathabo Ikaneng

SUPPLY – DEMAND

World titanium reserves were estimated at 750 Mt in 2013, a 7.2 percent increase compared with 2012 (Table 59). China at 26.7 percent, hosted the world's largest titanium reserves, followed by Australia's 24.6 percent and India's 12.3 percent. World production of titanium mineral concentrates (ilmenite, rutile leucoxene, and titanium slag), usually referred to as titanium dioxide (TiO_2) feedstock, amounted to 7.56 Mt in 2013, representing an increase of 4.4 percent compared with the previous year (Table 59). This increase in supply was the continuation of producers' undertaking to match rising global demand for titanium minerals. Australia, at 1.39 Mt, remained the top producer of TiO_2 feedstock, contributing 18.4 percent to total world production. South Africa, at 1.22 Mt, was the second major producer, followed by China's 0.95 Mt and Canada's 0.77 Mt (Table 59). Approximately 75 percent of global output is provided by the world's top 11 titanium feedstock producers with approximately 6 percent of this used in titanium metal manufacture.

TABLE 59: WORLD RESERVES AND MINE PRODUCTION OF TITANIUM CONCENTRATES, 2013

	RESERVES			PRODUCTION*		
COUNTRY	Mt	%	Rank	kt	%	Rank
Australia	184.0	24.6	2	1 390	18.4	1
Brazil	44.2	5.9	5	47	0.6	13
Canada	31.0	4.1	8	770	10.2	4
China	200.0	26.7	1	950	12.6	3
India	92.4	12.3	3	366	4.8	10
Madagascar	40	5.3	6	430	5.7	8
Mozambique	14.5	1.9	9	489	6.5	6
Norway	37.0	4.9	7	400	5.3	9
Sierra Leone	3.8	0.5	11	90	1.2	12
South Africa	71.3	9.5	4	1 220	16.1	2
Sri Lanka	0	0	0	32	0.42	14
Ukraine	8.4	1.1	10	470	6.2	7
USA	2.0	0.3	12	300	4.0	11
Vietnam	1.6	0.2	13	500	6.6	5
Other	26.4	3.5	-	107	1.4	-
TOTAL2013**	**750.0**	**100.0**		**7 560**	**100.0**	
2012	**700.0**			**7 230**		

Sources: USGS, January 2014, p 173

*Notes: *TiO_2 content of ilmenite, titanium slag and rutile*

***Totals are rounded*

According to TZMI, a mineral sands consulting company, the production of TiO_2 pigment fell by 0.97 percent from 5.18 Mt in 2012 to 5.13 Mt in 2013 due to market oversupply. In an effort to run down high TiO_2 inventory levels, major producers intentionally reduced operating rates to 72 percent of global capacity in 2013. The high inventory levels were a result of new capacity especially from China and the subdued demand for TiO_2 pigment. The situation was compounded the upturn in TiO_2 feedstock prices which squeezed profit margins for TiO_2 producers. The unexpected slowdown of China's growth and continued weakness in the EU resulted in a decline in TiO_2 pigment sales. According to Merchant Research and Consulting, a metals and minerals research company, world titanium metal sponge production amounted to 222 kt in 2013, an 11 percent increase from 2012 levels due to new production capacity from Ukraine and Canada. Russia, Japan and China were the main producers of global titanium sponge, together accounting for 81 percent of total sponge production in 2013.

TABLE 60: SOUTH AFRICA'S TITANIUM PRODUCTION AND SALES, 2005 - 2013

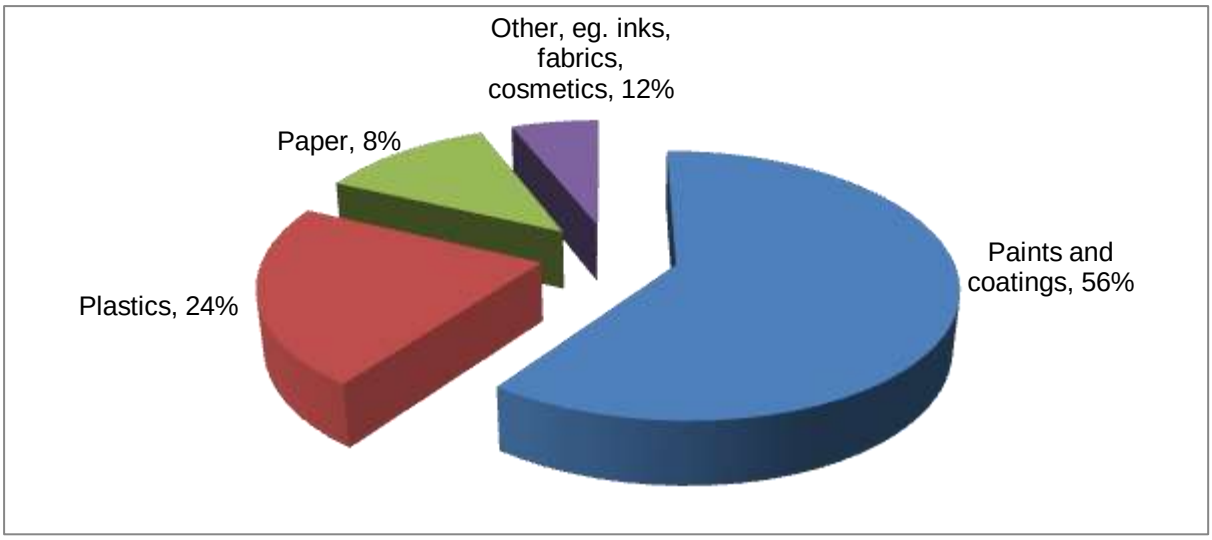
	PRODUCTION	LOCAL SALES			EXPORT SALES		
YEAR	Mass	Mass	Value (FOR)		Mass	Value (FOB)	
	kt	kt	RM	R/t	kt	RM	R/t
2005	2 682	1 759	284	162	254	610	2 405
2006	2 463	1 985	352	177	253	696	2 747
2007	2 605	2 021	394	195	220	604	2 748
2008	2 439	2 087	427	205	165	563	3 417
2009	2 507	1 621	414	256	105	494	4 694
2010	2 339	2 009	434	216	136	581	4 262
2011	2 896	2 355	562	239	136	658	4 820
2012	2 801	2 621	2 315	883	95	1 451	15 190
2013	2 604	2 682	2 712	1 011	100	1 028	10 256

Source: DMR, Mineral Economics

South Africa's titanium minerals mine production decreased by 7.03 percent to 2 604 kt in 2013 compared to 2 801 kt recorded in 2012 (Table 60). The decline in production was due to depleting resources at Hillendale mine which was nearing its end of life. Local and export sales volume increased by 2.3 percent and 5.2 percent respectively to 2 682kt and 100kt.

About 90 percent of TiO2 feedstock is used in the manufacture of TiO2 pigment and the remaining 10 percent is used in the production of titanium metal and welding electrode fluxes. Close to 90 percent of manufactured titanium sponge is used in the manufacture of titanium and titanium alloy products for four key end-markets: commercial aerospace, industrial applications, defence, and emerging applications. TiO_2 pigment demand is closely linked to the availability of disposable income and global GDP growth rates as it is considered as a "quality of life" product. Demand increased by 12.2 percent to 5.34 Mt in 2013, 4 percent above supply with the shortfall sourced from existing inventory stocks. The paint and coatings industry is the major consuming sector for TiO_2 pigment, accounting for about 56 percent of global demand, followed by plastics' 24 percent, paper's 8 percent and other accounting for 12 percent balance (Fig. 1).

FIGURE 46: GLOBAL CONSUMPTION OF TITANIUM DIOXIDE PIGMENT BY SECTOR IN 2013

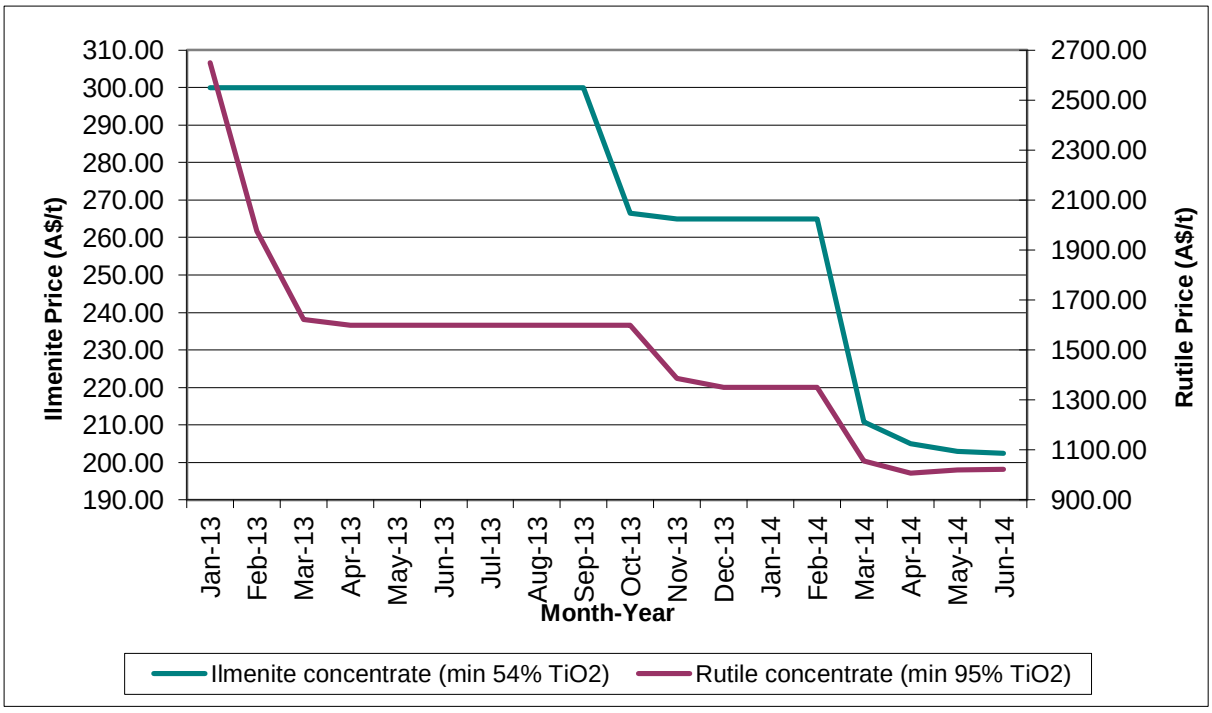


Source: TZMI

PRICES

In 2013, the global market dynamics of the titanium feedstock sector were influenced by de-stocking at the pigment producers' end, resulting in lower off-take for feedstocks in 2013. Feedstock prices were almost flat for most of 2013, before trending downwards in the last three months of the year. Prices failed to recover in an environment of slow demand, high production costs resulting in feedstock producers scaling back on output.

FIGURE 47: METAL BULLETIN PRICES FOR RUTILE AND ILMENITE, 2013 – 2014



Source: Metal Bulletin, 2013 - 2014

Average rutile (95% TiO_2) prices declined by 29 percent to A$ 1 681/t after reaching record high levels in 2012 while ilmenite (min 54% TiO_2) increased slightly by 5.2 percent to A$ 277/t. In the first quarter of 2014, titanium feedstock inventory levels remained at elevated levels, maintaining pressure on feedstock prices although market strengthening is visible in some areas providing hope of price improvements in the near future. Revenues generated from local sales of titanium minerals increased by 17.1 percent to R2.7 billion due to a 14.5 percent increase in unit values while export related revenues declined by 29.1 percent to R1.02 billion in line with a 32.5 percent decline in unit values (Table 60)

DEVELOPMENTS

Production commenced at US$14.5 million Mineral Commodities' (MRC) Tormin project in the Western Cape Province of South Africa. Feasibility studies had indicated a capacity of 1.2 Mt, producing 47.8kt per year of nonmagnetic concentrate grading 81 percent zircon and 11.6 percent rutile and more than 100ktpa Ilmenite over a 3 - 5 year mine life. By December 2013, the company had accumulated stockpile of 60 kt of heavy mineral sands ready to be processed. The plan is to ship the concentrate produced to China in terms of an off take agreement where it would be processed further to produce final zircon and rutile. The ilmenite, which is primarily used in pigment, would be beneficiated in South Africa. During the construction phase, approximately 65 local jobs were created while 100 permanent jobs would be created during the life of the mine. It is estimated that another 400 indirect jobs will be created from transport and other feeder services. According to MRC, the company has recently acquired the rights to the offshore area adjacent to Tormin. This area is the source of Tormin ore body and it supports the concept of replenishment mining which will substantially extend the Tormin life of mine.

The Fairbreeze Mine in the KwaZulu-Natal Sands region, which is being developed to serve as a replacement to the Hillendale Mine in the same region, is expected to start up in the first half of 2015. Tronox, an Australian holding company, owns 74 percent in Fairbreeze and the remaining 26 percent is owned by Exxaro Resources, a BEE company. Fairbreeze, is expected to have a life of mine (LOM) of between 12 and 15 years and has a planned annual capacity of 500 kt ilmenite and 60 kt zircon. Tronox expects the new heavy mineral sands mine to preserve more than 1 000 employees from Hillendale mine, which came to the end of its life in the first half of 2012 and generate an additional 1000 indirect jobs.

In March 2014, titanium ore and titanium dioxide producer Tronox secured approval for its planning application from the Umlalazi Municipality to amend land use rights on its Fairbreeze C extension (FBCX) mining area, from un-zoned to mining. The company expects to commence mining operations at FBCX area in the second half of 2017, following approvals. The FBCX ore body has a life-of-mine of 7 years.

In 2013, South Africa's Council for Scientific and Industrial Research (CSIR) and US aerospace giant Boeing signed an agreement to collaborate on research and development of titanium powder for industrial manufacturing processes in the aviation industry. A memorandum of understanding (MoU) that seeks to advance research synergies and pull resources between the two organisations with the aim of using titanium powder in industrial manufacturing, particularly in making aircraft components and spare parts was signed between the CSIR and Boeing in June 2013. The titanium pilot plant which is expected to produce about 500 t/y of titanium metal powder, launched in a partnership between CSIR and the Department of Science and Technology, will assist in the up-scaling of the technology and the agreement with Boeing.

EMPLOYMENT

Total employment in titanium sector fell 2.8 percent to 6 335 employees in 2013 compared with 2012 due to retrenchment at Tisands mine resulting in a 34.4 percent decline in total earnings to R1.37 billion (Table 61).

TABLE 61: EMPLOYMENT AND REMUNERATION IN THE TITANIUM SECTOR IN 2013

YEAR	EMPLOYEE	REMUNERATION	
	Number	R'000	Per Capita Earnings
2009	6825	1 373 855	201
2010	7154	1 578 092	221
2011	6324	1 805 121	285
2012	6503	2 092 252	322
2013	6 335	1 373 440	217

Sources: DMR, Directorate Mineral Economics

While female employment increased by 4.3 percent in 2013, the total female workforce constituted only 12 percent of the entire titanium sector employment. Per capita earnings increased by 32.6 percent in 2013 due to retrenchments.

OUTLOOK

According to TZMI, modest recovery in the TiO_2 industry is expected in 2014. Emerging markets demand growth will drive titanium dioxide pigment capacity growth over the next decade. Global TiO_2 demand is expected to grow by 5 percent in 2014 due to re-stocking of inventories, continued recovery of consumer demand in developed economies and steady growth in emerging economies. A similar growth pattern as in 2014 is expected in 2015 as global demand recovers and inventory levels fall in line with mid-cycle levels.

It is expected that net global capacity growth was modest in 2013 and is expect to remain stable in 2014 due to slow addition and the permanent shutdown of some smaller plants in China, according to TZMI. It is however expected to increase from 2015 with announcements of new capacity from various Chinese producers in 2015 and 2016. The imminent capacity increase will have impact negatively on feedstock prices, with predictions of unlikely increase in ilmenite prices and a fall rutile in 2014 and 2015.

Demand for titanium metal in aerospace is expected to grow significantly over the coming decade as next generation aircrafts replace less efficient legacy models. According to RTI International Metals Inc, there was a record backlog order levels for commercial aircrafts globally, a development which could increase the demand for titanium metal in the aerospace industry. Titanium fits well with the new generation of commercial aerospace design strategies, given the operating efficiency mandates to reduce fuel consumption. Also, the projected global passenger growth rate and the replacement of older, less fuel-efficient aircraft are other factors boosting build rates for the near term.

Demand for titanium metal is projected to grow by approximately 6 percent per annum compounded annually, according to various estimates, mainly due to the expected increase in consumption of the metal in the commercial aircraft sector and industrial applications. The new generation of aircrafts such as Boeing’s and Airbus, are using incremental content of titanium. The need for lighter aircrafts presents opportunities for titanium mining and beneficiation in South Africa. The mutually beneficial agreement between CSIR and Boeing will hugely complement the CSIR's drive towards commercialisation of its titanium technologies followed by the establishment of the titanium industry and related industries. This in turn, will support the country’s long-term economic development goals in line with the country’s Beneficiation Strategy and the National Development Plan.

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ZINC

Silungiselelo Mnyameni

SUPPLY DEMAND

In 2013, world zinc reserves were estimated at 250 Mt. Australia hosted the world's largest zinc reserves accounting for 25.6 percent, followed by China (17.2 percent) and Peru (9.6 percent). South Africa, with 6 percent of the world zinc reserves, ranked 5th position (Table 62). World zinc mine production decreased by 2.3 percent to 13.19 Mt in 2013 compared with 13.51 Mt in 2012. This was mainly due to a loss of output emanating from the closure of Glencore-Xstrata's Brunswick and Perseverance mine in Canada. The closure of these mines resulted in a loss of over 300 kt of zinc output while South Africa's production decreased by 18.9 percent. Africa collectively accounted for 2.5 percent (333 kt) of the world total. Namibia, at 215 kt, had the continent's largest zinc mine production followed by Morocco's 39 kt, Burkina Faso's 32 kt and South Africa's 30 kt.

TABLE 62: WORLD RESERVES, MINE PRODUCTION AND EXPORTS OF ZINC, 2013

COUNTRY	RESERVES			PRODUCTION			EXPORTS*		
	Mt	%	Rank	kt	%	Rank	kt	%	Rank
Australia	64	25.6	1	1 524	11.5	2	428	10.1	2
Canada	7	2.8	8	419	3.2	7	524	12.4	1
China	43	17.2	2	4 730	35.8	1	3	0.1	9
India	11	4.4	6	793	6	4	195	4.6	5
Ireland	1.3	0.52	9	327	2.5	10	0	0	-
Kazakhstan	10	4	7	417	3.2	8	243	5.8	4
Mexico	18	7.2	4	643	4.9	6	179	4.2	6
Namibia	X	-	-	215	1.6	13	X	X	X
Peru	24	9.6	3	1 351	10.2	3	309	7.3	3
South Africa	15	6	5	30	0.2	27	0	0	-
USA	10	4	7	777	5.9	5	19	0.5	8
Other	46.7	18.7	-	1 970	14.9	-	2 294	54.4	-
Total	**250**	**100**		**13 196**	**100**		**4 220**	**100**	

Sources: ILZSG, October 2014
USGS, February 2014
DMR, Directorate Mineral Economics

Note: * World Bureau of Metal Statistics, Exports of Slab Zinc
X Not specified but estimate have been included in other countries

South Africa's zinc mine production decreased by 18.9 percent to 30 kt in 2013 compared to 37 kt recorded in 2012 (Table 63). This was due to lower head grade throughout the year as well as higher production costs as a result of depressed zinc prices which prompted producers to curb production until prices were

favourable. As a consequence of reduced production levels, unit costs will eventually increase resulting to even higher production costs. Export sales also decreased by 31.6 percent to 26 kt compared with export sales recorded in 2012. No local sales have been recorded since 2012 after the closure of Zincor refinery in 2011. The balance of 4 kt of stock has been kept for future use.

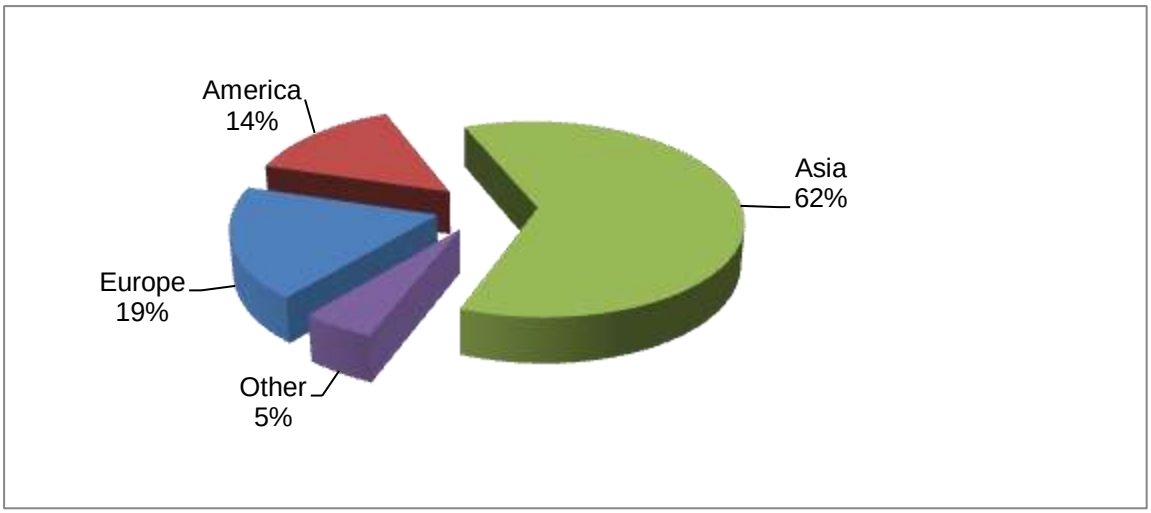
TABLE 63: SOUTH AFRICA'S PRODUCTION AND SALE OF ZINC METAL IN CONCETRATE 2004-2013

YEAR	PRODUCTION	LOCAL SALES			EXPORT SALES		
	Mass	Mass	Value (FOR)		Mass	Value (FOB)	
	kt	kt	R'000	R/t	kt	R'000	R/t
2004	32	31	107 630	3 415	-	-	-
2005	32	31	144 752	4 640	-	-	-
2006	34	33	133 500	4 444	-	-	-
2007	31	30	428 959	14 114	-	-	-
2008	29	27	221 725	8 150	-	-	-
2009	28	22	170 925	7 603	-	-	-
2010	36	31	279 821	9 054	4	43 393	11 892
2011	37	17	169 416	9 917	20	233 150	11 775
2012	37	-	-	-	38	444 536	10 715
2013	30	-	-	-	26	335 687	12 487

Sources: DMR, Directorate Mineral Economics

Global refined zinc metal output increased by 2.2 percent to 12.87 Mt in 2013, compared with 12.59 Mt recorded in 2012. This was due to higher output from China, which accounts for 39.6 percent to the world total. Additional output was mainly due to increased capacity in Italy resulting from the expansion of the Glencore Xstrata's 110 kt capacity plant at Porto Vesme in Sardinia, to 140 kt per year, the restart of zinc plant at La Oroya in Peru and the recovery of output in India after weaker output in 2012. Regionally, Asia dominated zinc metal production contributing 62 percent to total output followed by Europe's 19 percent and America's 14 percent (Fig. 1). Africa's refined zinc production decreased by 12.6 percent to 146 kt in 2013 compared with 167 kt in 2012, accounting for 1.1 percent of the global production.

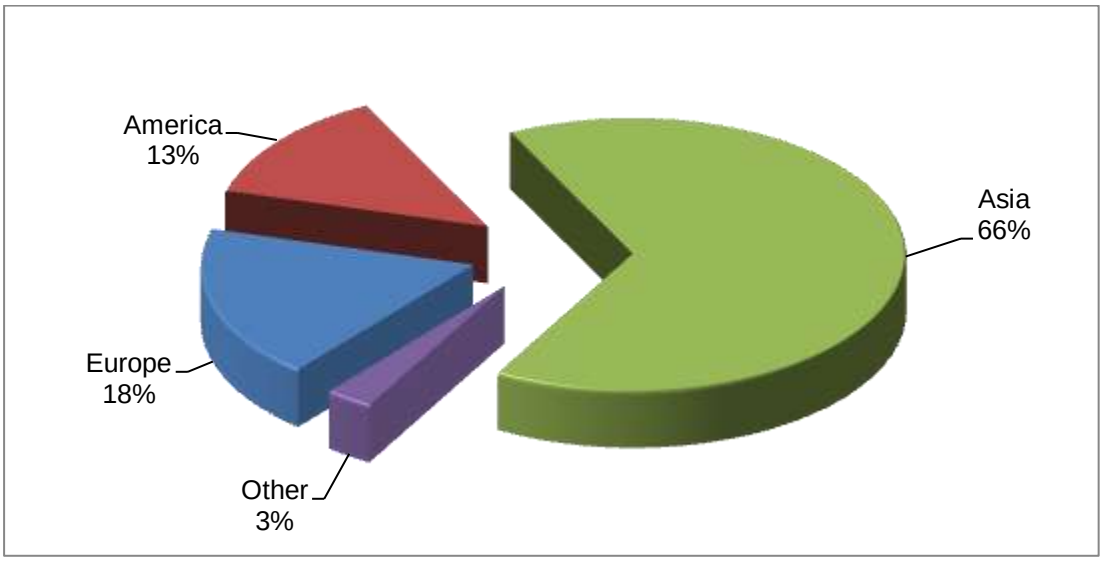
FIGURE 48: REGIONAL PRODUCTION OF REFINED ZINC, 2013



Sources: International Lead and Zinc Study Group, October 2013

World refined zinc consumption rose by 5.5 percent to 12.98 Mt in 2013, compared with the 12.3 Mt recorded in 2012. China's usage, which accounts for 44.3 percent of total world demand, rose by 8.6 percent following a decrease in 2012. This was stimulated by the recovery of the automobile industry. Regionally, Asia continued to dominate global zinc consumption accounting for 66.1 percent followed by Europe's 18.1 percent and America's 13.2 percent (Fig. 2). Africa's consumption increased by 7.1 percent to 166 kt in 2013, accounting for 1.3 percent to global zinc usage. South Africa dominated the continent's consumption accounting for 43.4 percent to Africa's zinc usage, followed by Algeria at 11.4 percent.

FIGURE 49: REGIONAL CONSUMPTION OF REFINED ZINC, 2013

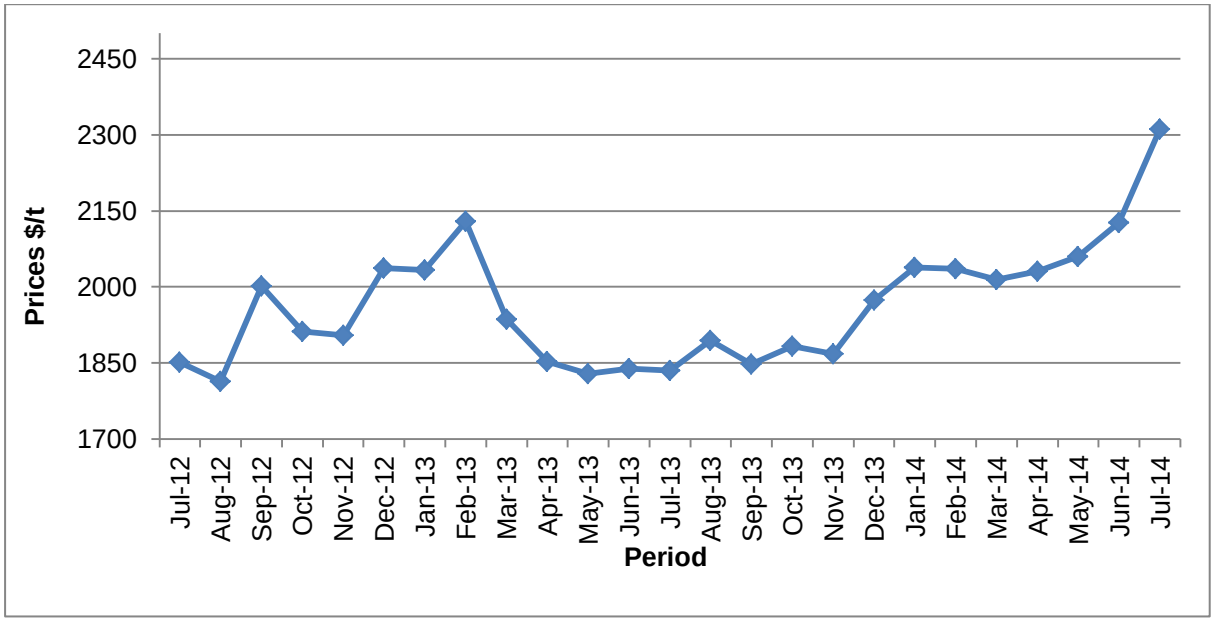


Sources: International Lead and Zinc Study Group, October 2013

PRICES

Prices were on a narrow range throughout 2013, due to market surplus. The annual London Metal Exchange (LME) zinc prices averaged $1 912.33/t, a 1.7 percent decrease compared with 2012. The lowest zinc cash settlement on average was recorded in May 2013, at $1 829.02/t while the maximum price on average was recorded in February 2013, at $2 129.28/t (Fig. 3). LME warehouse stock levels decreased at a rapid rate into the last quarter of 2013, pushing prices up as a result of gradual improvement in the key consuming sectors and the global market demand recovery.

FIGURE 50: LME ZINC CASH SETTLEMENT PRICES (MONTHLY AVERAGES), 2013



Sources: London Metal Exchange (LME)

In South Africa, the zinc unit price increased by 16.5 percent to R12 487/t in 2013 compared with 2012 (Table 63), indicating a global zinc market recovery and rising price levels. Regardless of the increase in unit prices, revenues generated decreased by 24.5 percent to R335 million in 2013. This was due to a decrease in production recorded which availed less for export.

EMPLOYMENT

Total employment in South Africa's zinc mines increased by 8.6 percent to 1 437 in 2013 compared with 1 323 employees in 2012, resulting in 11.5 percent increase in total earnings to R205 million (Table 64).

TABLE 64: EMPLOYMENT AND REMUNERATION IN SOUTH AFRICA'S ZINC MINES IN 2013

YEAR	EMPLOYEE	REMUNERATION		PRODUCTION
	Number	R'000	Average Earnings R	Labour Productivity t
2009	2 020	144 605	71 587	14
2010	1 893	156 456	82 650	19
2011	1 312	167 552	127 707	28
2012	1 323	184 164	139 212	28
2013	1 437	205 403	142 939	21

Sources: DMR, Directorate Mineral Economics

Per capita earnings increased by 2.7 percent in 2013 indicating an improvement of salary levels. The number of female employees also rose by 11.4 percent to 196 compared with 176 employees in 2012. A decrease in zinc mine production due to low head grade throughout the year resulted in 25 percent decrease in employee's productivity. Productivity decreased to 21 t/employee compared with 28 t/employee in 2012.

DEVELOPMENTS

Black Mountain Mine, a subsidiary of Vedanta Resource plc, in Aggeneys, Northern Cape Province of South Africa, is currently exploiting additional resources to increase South Africa's zinc production. Swartberg Mine is seen as one of the most strategic assets of the Black Mountain Mine since it is expected to extend the life of mine by 15 years and approximately 300 new jobs will be created. Pre-feasibility studies investigating a stand–alone Swartberg option started in 2013 and are currently underway. The mine was opened in May 2014, currently a small operation mining at approximately 20 kt a month is in operation. The mine plans to reach full production by 2016 as an open pit operation that will later evolve into an underground operation. The mine contains economic concentrations of zinc, lead, copper and silver. It is expected to produce 300 kt of ore per annum initially, ramping up to 2.4 Mt of ore per annum when it reaches full underground production capacity after six years.

OUTLOOK

World mine production is expected to increase by 2 percent to 14.01 Mt in 2014, following a 1.6 percent increase in 2013, according to the International Lead and Zinc Study Group (ILZSG). This is primarily as a result of a 2.5 percent increase expected from China. Additional supply growth is expected from re-opening of Glencore Xstrata's 90 kt per annum capacity Bracemac McLeod operation in Canada, which commenced production in May 2013.

World refined zinc metal output is expected to increase by 2.9 percent to 13.25 Mt in 2014 and a further 3.3 to 13.68 Mt in 2015, mainly driven by higher output in China. Additional output is expected from Italy,

Japan and the Republic of Korea due to recent commissioning of new capacity. The new 160 kt per year capacity zinc plant in Mooresboro, North Carolina in the US, which started operating in May 2014, is one of the key producers of the special high-grade (SHG) zinc as well as continuous-galvanising grade (CGG). World refined zinc consumption is anticipated to increase by 5.1 percent to 13.65 Mt in 2014 and a further 2.9 percent to 14.05 Mt, due to a 7 percent expected increase in China's demand driven by increased automobile production, growth in galvanised steel sheet output as well as white goods production. Demand in the US is also expected to rise due to increased automobile production while a recovery in Europe, especially in Belgium, Italy and Poland is forecast to drive the zinc metal consumption up.

After six successive years of market surplus, refined zinc supply shortfall is anticipated to be about 403 kt in 2014 and 3 Mt in the next three years, according to ILZSG. This deficit is forecast to be driven by the closure of major zinc mines reducing global supply growth and the continual increase in global demand. This is expected to urge prices up in the long term as the start-up of new and expanded mining capacity is delayed. LME stock levels have been declining at a higher rate into the second half of 2013, as a result of increasing demand from the key consuming sectors. The improvement of the auto industry in the US and China is likely to apply upward pressure on prices while mine output is constrained with no quick solutions.

South Africa's zinc mine production could benefit from the above stated market situation as it favours the development of the Gamsberg project, which has been on hold due to lower zinc prices. Black Mountain Mine conducted a feasibility study to develop new zinc mine (Gamsberg) which proved not viable at a zinc price below $2 500/t. This project and the Swartberg Mine could help increase the country's zinc output pushing it higher in the production rankings.

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ZIRCON

Mathabo Ikaneng

SUPPLY – DEMAND

Global zircon reserves were estimated at 67 Mt in 2013. Australia, with 59.7 percent, hosts the largest reserves, followed by South Africa's 20.9 percent and India's 5.1 percent. In 2013, world production of zircon declined by to 1.3 percent to 1.44 Mt compared with 2012 as producers adjusted supply in response to rising stockpiles emanating from slowing demand resulting from global economic slowdown (Table 65). Global zircon production was dominated by Australia (41.7 percent) and South Africa (25.0 percent), which together accounted for two-thirds of the total global output. Zircon supply is consolidated amongst three producers who account for two thirds of global production, which are Tronox, Rio Tinto and Iluka Resources.

TABLE 65 – WORLD RESERVES AND MINE PRODUCTION OF ZIRCON CONCENTRATES, 2013

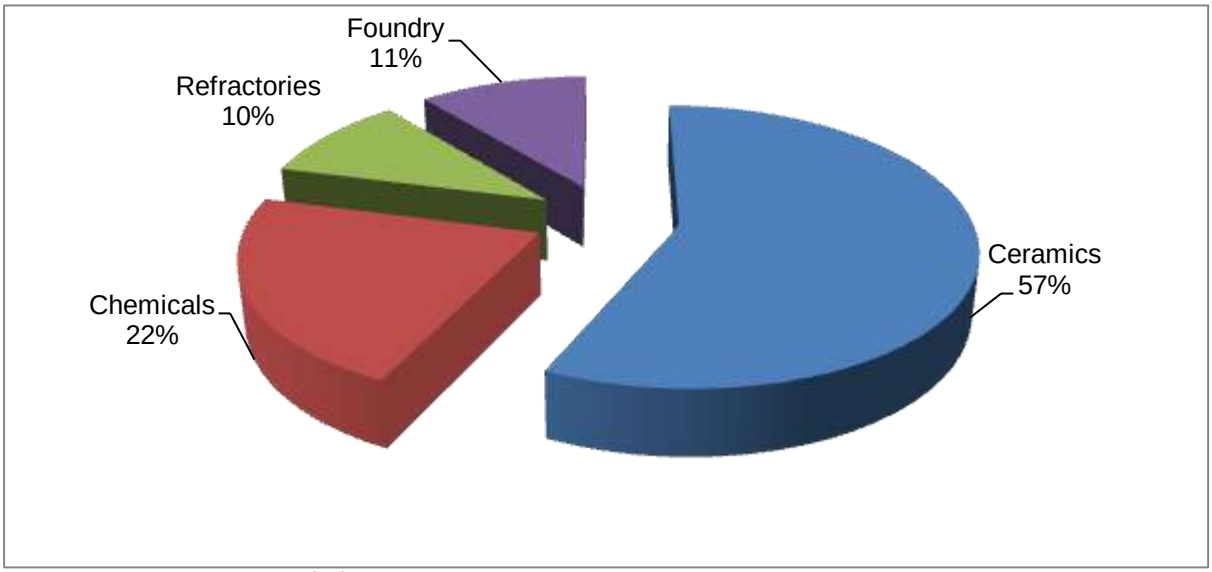
	RESERVES			PRODUCTION		
COUNTRY	Mt	%	Rank	kt	%	Rank
Australia	40.0	59.7	1	600	41.7	1
China	0.5	0.8	5	140	9.7	3
India	3.4	5.1	3	40	2.8	6
Indonesia	na	na	na	120	8.3	4
Mozambique	1.1	1.6	4	65	4.5	5
South Africa	14.0	20.9	2	360	25.0	2
USA	0.5	0.8	5	na	na	na
Other	7.2	10.8		110	7.6	
TOTAL* 2013	**67.0**	**100.0**		**1 440**	**100.0**	
2012	**48.0**	**100.0**		**1 460**	**100.0**	

Source: USGS, January 2014, p 189

**Totals are rounded*

The use of zircon in some key markets, including traditional ceramics and foundries, has for several years been affected by substitution from competing minerals such as alumina in ceramics. This was exacerbated by the record high prices seen in 2011 through to 2012, which negatively impacted on zircon demand. Overall zircon demand recovered in 2013, amid strong demand from China and North America, and on signs of a recovery in Europe's ceramics sector, although the recovery was uneven across geographical markets and end user sectors. Also, growth in developing countries where growth in urban population and floor space translates to increased consumption in minerals such as zircon contributed to demand growth in 2013. The majority of this growth was from China, India and Latin America, while improvements in the construction sector and a booming hotel industry have also driven consumption up and production of ceramics in the Middle East.

FIGURE 51: GLOBAL CONSUMPTION OF ZIRCON BY SECTOR IN 2013



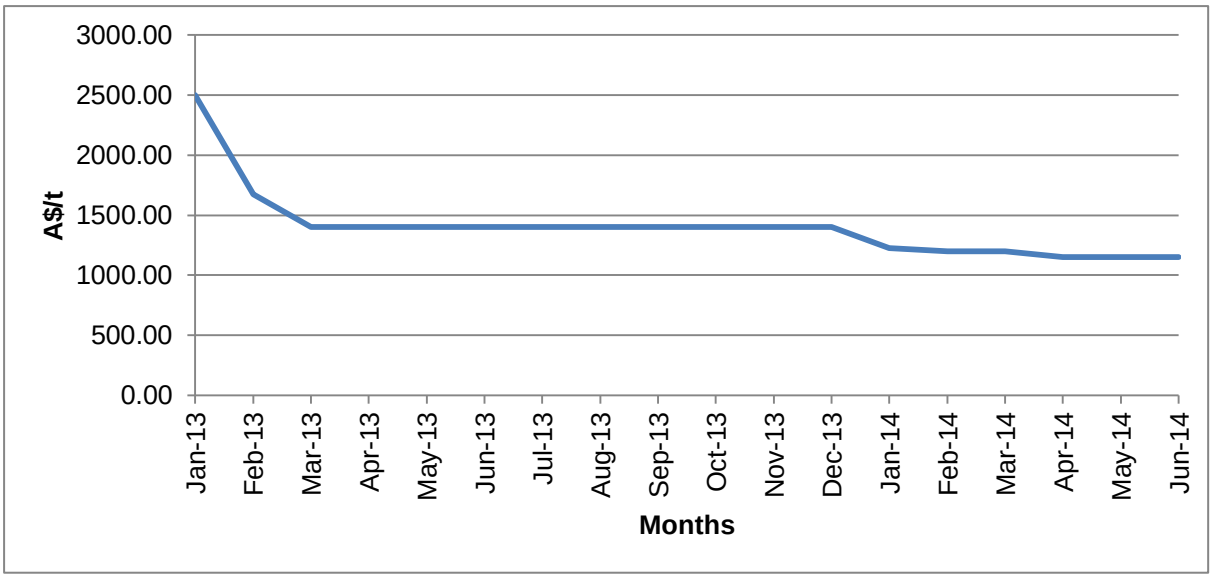
Source: Kenmare Resources and other sources

Zircon is mainly used in ceramics as a pacifier in floor tiles, sanitary ware, and tableware. Ceramics remain the biggest end-user of zircon; accounting for 57 percent of consumption, followed by chemicals (22 percent), refractories (10 percent) and foundry is 11 percent, (Fig. 1).

PRICES

Zircon prices commenced the year lower than in 2012 and remained stable for much of the year, with a resultant weighted average price of A$ 1 514.6/t for 2013 as the market remained oversupplied and economies slowed down (Fig. 2). The average price of zircon began the year at A$2 500/t in January before falling by 33 percent to A$1 675/t in February and a further 16 percent to A$ 1 400/t in March. Zircon prices stabilized at around the A$ 1 400/t for the rest of the year.

FIGURE 52: PRICES FOR FOUNDRY GRADE ZIRCON, FREE ON BOARD AUSTRALIA, 2013 – 2014



Source: Metal Bulletin, 2013 – 2014

Zircon prices fell further at the beginning of 2014, beginning the year at A$ 1 228.6/t in January and by June, zircon was trading at A$ 1 150/t.

DEVELOPMENTS

Production commenced at Tormin mine, which is located 400 km north of Cape Town, Western Cape Province. Tormin mine, which is owned by Mineral Commodities (MRC), an Australian-based company, is expected to have a capacity of 1.2 Mt per annum producing about 47.8 kt of concentrate per annum grading at 81 percent zircon, 11.6 percent rutile and more than 100 kt per annum ilmenite. The life of mine (LOM) mine is expected to be between 3 and 5 years. By December 2013, the company had accumulated stockpile of 60 kt of heavy mineral sands ready to be processed. The company is planning to export the concentrate produced to China, in terms of an offtake agreement, where it would be processed further to produce final zircon and rutile, while ilmenite produced will be beneficiated locally.

Also, MRC has recently acquired the rights to the offshore area adjacent to the Tormin Mine. This area is the source of Tormin ore body and, supported by the J-bay features of the area and supports the concept of replenishment mining which will substantially extend the Tormin life of mine

The Fairbreeze Mine in the KwaZulu-Natal Sands region, which is being developed to serve as a replacement to the Hillendale Mine in the same region, was expected to start up in the first half of 2015. Fairbreeze Mine is expected to have a LOM of between 12 - 15 years, and a planned annual capacity of 500 kt ilmenite and 60 kt zircon. More information on these South African mine sands projects is covered in the titanium chapter, as zircon is a co-product of titanium mining

Richards Bay Minerals (RBM) has received the green light from its owner Rio Tinto to start with a feasibility study of the R5 billion Zulti South expansion project to start the development of the company's new sands minerals mine. Running along the coast near eSikhawini, in KwaZulu-Natal province, the company will mine heavy mineral sands including titanium minerals, pig iron and zircon. The Zulti-South's Phase1 will include infrastructure development and a 2 500 tonnes per hour (tph) dry mining operation forecast to come on-stream in the first quarter of 2017. Phase 2 will allow 1 250 tph dry mining by 2021.

OUTLOOK

According to JP Morgan, the zircon market was oversupplied and producers curtailed production in order to run inventories levels down in 2013. However, the market is expected balance out in 2014 and to move back into deficit between 2015 and 2016. With visible signs that the zircon market has reached the bottom of the cycle and turning towards firm recovery in 2014, demand that started declining dramatically in 2011, is expected to grow at an average of 3.7 percent a year between 2014 and 2019. Emerging markets are expected to drive future growth, and demand from Western Europe and China is anticipated to return as well.

Although the ceramics sector is zircon's largest end-market Roskill predicts that the chemicals sector will see the highest growth rate at 4.1 percent per annum, followed closely by ceramics. Lower growth rates are projected for demand into the foundries and refractories sectors.

It is expected that zircon prices will be maintained by higher demand and stability is anticipated in the latter part of 2014. Prices are expected to firm slightly in 2015, after the stock levels have been run down, higher sales and demand could encourage stronger prices.

The Tormin mine sands project and Fairbreeze Mine are expected to increase South Africa's contribution to global zircon output in the short term. The positive outlook for zircon in the short to medium term bodes well for the country's heavy mineral sands industry and foreign exchange, taking into account that South Africa is the second largest producer of zircon in the world.

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FERROUS METALS AND MINERALS OVERVIEW

L Malebo

SUPPLY AND DEMAND

South Africa is a major producer and supplier of primary ferrous minerals and their alloys. With more than 85 percent of global consumption of iron ore, manganese, chrome and vanadium; steel manufacturing is by far the leading demand driver of ferrous minerals. According to the World Steel Association (WSA), global crude steel production increased by 3.0 percent to 1 606 Mt in 2013, compared with 2012. China remained the dominant stainless steel producer, accounting for 48.5 percent of the world's total stainless steel output in 2013, followed by Japan and the US at 6.9 percent and 5.4 percent, respectively. China and Japan's crude steel production increased by 6.6 percent and 3.2 percent, respectively, while the US production declined by 2.1 percent in 2013. South Africa's crude steel production amounted to 7.2 Mt in 2013, a 4.3 percent rise when compared with 2012.

TABLE 66: SOUTH AFRICA'S PRODUCTION AND SALES OF FERROUS MINERALS, 2013

COMMODITY	YEAR	PRODUCTION	LOCAL SALES		EXPORT SALES		TOTAL SALES	
		kt	kt	R million	kt	R million	kt	R million
CHROME ORE	2013	13 653	8 473	5 866	4 168	5 891	12 641	11 758
	2012	11 310	6 685	4 683	2 470	3 594	9 155	8 277
IRON ORE	2013	71 534	9 259	5 746	58 202	57 385	67 461	63 131
	2012	67 100	8 393	4 448	57 110	48 193	65 503	52 642
MANGANESE ORE	2013	11 056	3 425	1 569	7 631	12 513	11 056	14 082
	2012	8 943	1 445	1 135	7 498	9 686	8 943	10 821
TOTAL	**2013**	***96 243***	***21 157***	***13 181***	***70 001***	***75 789***	***91 158***	***88 971***
	2012	**87 373**	**16 524**	**9 133**	**67 094**	**51 800**	**83 618**	**60 933**

Source: DMR, Directorate Mineral Economics

South Africa's aggregated production of ferrous minerals increased by 10.1 percent to 96 243 kt (Table 66). Total sales revenues of primary ferrous minerals amounted to R 88.9 billion contributing 22.9 percent to South Africa's total mineral sales. Iron ore contributed 74 percent to ferrous minerals total production, followed by chrome ore and manganese ore at 14 percent and 11 percent, respectively. Ferrous minerals local sales volume increased by 28 percent due to increased local chromium alloy production capacity utilization. South Africa's chromium alloy production grew by 5.1 percent to 3 219 kt in 2013, compared with 2012, while manganese alloy production declined by 3.5 percent to 681 kt (Table 67). Despite a 3.1 percent drop in the ferroalloy total sales volume and weak ferroalloy prices, corresponding revenues increased by 23.5 percent in 2013 compared with 2012, due to increases in manganese alloy local sales volume and chromium alloy export mass in the same period.

TABLE 67: SOUTH AFRICA'S PRODUCTION AND SALES OF FERROALLOYS, 2013

COMMODITY	YEAR	PRODUCTION	LOCAL SALES		EXPORT SALES		TOTAL SALES	
		kt	kt	R million	kt	R million	kt	R million
CHROMIUM ALLOYS	2013	3 219	360	2 983	2 802	25 552	3 162	28 535
	2012	3 063	443	3 402	2 745	22 290	3 188	25 693
MANGANESE ALLOYS	2013	681	58	496	493	4 113	551	4 609
	2012	706	33	263	523	3 961	556	4 224
TOTAL	2013	3 900	418	3 479	3 295	29 665	3 713	33 144
	2012	3 852	533	4 104	3 301	22 731	3 834	26 836

Source: DMR, Directorate Mineral Economics

EMPLOYMENT

Employment in the ferrous mineral's sector declined by 4.7 percent to 49 425 (Table 68), as the number of contract employees declined particularly in the iron and chrome sectors. Employment in the iron ore and chrome sector dropped by 9.4 percent and 7 percent respectively, while in the manganese sector it increased by 13.2 percent. Total remuneration increased by 9.5 percent in 2013 compared with 2012, resulting in a 14.9 percent increase in the average remuneration per employee.

TABLE 68: SOUTH AFRICA'S FERROUS MINE EMPLOYMENT AND GROSS REMUNERATION 2009-2013

YEAR	AVERAGE NUMBER OF EMPLOYEES	TOTAL REMUNERATION (R'000)	AVERAGE REMUNERATION R/employee
2009	31 003	4 745 558	153 067
2010	39 459	6 524 615	165 351
2011	46 713	10 536 930	225 567
2012	51 864	9 692 127	186 875
2013	49 425	10 619 477	214 860

Source: DMR, Directorate Mineral Economics

OUTLOOK

According to the World Steel Association 2014, global crude steel demand is forecast to grow at about 3.3 percent reaching 1 659 Mt, with more demand growth expected to come from outside of China due to that country's slow economic growth. World stainless steel production is projected to rise by 9.2 percent to 41.6 Mt in 2014, with China's output expected to increase by 13.2 percent during the same period. China's steel production and consumption is expected to remain the demand driver of global ferrous minerals and their alloys. Weak ferrous minerals and ferroalloys prices are expected in 2014 into 2015, due to an oversupplied market as well as lower demand. Furthermore, price trends are expected to depend on economic developments in emerging Asia, especially China. South Africa's planned infrastructure programme is expected to boost ferrous minerals and ferroalloy production for local consumption.

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CHROMIUM

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SUPPLY – DEMAND

Global chromite reserves were estimated at 9 106 million tons (Mt) in 2013 (Table 69), with South Africa accounting for 74.1 percent, followed by Zimbabwe and Kazakhstan at 10.2 percent and 4.2 percent, respectively. Global chrome ore production amounted to 28.0 Mt in 2013, a 7.9 percent increase compared with 2012. South Africa remained the leading producer accounting for 48.8 percent of total world chrome ore output, followed by Kazakhstan and India at 14.3 percent and 9.1 percent, respectively.

World chrome ore exports amounted to 14.3 Mt in 2013, a 22.2 percent increase compared with 2012. South Africa was the leading exporter contributing 53.2 percent, followed by Turkey and Kazakhstan at 15 percent and 7.4 percent, respectively. Higher exports were attributed to an increase in exports from South Africa, Kazakhstan and Oman, amongst others. South Africa's exports increased by 38.2 percent in 2013, with Kazastan and Oman increasing by 24.1 percent and 56.1 percent, respectively. Global chrome ore imports stood at 28.5 Mt, a 22.9 percent increase compared with 2012. China remained the leading consumer of chrome globally, contributing over 40 percent to global imports. The country's chrome ore imports grew by 30.1 percent to 12.1 Mt in 2013, with over 50 percent of its total ore requirements sourced from South Africa.

TABLE 69: WORLD CHROME ORE RESERVES, PRODUCTION AND EXPORTS, 2013

COUNTRY	RESERVES+			PRODUCTION#			EXPORTS#		
	Mt	%	Rank	kt	%	Rank	kt	%	Rank
South Africa	6 751	74.1	1	13 653*	48.8	1	7 663	53.2	1
Kazakhstan	387	4.2	3	3 992	14.3	2	1 069	7.4	3
India	54	0.6	6	2 558	9.1	3	181	1.3	9
Turkey	220	2.4	4	2 478	8.9	4	2 158	15.0	2
Finland	120	1.3	5	979	3.5	5	2	0.0	11
Oman	27	0.3	9	869	3.1	6	842	5.9	4
Albania	9	0.1	10	558	2.0	7	677	4.7	5
Pakistan	-	-	-	526	1.9	8	492	3.4	6
Brazil	18	0.2	7	484	1.7	9	37	0.3	10
Iran	-	-	-	428	1.5	10	428	3.0	7
Zimbabwe	930	10.2	2	335	1.2	11	0	0.0	12
Australia	-	-	-	286	1.0	12	407	2.8	8
Russia	46	0.5	8	240	0.9	13	0	0.0	12
Other	626	6.1		575	2.1		437	3.0	
TOTAL: 2013	9 106	100		27 961	100		14 393	100	
2012	9 106			25 918	11 310		11 775		

*Source: +Heinz H. Pariser, 2014, # International Chromium Development Association, 2014, * Directorate Mineral Economics, DMR*

South Africa's chrome ore production increased by 20.7 percent to 13.7 Mt in 2013 compared with 2012 (Table 70). The sharp spike was attributed to the improved data reporting compliance by UG2 producers. South Africa's total chrome ore sales mass increased by 38.1 percent to 12.6 Mt in 2013, boosted by an increase in both the export and local sales mass in 2013. Export sales mass increased by 68.7 percent to 4.1 Mt, due to higher demand from the global ferrochrome sector. Local sales mass increased by 26.7 percent due to stronger local ferrochrome demand, post the Government's intervention to discontinue the energy buyback programme between Eskom and Ferrochrome producers, which incentivised shutting down furnaces in 2012.

TABLE 70: SOUTH AFRICA'S CHROME ORE PRODUCTION AND SALES, 2004 – 2013

YEAR	PRODUCTION	LOCAL SALES			EXPORT SALES		
		Mass	Value	Unit Value	Mass	Value	Unit Value
	Kt	kt	R' 000	R/t	kt	R' 000	R/t
2004	7 677	6 743	1 368 846	203	513	318 893	622
2005	7 552	6 128	1 468 521	240	657	442 045	673
2006	7 418	6 384	1 802 385	282	735	499 519	679
2007	9 665	7 389	2 346 982	315	904	675 901	747
2008	9 683	7 116	4 131 019	581	762	1 267 931	1 664
2009	6 865	4 855	2 066 278	426	1 035	1 196 051	1 155
2010	10 871	7 267	4 159 308	572	1 929	2 459 473	1 275
2011	10 824	8 061	5 813 803	721	2 063	3 357 662	1 628
2012	11 310	6 685	4 683 023	701	2 470	3 594 282	1 455
2013	13 653	8 473	5 866 471	692	4 168	5 891 833	1 414

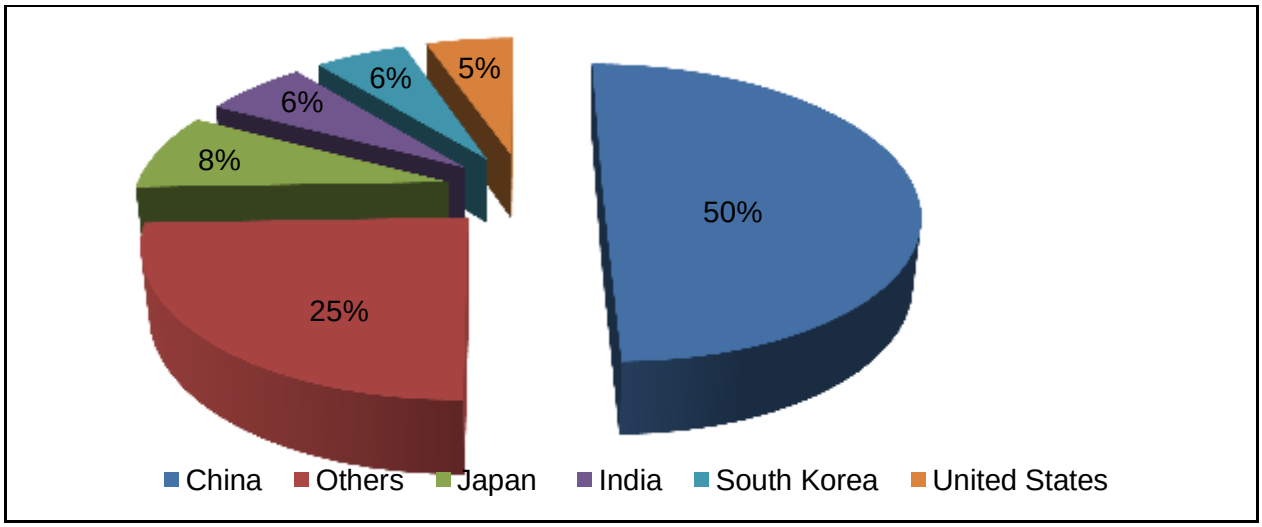
Source: DMR Directorate Mineral Economics, 2014

Approximately 94.2 percent of global chrome output is consumed in ferrochrome production, with chemical and foundry sands applications consuming only 3.3 percent and 2.2 percent, respectively. Stainless steel and alloy steels are the key demand drivers of ferrochrome and account for more than 90 percent of total world ferrochrome supply. Global stainless steel production increased by 7.8 percent to a record 38.1 Mt in 2013 compared with 2012, mainly due to an 18.0 percent increase in China's stainless steel output. China's dominance of the stainless steel market increased in 2013 with the country accounting for 49.8 percent of the world's total stainless steel output in 2013 (Figure 53).

Global ferrochrome production grew by 9.8 percent to 10.8 Mt in 2013, due to significant production increases in China, Finland and South Africa (Table 71)**.** China and South Africa jointly accounted for approximately two-thirds of total global output. China, at 36.9 percent, remained the world's leading ferrochrome producer with output increasing by 14.4 percent in 2013. South Africa's share of global ferrochrome market declined to 28.9 percent even though the country's ferrochrome output increased by 5.1 percent in 2013. Ferrochrome exports increased by 1.5 percent to 5.6 Mt in 2013 compared with 2012. South Africa, at 50.3 percent, remained the largest ferrochrome exporter, followed by Kazakhstan and India at 17.3 percent and 9.9 percent, respectively. China's ferrochrome imports increased by 20.4 percent

to 1.8 Mt in 2013, with South Africa providing nearly one million tonnes; more than half of China's total ferrochrome imports during the period.

FIGURE 53: WORLD'S LEADING STAINLESS STEEL PRODUCERS, 2013



Source: International Stainless Steel Forum, 2014

TABLE 71: WORLD FERROCHROME PRODUCTION AND SALES, 2013

COUNTRY	PRODUCTION#			EXPORTS#		
	kt	%	Rank	kt	%	Rank
China	3 982	36.9	1	27	0.5	9
South Africa	3 219	29.8	2	2 802	50.3	1
Kazakhstan	1 156	10.7	3	961	17.3	2
India	974	9.0	4	551	9.9	3
Russia	465	4.3	5	261	4.7	4
Finland	434	4.0	6	219	3.9	5
Brazil	161	1.5	7	17	0.3	11
Zimbabwe	148	1.4	8	127	2.3	6
Turkey	142	1.3	9	109	2.0	7
Sweden	50	0.5	10	39	0.7	8
Albania	16	0.1	11	24	0.4	10
Other	43	0.4		431	7.7	
TOTAL: 2013	10 789	100		5 567	100	
2012	9 827			5 484		

Source: DMR Directorate Mineral Economics, 2014

South Africa's ferrochrome production grew by 5.1 percent to 3.2 Mt in 2013 (Table 72), mainly due to rising local ferrochrome production capacity utilization following government intervention of ending the energy buyback programme, between Eskom and the ferrochrome producers. Domestic ferrochrome sales volumes declined by 18.7 percent to 360 kt in 2013; corresponding with a 2.2 percent drop in local

stainless steel output during the period. Export sales volumes increased by 2.1 percent to 2.8 Mt in 2013 compared with 2012, due to increased demand from china and lower demand from the local stainless steel industry.

TABLE 72: SOUTH AFRICA'S FERROCHROME PRODUCTION AND SALES, 2004 – 2013

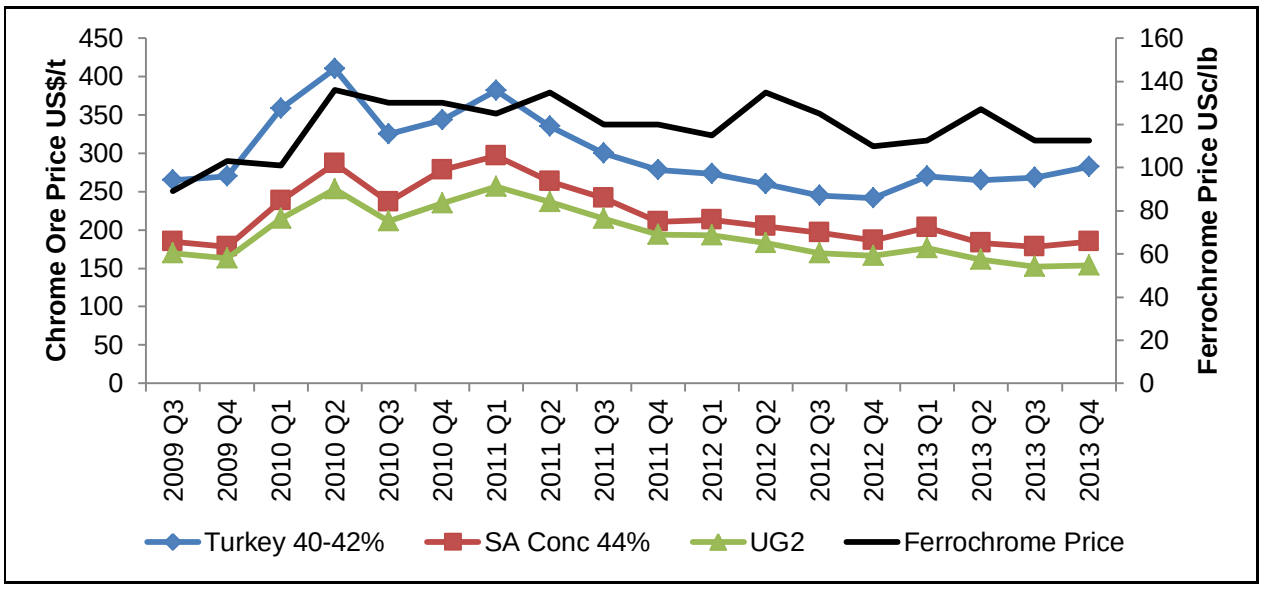
YEAR	PRODUCTION	LOCAL SALES			EXPORT SALES		
		Mass	Value	Unit Value	Mass	Value	Unit Value
	kt	kt	R' 000	R/t	kt	R' 000	R/t
2004	3 032	484	1 856 496	3 836	2 646	10 109 639	3 821
2005	2 802	358	1 421 676	3 968	2 480	9 923 290	4 001
2006	3 030	353	1 352 224	3 832	2 581	10 370 421	4 017
2007	3 561	395	1 995 161	5 047	2 972	15 534 184	5 227
2008	3 269	334	3 415 822	10 227	2 525	28 355 767	11 230
2009	2 346	432	2 252 973	5 215	2 621	15 881 599	6 059
2010	3 607	397	2 851 837	7 183	3 116	24 216 069	7 772
2011	3 422	448	3 413 684	7 620	3 037	23 738 853	7 817
2012	3 063	443	3 402 210	7 677	2 745	22 290 876	8 120
2013	3 219	360	2 983 322	8 286	2 802	25 552 642	9 120

Source: DMR Directorate Mineral Economics, 2014

PRICES AND REVENUES

The impact of the oversupply due to the UG2 chrome in the market was evident in the chrome ore price, which fell by 8.9 percent in 2013 to $185/t compared with 2012 (Figure 54). UG2 chrome prices declined by 13 percent to $154/t in the same period. The drop in chrome ore and UG2 prices continued to have a negative impact on ferrochrome prices, which also declined by 1.7 percent in 2013 despite higher global stainless steel production. Despite a drop in the chrome ore and ferrochrome prices in 2013, chrome ore and ferrochrome total sales revenue increased by 42.2 percent and 11.0 percent, respectively, due to higher total sales mass in 2013 compared with 2012.

FIGURE 54: CHROME ORE AND FERROCHROME PRICES, 2013



Source: CRU Mining Group, 2014

EMPLOYMENT

Employment in South Africa's chrome industry fell by 7.0 percent to 18 374 in 2013 compared with 2012, while remuneration increased by 12.1 percent (Table 73). The decrease in employment resulted from a 15.9 percent drop in the number of contractors from 8 598 in 2013 to 7 225 in 2012, while permanent employees only dropped by 0.2 percent in the same period. Total remuneration increased by 12.1 percent in 2013 compared with 2012, resulting in a 20.6 percent increase in the average remuneration per employee.

TABLE 73: EMPLOYMENT IN SOUTH AFRICA'S CHROME INDUSTRY, 2013

YEAR	EMPLOYEES	TOTAL REMUNERATION R' 000	AVERAGE REMUNERATION R/employee
2009	10 966	1 457 367	132 898
2010	13 982	2 082 481	148 940
2011	16 911	2 754 694	162 893
2012	19 758	3 430 889	173 645
2013	18 374	3 848 722	209 465

Source: DMR Directorate Mineral Economics, 2014

KEY DEVELOPMENTS

Phase II of the Lion ferrochrome plant project is expected to increase the Glencore-Merafe chrome venture's total installed capacity to over 2.3 million tons per annum (tpa). Ferrochrome production from the first furnace of the Project Lion II commenced on 6 April 2014 and the second furnace commenced on 30

May 2014. The total investment for the project is R7.5 billion. The investment includes R6.5 billion for the actual plant and the remainder to increase the capacity of the Magareng Mine to 1.2 Mtpa.

Afarak is conducting feasibility studies on constructing two new 70MW DC furnaces in South Africa, with total installed production capacity of 280 000 tpa. Construction of these furnaces is expected to be completed in 2016, and the company is in the process of selecting the preferred site for the project.

Ferrochrome Furnaces announced a new ferrochrome project in South Africa with an estimated capacity of 300 ktpa of low and medium-carbon ferrochrome by the end of 2014. Further investment would allow the plant to reach a projected 420 ktpa by the end of 2016.

OUTLOOK

According to the Worldsteel Association, world stainless steel production is projected to rise by 9.2 percent to 41.6 Mt, with China's output expected to increase by 13.2 percent during the same period. China's stainless steel production and consumption is expected to remain the driver of future global ferrochrome demand. Ferrochrome demand is projected to rise to approximately 11 Mt in 2014, while supply is anticipated to rise by 13.3 percent to 12.2 Mt in 2014 due to planned capacity expansions, particularly from China and South Africa. China's ferrochrome production is forecast to grow by 18 percent to 4.7 Mt in 2014, with South Africa's output anticipated to increase by 6 percent to 3.4 Mt in 2014.

Chrome ore prices have declined considerably over the past two years due to an oversupplied market as well as low ferrochrome prices. Chrome ore and UG2 chrome ore prices are expected to remain unchanged for the remainder of 2014. Ferrochrome prices are forecast to rise by 3 percent to roughly US$1.20/lb in 2014. Ferrochrome prices are projected to be in a range of 3.5 percent to 4.5 percent per annum in the medium term and to reach US$1.31/lb by 2018.

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IRON ORE

S. Ntshobane

SUPPLY – DEMAND

Global iron ore reserves were estimated at 81 billion tons in 2013, with Australia accounting for 21.0 percent of the world's reserves, followed by and Brazil and Russia at 19.8 percent and 17.3 percent, respectively. South Africa holds 650 Mt of known iron ore reserves; contributing just 0.8 percent to global reserves (Table 74).

TABLE 74: WORLD IRON ORE RESERVES, PRODUCTION AND EXPORTS, 2013

COUNTRY	RESERVE#			PRODUCTION+			EXPORTS+		
	Mt	%	Rank	Mt	%	Rank	Mt	%	Rank
Australia	17 000	21.0	1	619	31.5	1	619	46.3	1
Brazil	16 000	19.8	2	330	16.8	2	330	24.6	2
China	7 200	8.9	4	297	15.1	3	0	0.0	11
India	5 200	6.4	5	122	6.2	4	16	1.2	9
Russia	14 000	17.3	3	100	5.1	5	26	1.9	7
Ukraine	2 300	2.8	6	78	4.0	6	38	2.8	4
South Africa	650	0.8	12	72	3.6	7	58	4.3	3
Iran	1 400	1.7	10	59	3.0	10	35	2.6	6
United States	2 100	2.6	9	49	2.5	8	11	0.8	10
Canada	2 300	2.8	6	41	2.1	9	38	2.8	4
Sweden	2 200	2.7	8	26	1.3	11	24	1.8	8
Other	10 650	13.1		172	8.8		143	10.7	
TOTAL:2013	81 000	100		1 965	100		1 338	100	
2012	80 000			1 850			1 195		

Sources: + CRU, 2013

** DMR Directorate Mineral Economics, 2014*

 # USGS, 2010 (Reserve – Iron content)

World iron ore production increased by 6.2 percent to 1 965 Mt in 2013 compared with 2012, mainly due to a spike in Australia's output (Table 74). Australia was the largest producer at 31.5 percent of total world production, followed by Brazil and China at 16.8 percent and 15.1 percent, respectively. South Africa's iron ore production increased by 6.6 percent to 72 Mt in 2013 compared with 2012 (Table 75), contributing only 3.6 percent to total world output. Local sales and export mass grew by 10.3 percent and 1.9 percent in 2013, in line with an increment in both the local and global crude steel output.

TABLE 75: SOUTH AFRICA'S PRODUCTION AND SALES OF IRON ORE

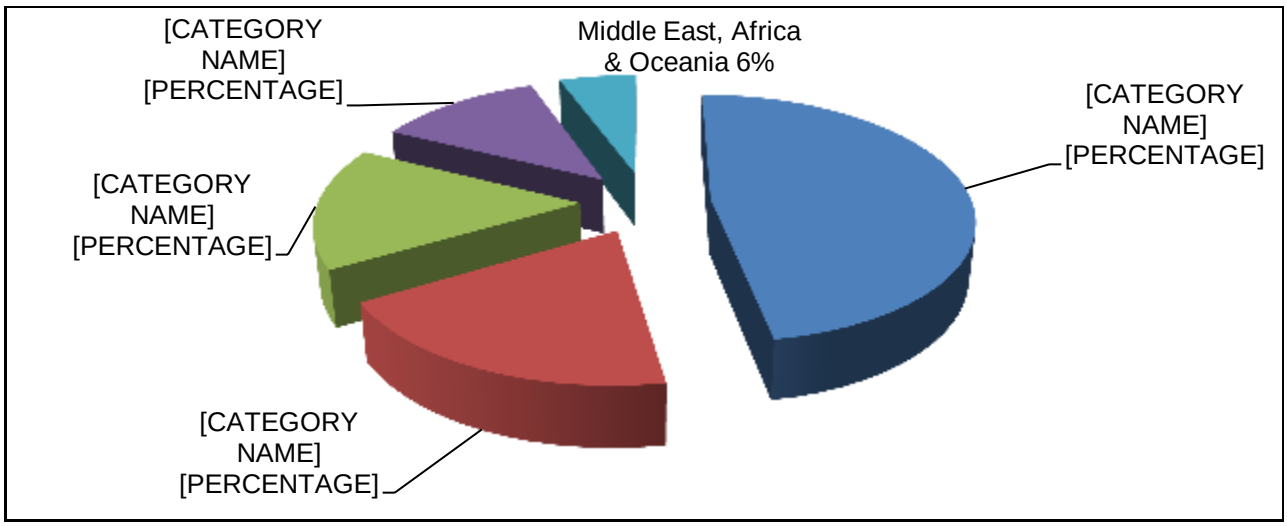
YEAR	PRODUCTION	LOCAL SALES			EXPORT SALES		
		Mass	Value	Unit Value	Mass	Value	Unit Value
	kt	kt	R' 000	R/t	kt	R' 000	R/t
2004	39 322	12 430	1 145 600	92	27 745	3 439 885	124
2005	39 542	12 009	1 272 795	106	26 628	6 246 776	235
2006	41 326	11 989	1 395 219	116	27 370	8 532 277	312
2007	42 083	12 407	1 749 498	141	29 724	11 680 793	393
2008	48 983	11 258	1 974 628	175	32 766	20 267 206	619
2009	55 313	8 369	1 888 801	226	44 550	25 242 934	567
2010	58 709	10 561	3 270 326	310	47 493	40 148 279	845
2011	58 057	9 844	4 207 746	427	51 891	58 444 148	1126
2012	67 100	8 393	4 448 978	530	57 110	48 193 830	844
2013	71 534	9 259	5 746 180	621	58 202	57 385 286	986

Source: DMR Directorate Mineral Economics, 2014

Approximately 98 percent of global iron ore output is used in crude steel manufacturing and the remainder is used in the cement, pigments, chemicals and agriculture industry. World crude steel output grew by 3.5 percent to 1 607.2 Mt in 2013, with China accounting for 48.4 percent of global crude steel output. Global iron ore exports grew by 12.0 percent to 1 338 Mt in 2013 compared with 2012 owing to stronger demand driven mainly by China, which increased crude steel output by 7.5 percent. Australia and Brazil accounted for approximately 70.9 percent of global iron ore exports in 2013. South Africa's exports amounted to 58 Mt in 2013 positioning the country as the third largest iron ore exporter.

China is the world's leading importer of iron ore, accounting for 66 percent (821.Mt) of total global iron ore imports in 2013, followed by Europe and Japan at 10.8 percent and 9.9 percent, respectively. World crude steel consumption grew by 3.6 percent to 1 481 Mt in 2013. Crude steel demand grew higher than projected due to stronger than anticipated performance by developed countries. China's crude steel consumption increased by 6.1 percent to 700 Mt in 2013; approximately 47.3 percent of global consumption (Figure 55).

FIGURE 55: REGIONAL CRUDE STEEL CONSUMPTION, 2013

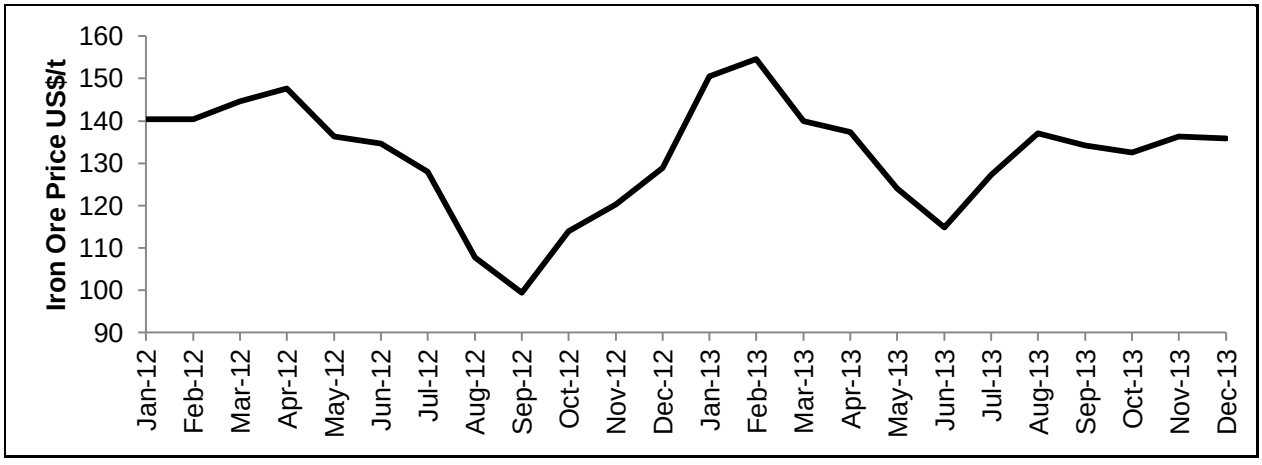


Source: WorldSteel, 2014

PRICES

Iron ore spot prices steadily declined in 2013, after starting the year at US$150/t (China CFR). Spot prices declined to US$115/t in June 2013 before recovering to US$136/t at the end of 2013, a 4 percent improvement on the 2012 spot price (Figure 56). Although China's steel production and consumption remained historically high during the year, an oversupplied iron ore market and low steel prices, along with a surge of iron ore supply, especially from Australia, exerted downward pressure on prices. Despite low spot prices throughout the year, South Africa's export revenue increased by 19.1 percent in 2013 compared with 2012 due to higher export mass as well as improvement in prices in the last two quarters of the year.

FIGURE 56: IRON ORE SPOT PRICES, 2012 AND 2013



Source: International Monetary Fund, 2014

EMPLOYMENT

Employment in South Africa's iron ore industry fell by 9.4 percent to 21 174 in 2013 as the number of contract employees declined due to new mines coming into production (Table 76). Permanent employees increased by 6.1 percent to 9 989 while contract employees declined by 19.9 percent to 11 185 in 2013. Total remuneration increased by 3.3 percent in 2013 compared with 2012, resulting in a 9.2 percent increase in the average remuneration per employee.

TABLE 76: SOUTH AFRICA'S IRON ORE INDUSTRY'S EMPLOYMENT AND REMUNERATION

YEAR	EMPLOYEES	TOTAL REMUNERATION R' 000	AVERAGE REMUNERATION R/employee
2009	13 727	2 178 041	158 668
2010	18 216	3 037 690	166 759
2011	22 342	6 504 656	291 140
2012	23 380	4 690 573	209 587
2013	21 174	4 845 697	228 851

Source: DMR Directorate Mineral Economics, 2014

KEY DEVELOPMENTS

Kumba's expansion and exploration project pipeline with capital expenditure of R6.5-billion seeks to grow production to 70-million tonnes a year in South Africa in 2013. Growth projects under Kumba's consideration include:

- The Kolomela mine expansion project, which entails the brownfield development and introduction of a beneficiation facility to increase production by five-million tons a year from 2017.
- The Sishen lower-grade Phase 1 project, aimed at producing additional jig-quality product through the liberation and/or beneficiation of material from the Sishen jig plant. The project, currently at the concept study stage, will add 1.7 Mtpa from 2019.
- The Sishen lower-grade Phase 2, currently at the exploration stage, is envisaged to produce an additional 4.3 Mtpa from the lower-grade material.
- Project Phoenix, currently at feasibility study phase, is anticipated to produce nearly 3.4 Mtpa for 20 years.
- The Zandrivierspoort iron-ore project, currently at prefeasibility study stage, is a proposed 15 Mtpa run-of-mine operation that is expected to produce 6 Mtpa. The project could potentially come on stream in 2019.

Assmang concluded an agreement with Transnet Freight Rail (TFR) for an additional allocation of 4 Mtpa on the Sishen–Saldanha iron ore export channel in 2013; bringing the total allocation to 14 Mtpa. The increase will accommodate additional volumes as Khumani Mine ramps up production to 14 Mtpa. TFR

completed the feasibility study on the expansion of the Sishen–Saldanha iron-ore export channel's capacity to 82 Mtpa. Assmang is expected to apply to secure a deal on future capacity allocation.

The feasibility study at Bushveld Minerals' Limpopo project is expected to be completed by the end of 2014. It is projected that production will commence in 2016 using existing infrastructure, and to scale up to 5 Mt of run-of-mine ore following further investment in infrastructure, including railway. The company signed a memorandum of understanding with China Railway for a joint pyro metallurgical test work programme in 2013. Subject to a positive outcome, the companies will sign an investment agreement, off take and joint infrastructure development pacts.

OUTLOOK

According to Global Steel 2014, world steel demand is forecast to grow at about 3.3 percent, with more demand growth expected to come from outside of China due to that country's slow economic growth, which is expected to negatively affect global iron ore demand. However, CRU forecast global iron ore production to increase by 3.2 percent in 2014, mainly due to a sharp rise in Australia's output, which is projected to increase by 17.3 percent in the same period. South Africa's output is expected to stabilize at 72 Mt in 2014 with exports increasing by 3.0 percent. South Africa's infrastructure development programme is expected to boost iron ore local demand required for local steel output in the medium to long term.

The average iron ore price is expected to decline in 2014 to an average price of US$117/t from an average price of $136/t in 2013 due to slow demand concerns from China. In addition, aggressive expansion plans from Australian major producers are expected to depress prices further in 2014 and 2015, due to an oversupplied market. Price strength is expected in the near-term but, for the remainder of 2014, iron ore prices are estimated to average at $117/t CFR China, marking a $19/t year on year decline.

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MANGANESE ORE

S. Ntshobane

SUPPLY - DEMAND

World manganese ore reserves fell by 9.5 percent to an estimated 570 Mt in 2013. The drop was attributed to the revision of reserve estimates by the government of Brazil and updated information from major producers in Gabon. South Africa and Ukraine account for approximately 50.9 percent of known manganese ore reserves.

TABLE 77: WORLD MANGANESE ORE RESERVES, PRODUCTION AND EXPORTS, 2013

COUNTRY	RESERVE#			PRODUCTION+			EXPORTS+		
	Mt	%	Rank	Mt	%	Rank	Mt	%	Rank
China	44	7.7	6	16	30.2	1	-	-	-
South Africa	150	26.3	1	11*	21.1	2	8	30.8	1
Australia	97	17.0	3	8	14.8	3	6	23.1	2
Gabon	24	4.2	7	4	7.4	4	4	15.4	3
India	49	8.6	5	3	5.5	5	-	0.3	6
Brazil	54	9.5	4	3	4.7	6	2	7.0	5
Ghana	-	-		2	3.4	7	2	7.6	4
Ukraine	140	24.6	2	1	2.5	8	-	0.2	8
Malaysia	-	-		1	2.1	9	-	-	-
Kazakhstan	5	0.9	8	1	1.9	10	-	0.3	7
Other	7	1.2		4	6.5		4	15.4	
TOTAL: 2013	570			53	100		26	100	
2012	630			48			22		

Sources: + CRU Group, 2014

** DMR Directorate Mineral Economics, 2014*

 # USGS, 2014

Global manganese ore output grew by 9.0 percent to 53 Mt in 2013 as demand increased on the back of a recovery from major economies following a contraction in 2012. China was the leading manganese ore producer contributing 30.2 percent to global output, followed by South Africa at 20.7 percent, (Table 77). South Africa was the leading exporter contributing 30.8 percent, followed by Australia at 23.1 percent. South Africa's exports sales volumes increased by 1.8 percent to 7.6 Mt mainly due to China's rising demand for manganese ore. The country's exports to China increased by 57.7 percent to 5.4 Mt in 2013.

World crude steel output increased by 3.5 percent to 1 607.2 Mt in 2013, driven by rising demand from China. China's crude steel output rose by 7.5 percent to 779 Mt in 2013; approximately 48.4 percent of world crude steel output. Notwithstanding, sluggish economic growth, China remained the largest importer of manganese ore. China's imports increased by 34.3 percent to 17 Mt in 2013; approximately 64.2 percent of the total global manganese ore imports.

TABLE 78 SOUTH AFRICA'S MANGANESE ORE PRODUCTION AND SALES, 2003 – 2013

YEAR	PRODUCTION	LOCAL SALES			EXPORT SALES		
	Mass	Mass	Value		Mass	Value	
	kt	kt	R' 000	R/t	kt	R' 000	R/t
2004	4 282	W	656	W	2 403	1 082	450
2005	4 612	W	682	W	2 119	1 519	717
2006	5 213	W	727	W	2 846	1 519	534
2007	5 996	W	935	W	3 691	2 637	697
2008	6 807	W	1 762	W	4 689	15 582	3 323
2009	4 575	W	584	W	3 975	5 003	1 258
2010	7 172	W	1 321	W	5 986	9 340	1 560
2011	8 652	W	1 325	W	6 773	8 570	1 265
2012	8 943	W	1 135	W	7 498	9 686	1 292
2013	11 056	W	1 569	W	7 631	12 513	1 640

Source: DMR Directorate Mineral Economics, 2014

TABLE 79: SOUTH AFRICA'S FERROMANGANESE PRODUCTION & SALES, 2003 – 2013

YEAR	PRODUCTION	LOCAL SALES			EXPORT SALES		
	Mass	Mass	Value		Mass	Value	
	kt	kt	R' 000	R/t	kt	R' 000	R/t
2004	612	153	784	5 127	446	2 496	5 600
2005	571	140	601	4 289	375	1 711	4 565
2006	656	128	451	3 543	556	2 303	4 143
2007	699	151	835	5 546	565	3 703	6 551
2008	503	79	1 115	14 085	500	8 883	17 774
2009	275	23	213	9 310	262	1 820	6 940
2010	473	21	186	9 036	488	4 094	8 397
2011	714	20	169	8 347	556	4 389	7 892
2012	706	33	263	8 084	523	3 961	7 567
2013	681	58	496	8 629	493	4 113	8 334

Source: DMR Directorate Mineral Economics, 2014

World manganese alloys output amounted to 16.7 Mt in 2013, up by 3.1 percent from 2012, on the back of stronger demand. South Africa's high carbon ferromanganese (HCFeMn) and refined ferromanganese (MCFeMn) production, which constitute the bulk of the country's total manganese alloys output amounted to 681 kt in 2013, a 3.5 percent drop compared with 2012 (Table 79). Local sales mass declined by 75.5 percent to 58 kt while export mass fell by 5.7 percent to 493 kt in 2013.

TABLE 80: SOUTH AFRICA'S PRODUCTION AND SALES OF OTHER MANGANESE ALLOYS, 2003 – 2013

YEAR	PRODUCTION	LOCAL SALES			EXPORT SALES		
	Mass	Mass	Value		Mass	Value	
	kt	kt	R' 000	R/t	kt	R' 000	R/t
2004	374	39	148	3 798	308	1 833	5 956
2005	275	25	121	4 811	184	1 080	5 865
2006	278	31	130	4 266	149	813	5 468
2007	328	35	216	6 115	223	1 700	7 614
2008	259	47	653	13 958	182	3 021	16 568
2009	118	45	385	8 600	151	1 805	11 955
2010	317	44	413	9 372	271	2 979	10 974
2011	350	34	314	9 276	298	3 020	10 131
2012	177	28	264	9 533	158	2 197	13 910
2013	163	32	319	9 848	131	1 980	15 120

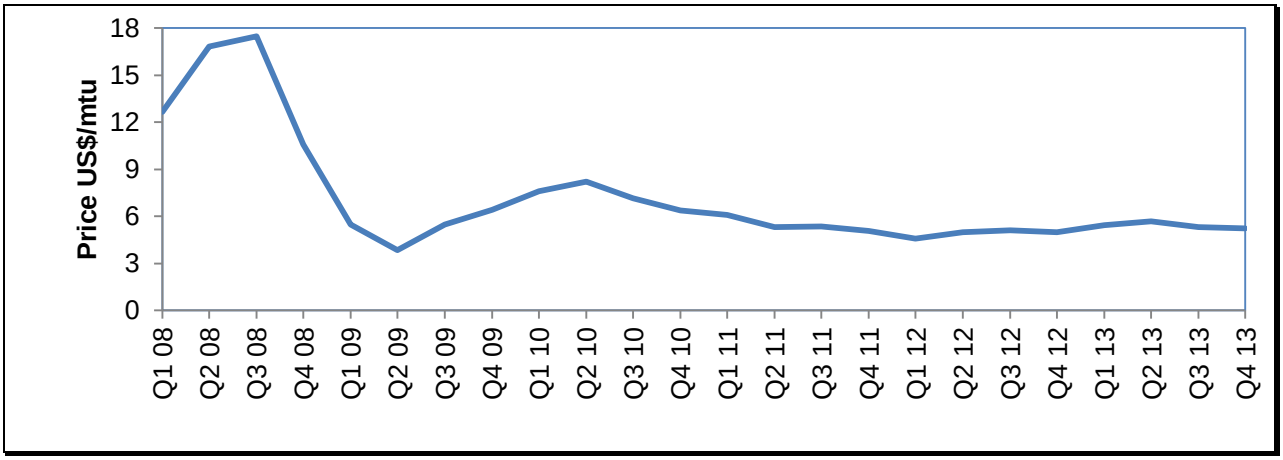
Source: DMR Directorate Mineral Economics, 2014

Production of other manganese alloys declined by 7.9 percent to 163 kt in 2013 compared with 2012, mainly due to permanent production cuts of silico-manganese in the country, (Table 80). Local sales mass increased by 14.3 percent to 32 kt while export mass fell by 17.1 percent to 131 kt.

PRICES AND REVENUE

Manganese ore annual average price increased by 10.2 percent to US$5.43/mtu in 2013 compared with 2012, (Fig. 1). Manganese ore prices increased steadily during the first half of 2013 before declining slightly for the rest of the year. Manganese ore price increased from US$5.45/mtu in the first quarter of 2013 to US$5.70/mtu in the second quarter of the year, and declined for the remainder of the year, ending the year at US$5.25/mtu. Exports revenues increased by 29 percent in 2013, due to improvement in ore prices coupled with higher export mass compared with 2012.

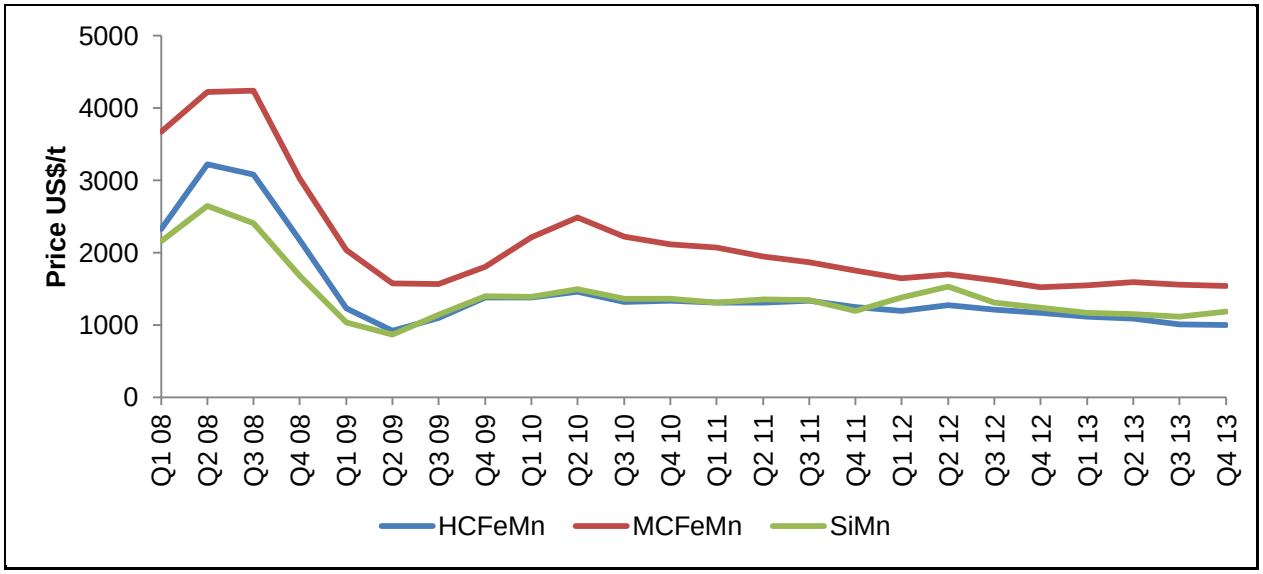
FIGURE 57: QUARTERLY MANGANESE ORE PRICES, 2008 – 2013



Source: CRU Group, 2014

HCFeMn and MCFeMn prices remained weak in 2013 compared with 2012, averaging at $1 051.67/t and $1 557.30/t, respectively for the year, down by 13.1 percent and 4.0 percent compared with 2012. SiMn prices declined throughout the year until a slight improvement in the fourth quarter. The annual average price of SiMn declined by 15.7 percent to $1 151.90/t in 2013 compared with 2012.

FIGURE 58: MONTHLY AVERAGE PRICES OF MANGANESE ALLOYS, 2008 - 2013



Source: CRU Group, 2014

EMPLOYMENT

Employment in South Africa's manganese ore industry increased by 13.2 percent to 9 877 and increased its share of total mining employment to 1.9 percent in 2013 from 1.7 percent in 2012. Permanent employees increased by 11.3 percent to 4 114 while contract employees increased by 14.5 percent to 5 763 in 2013. Total remuneration increased by 22.6 percent in 2013 compared with 2012, resulting in a 8.3 percent increase in the average remuneration per employee.

TABLE 81: SOUTH AFRICA'S MANGANESE ORE INDUSTRY'S EMPLOYMENT AND REMUNERATION

YEAR	EMPLOYEES	TOTAL REMUNERATION R'000	AVERAGE REMUNERATION R/employee
2009	4 988	731 618	146 676
2010	5 879	946 139	160 935
2011	7 460	1 277 580	171 257
2012	8 726	1 570 665	179 998
2013	9 877	1 925 058	194 903

Source: DMR Directorate Mineral Economics, 2014

KEY DEVELOPMENTS

Transnet announced the relocation of its 5.5 Mtpa manganese terminal in Port Elizabeth to the Port of Ngqura. Transnet plans to decommission the current capacity at Port Elizabeth in line with the commissioning of the new terminal in Ngqura by 2017. The Ngqura terminal is to be commissioned with a capacity of 16 Mtpa. Transnet will spend R33 billion on the expansion and improvement of its bulk and container terminals over the next seven years.

BHP Billiton-owned Metalloys completed the expansion of Samancor Manganese's smelter complex, estimated at R1 billion. The project involved the construction of a new 81 MVA, energy efficient furnace, with a capacity to produce 1.2 Mtpa of high-carbon ferromanganese. The new M14 furnace will operate adjacent to BHP's three other furnaces and allow the beneficiation of nearly 30 percent of BHP Billiton's locally mined product. The furnace uses advanced technology that allows off gas emitted to be used for additional energy generation and thereby improving energy self-sufficiency on the site to 20 percent.

Kudumane Manganese commenced full production in 2013. Kudumane has an estimated 98 Mt of manganese resources and is envisaged to produce 3 Mtpa of 37.5 percent manganese ore. Kalagadi Manganese launched the sinter plant at its manganese complex in the Northern Cape. An additional component of the project is the construction of a 3 Mtpa underground manganese mine and a 3.2 Mtpa ferromanganese smelter close to the Coega deep-water harbour.

OUTLOOK

According to the CRU, growth in consumption of manganese ore in ferroalloys is expected to rise at a compound average growth rate (CAGR) of 4.0 percent. Demand is expected to be driven mainly by medium–carbon ferromanganese, followed by silico-manganese, while high-carbon ferromanganese demand for ore continues to grow slower on the basis of reduced uptake of the alloy in steelmaking. China's dependence on imports for its supply of manganese units has been rising, increasing by 34 percent in 2013 compared with 2012, due to the depleting resources of domestic ore and rising costs of extraction. It is expected that demand for imported ore into China will continue to gain strongly, contributing to anticipated increase in manganese consumption.

Manganese ore prices are expected to contract for the remainder of 2014. From 2015 onwards, benchmark ore prices are expected to rise through to 2018, due to a tightening in the global supply/demand balance and the levels of output required from China's mining industry. South Africa's manganese ore production is expected to reach 14 Mt in 2014 driven by the expected increase in production capacity. Further relief from logistical constraints is expected to boost production reaching approximately 18 Mt by the end of 2018.

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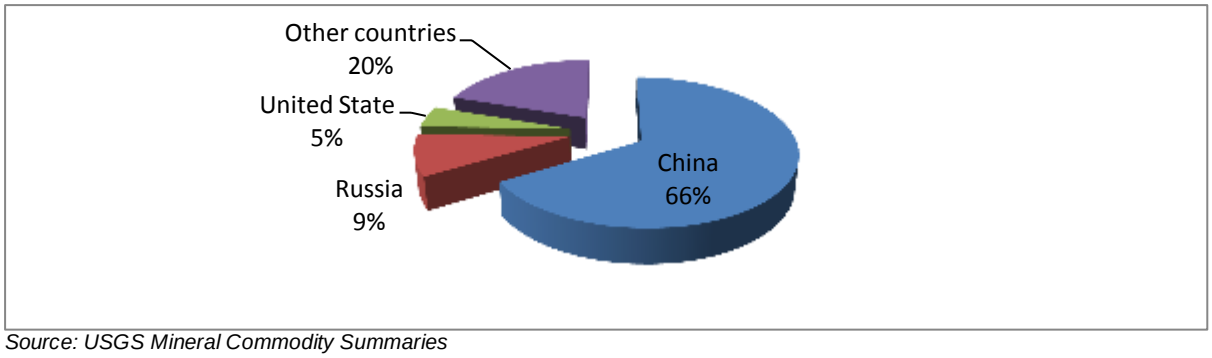
SILICON

Lesego Malebo and Moretlo Nyabanyaba

SUPPLY AND DEMAND

Sources of silicon have not been quantified due to their abundance and are reported to be adequate to supply world demand for decades. World silicon output was estimated at 7.8 Mt in 2013, a 1.6 percent increase compared with 2012. Ferrosilicon production represented the largest segment of silicon products accounting for 73 percent, while silicon metal production accounted for 27 percent in 2013. China continued to dominate world output, contributing 66 percent to global silicon production, while South Africa contributed approximately 1.7 percent (Fig. 1). Demand for silicon metal comes primarily from the aluminium and chemical industries, with more than 75 percent of silicon metal typically consumed by the chemical industry. Ferrosilicon exports from China reached 227 kt in 2013, a 30 percent drop, as a result of high export tariffs and anti-dumping duties in Europe. Consequently, Russia took up some of the market share previously dominated by Chinese exports.

FIGURE 59: CONTRIBUTION TO SILICON PRODUCTION BY COUNTRY, 2013



Source: USGS Mineral Commodity Summaries

TABLE 82: SOUTH AFRICA'S PRODUCTION AND SALES OF FERROSILICON, 2004 - 2013

YEAR	PRODUCTION	LOCAL SALES			EXPORT SALES		
	Mass	Mass	Value		Mass	Value	
	kt	kt	R'000	R/t	kt	R'000	R/t
2004	140.6	84.3	436 095	5 174	57.8	268 786	4 648
2005	127.0	73.4	388 446	5 293	41.3	223 216	5 401
2006	148.9	79.5	444 261	5 585	49.0	301 534	6 153
2007	139.6	91.7	616 444	6 724	54.7	395 352	7 222
2008	134.5	71.2	842 183	11 835	44.2	512 037	11 573
2009	110.4	60.9	659 855	10 835	43.6	460 901	10 571
2010	127.7	63.6	710 333	11 169	59.2	631 765	10 672
2011	126.2	57.3	693 448	12 111	67.0	811 277	12 115
2012	83.0	57.2	702 315	12 269	32.7	436 858	13 360
2013	78.4	52.1	724 560	13 941	32.4	503 142	17 128

Source: DMR, Directorate Mineral Economics

South Africa's production of ferrosilicon declined by 5.5 percent to 78.4 kt in 2013 (Table 82), in response to slow economic growth, particularly from China. Local sales mass decreased by 9 percent to 52.1 kt, while export volume decreased by 0.91 percent to 32.4 kt in 2013 compared with 2012, bringing the total sales volume to 84.5 kt, a 6.1 percent drop compared with the previous year . Silicon metal production declined by 35.8 percent to 34.0 kt in 2013 compared with 2012 (Table 83), mainly due to production disruption at a silicon smelter for a period of six months, while total sales volume declined by 44 percent due to lower demand.

TABLE 83: SOUTH AFRICA'S PRODUCTION AND SALES OF SILICON METAL, 2004 - 2013

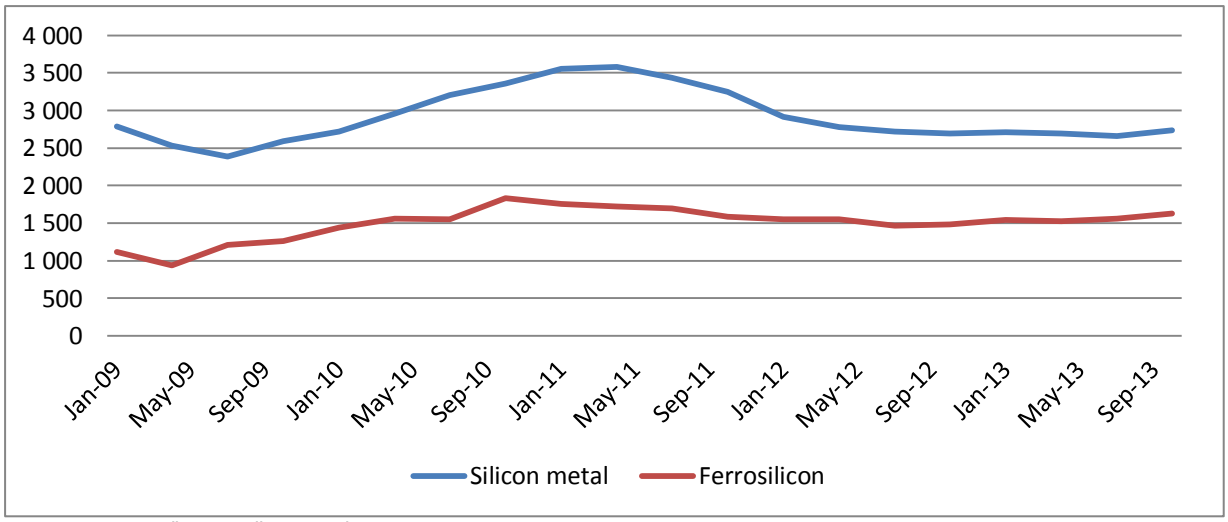
YEAR	PRODUCTION	LOCAL SALES			EXPORT SALES		
	Mass	Mass	Value		Mass	Value	
	kt	kt	R'000	R/t	kt	R'000	R/t
2004	50.5	8.8	65 414	7 403	45.9	389 430	8 473
2005	53.5	5.5	47 881	8 716	41.6	450 200	9 556
2006	53.3	7.8	72 270	9 213	47.4	503 583	10 622
2007	50.3	8.9	101 794	11 498	46.3	570 763	12 319
2008	51.8	3.9	87 443	22 438	53.5	1 213 107	22 669
2009	38.6	6.4	91 586	14 310	38.4	640 413	16 677
2010	46.4	10.8	106 016	9 816	62.4	822 406	13 187
2011	58.8	10.6	66 576	6 283	63.1	1 073 668	17 008
2012	53.0	15.1	62 044	4 099	59.4	928 424	15 641
2013	34.0	2.1	26 354	12 604	31.3	809 719	25 882

Source: DMR, Directorate Mineral Economics

PRICES AND REVENUE

Ferrosilicon prices showed some improvement throughout 2013, due to improved demand from both domestic and overseas markets, following a downward trend in prices in 2012.This resulted in ferrosilicon annual prices averaging at $1 565/t for 2013, a 3 percent increase from 2012. Silicon metal annual prices averaged at $2 697/t in 2013, a 3 percent lower when compared with 2012. Despite a 15 percent drop in ferrosilicon total sales volumes in 2013 compared with 2012, total revenue increased by 7.7 percent due to improved prices in the same period. Silicon metal total revenues declined by 15 percent due to lower total sales volumes and prices in 2013 compared with 2012.

FIGURE 60: SILICON METAL AND FERROSILICON PRICES, 2009-2013



Source: CRU, Bulk Ferroalloys Monitor

OUTLOOK

The expected behaviour of the silicon market is highly dependent on the performance of the downstream markets, mainly steel and aluminium alloys sectors, as well as the recovery of the global economy. World steel demand is forecast to grow at about 3.3 percent while aluminium demand is expected to be stronger in 2014 than 2013. More demand growth is expected to come from outside of China due to that country's slow economic growth. According to CRU, global silicon metal production is expected to increase by approximately 5 percent year on year in 2014, due to China's capacity expansion. Silicon metal exports are projected to increase in 2014 into 2015, with demand expected to come from Asian countries, particularly South Korea, as the country needs more silicon metal to produce polycrystalline silicon, used in semiconductor and solar power generating applications.

Silicon prices are expected to increase in 2014 and into 2015, due to increased demand. Construction activities in the United States as well as infrastructure developments in African countries are expected to promote the uptake of silicon, which in turn will boost silicon prices. In South Africa, the implementation of the Strategic Integrated Projects (SIPs), which are aimed at fast tracking infrastructure developments, have the potential to increase local demand for steel as well as increase the demand for solar cells for energy generation. This could encourage an increase in the utilization of the country's silicon production capacity.

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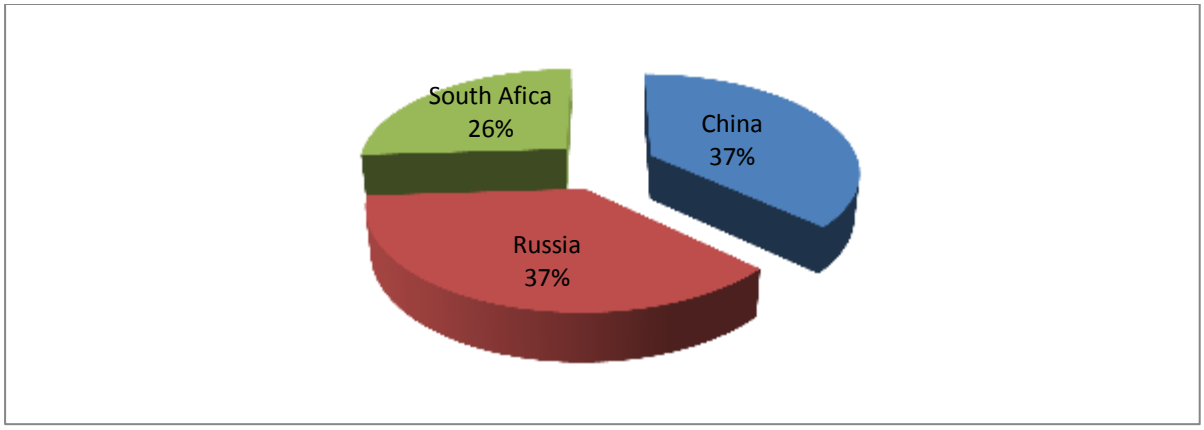
VANADIUM

Lesego Malebo and Moretlo Nyabanyaba

SUPPLY – DEMAND

World vanadium resources are estimated at 63 million metric tons (Mt) with the majority located in China, Russia and South Africa. World reserves are still estimated at 14 million Mt in 2013, with China and Russia accounting for 37 percent each followed by South Africa at 26 percent (Fig.1).

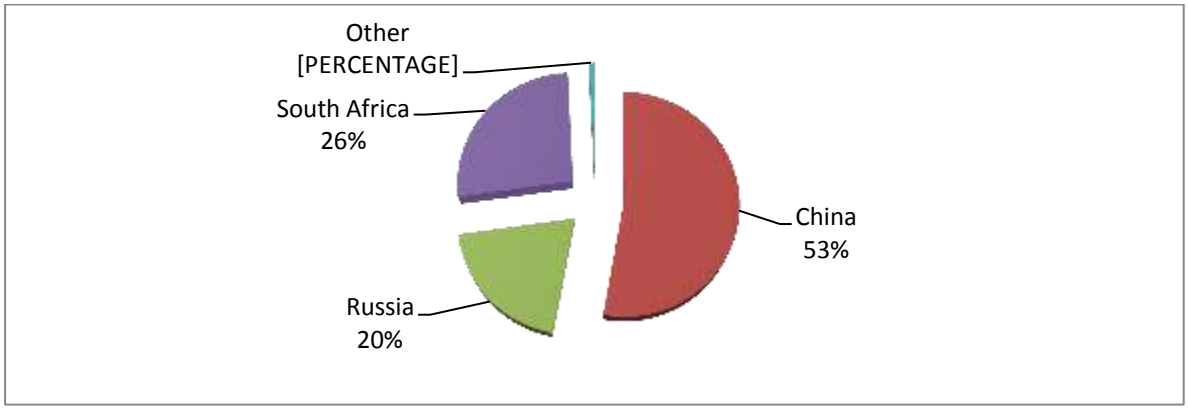
FIGURE 61: WORLD VANADIUM RESERVES, 2013



Source: USGS, Mineral Commodity Summaries

Over 90 percent of vanadium is consumed as ferrovanadium (FeV) in the production of high strength low alloy (HSLA) steels. Vanadium is also used in the production of titanium alloys for aerospace and industrial purposes. In 2012, titanium alloys accounted for about 4 percent of vanadium consumption and, about one percent of vanadium consumed was used in energy storage applications. The most important industrial vanadium compound, vanadium pentoxide (V_2O_5), is used as a catalyst for the production of sulphuric acid.

FIGURE 62: WORLD VANADIUM PRODUCTION, 2013



Source: USGS, Mineral Commodity Summaries

World vanadium output increased to 76 kt in 2013, 25 percent higher compared with 2012. China remained the leading producer at 53 percent, followed by South Africa and Russia at 26 percent and 20 percent,

respectively (Fig. 2). Vanadium slag from steel making accounted for 59 percent of global vanadium production, while mine production and secondary material accounts for 26 percent and 15 percent, respectively in 2013. Global steel production increased by 3.5 percent to 1,607 Mt in 2013 despite tepid demand growth in most parts of the world.

South Africa's vanadium production increased by 6.7 percent to 21.3 kt in 2013, compared with 2012 (Table 84). Total sales mass increased by 1.2 percent to 17.1 kt due to higher domestic demand in vanadium, as evidenced by a 40.8 percent increase in local sales mass in the same period. In excess of 88 percent of total vanadium production was exported, which dropped by 2.6 percent compared with 2012.

TABLE 84: SOUTH AFRICA'S PRODUCTION AND SALES OF VANADIUM, 2004 – 2013

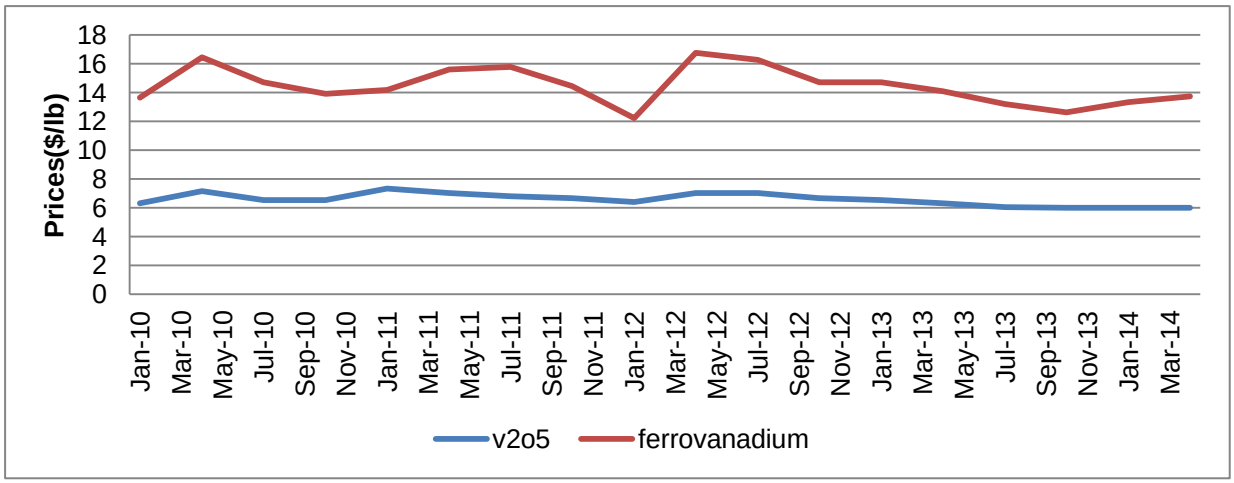
YEAR	PRODUCTION	LOCAL SALES			EXPORT SALES		
		Mass	Value (FOB)		Mass	Value (FOB)	
	kt	kt	R'mil	R/kg	kt	R'000	R/kg
2004	23.3	2.6	416	158	16.3	1 675	103
2005	22.6	2.8	1 154	406	15.3	3 758	246
2006	23.8	2.0	452	222	15.6	2 653	170
2007	23.5	2.3	446	191	14.3	2 319	163
2008	20.3	2.3	893	391	12.1	3 090	256
2009	14.4	1.8	267	149	11.9	1 360	116
2010	22.6	1.9	286	152	16.9	2 182	129
2011	21.7	1.7	270	155	17.9	2 288	128
2012	20.0	1.4	211	148	15.5	2 279	147
2013	21.3	2.0	349	147	15.1	2 637	175

Source: DMR, Mineral Economics

PRICES

Vanadium pentoxide (V_2O_5) prices, which fell to $6.5/lb in December 2012, stabilized at $6.52/lb throughout the first quarter of 2013. In the second quarter of 2013, V_2O_5 prices decreased by 3.4 percent to $6.3/lb and continued trending downward to reach $6.02/lb in the third quarter. V_2O_5 price showed signs of recovery in the fourth quarter of 2013 averaging $6.14/lb for the year, although 9.02 percent lower than the 2012 average price. Ferrovanadium (FeV) prices averaged $15/lb for the year, 19.89 percent higher than the 2012 average price.

FIGURE 63: MONTHLY FERROVANADIUM AND VANADIUM PENTOXIDE PRICES, 2010 - 2013



EMPLOYMENT

Average annual employment in South Africa's vanadium industry increased slightly by 0.5 percent to 1 496 in 2013. Total remuneration increased by 9.7 percent in 2013 compared with 2012, resulting in a 9.2 percent increase in the average remuneration per employee (Table 85).

TABLE 85: EMPLOYEMENT IN SOUTH AFRICA'S VANADIUM INDUSTRY, 2009-2013

YEAR	EMPLOYEES	TOTAL REMUNERATION	AVERAGE REMUNERATION
		R' 000	R/employee
2009	1 313	377 193	287 276
2010	1 382	459 178	332 257
2011	1 436	520 683	362 593
2012	1 489	533 741	358 456
2013	1 496	585 744	391 540

Source: DMR, Mineral Economics

KEY DEVELOPMENTS

The Ironveld pig iron vanadium project, which is expected to create over a thousand jobs is located in the northern limb of the Bushveld Complex in Limpopo. The company has released its feasibility study assessing the economic viability of its pig iron and ferro-vanadium project. Ironveld expects to mine its own magnetite resource at approximately 2.4 Mt per annum. The study demonstrates the viability of developing the project, delivering 1 million tons per annum (Mt/a) of pig iron and 9.67 kt of FeV production from 2019. The life of mine is estimated at 25 years with operating cost of R2 393/t pig iron and R47/kg FeV. Also, the study confirmed the viability of installing an early stage 12 MW smelter to produce an initial 46 kt/a of pig iron and 445 t/a of FeV from 2015, two years ahead of the commissioning of four 75 MW smelters required to achieve the longer term 1 Mt production target.

In July 2014, Bushveld Minerals announced the results of its scoping study for the development of its Bushveld Vanadium Project in South Africa. The study confirms attractive economics for the project with a modest capital expenditure requirements of US$262 million for a primary vanadium production plant producing 10 350 tons 99% V2O5 per annum from a 1 Mtpa Run-of-Mine open pit operation.

OUTLOOK

China as the leading producer of vanadium is in the process of significant expansion of co-product vanadium capacity, with further expansions scheduled over the next five years. In addition, a number of new projects in the ROW are expected to become operational in the short term, aiming to meet future increases in vanadium demand. South Africa's production capacity is expected to increase in 2016 from co-product vanadium production as a result of growth in steelmaking from vanadium bearing titaniferous magnetite ores, driven mainly by the government's industrialisation policy objectives. According to Roskill, increased production from China and other potential new sources is expected to keep the market in balance to 2017.

However, a marginal market surplus is forecast between 2014 and 2017, equivalent to 5 percent of total demand. Consumption is then forecast to slightly lag production as new capacity comes on stream between 2015 and 2017 with prices expected to remain relatively stable. Vanadium pentoxide prices are expected to reach US$11.00/lb V_2O_5 by 2017.

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INDUSTRIAL MINERALS OVERVIEW

N Dlambulo and R Motsie

INTRODUCTION

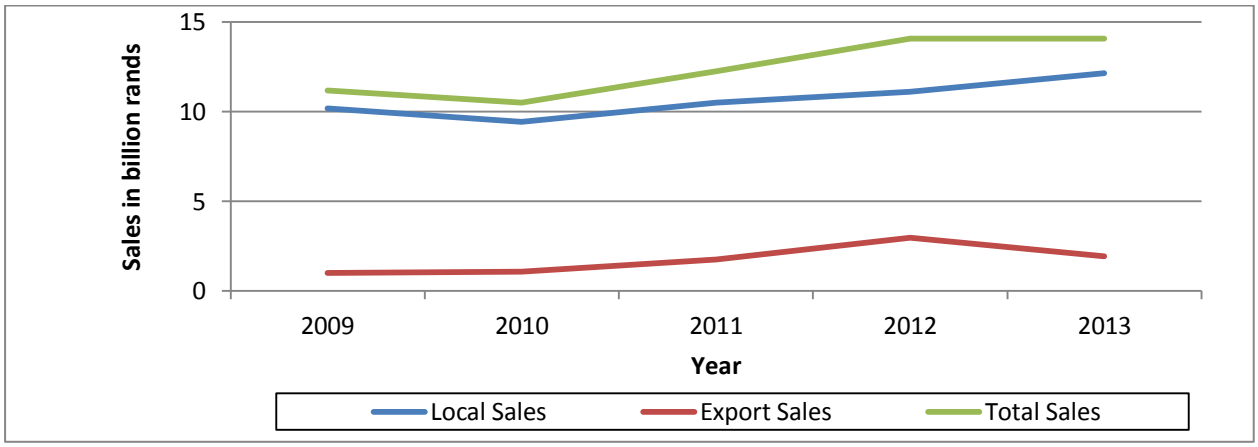
Industrial minerals are generally accepted to be non-metallic ores. In South Africa the definition includes raw materials for cement, as well as dimension stone, sand and aggregate. Industrial minerals are generally high volume, low value commodities compared with other economic minerals. Most deposits appear near surface and are usually exploited through opencast mining methods rather than underground mining, presenting an opportunity for small-scale mining development. Because of industrial minerals' low value, some companies mining these minerals have a high degree of vertical integration, in that they mine raw materials and beneficiate them to the stage of final product.

Industrial minerals play a vital role in many end-user markets with the main ones being the agriculture, energy, and construction, chemical (medical as well as automobile), metallurgical and pigment sectors, which account for the bulk of the local purchases. Markets for industrial minerals are often diverse, highly technical and require unique marketing and sales expertise. Due to their bulky nature associated with a divergence of low value, consumption of industrial minerals is realised mainly in domestic markets.

SUPPLY AND DEMAND

Total sales of industrial minerals was flat between 2012 and 2013 (Fig.1), resulting from subdued international and domestic economic activity. Total sales marginally increased by 0.05 percent in 2013 to R14.07 billion compared with R14.06 billion in 2012. However, from 2009 to 2013, total sales of primary industrial minerals have grown at a compound annual rate of 7.5 percent as the markets gradually recovered from the recession. In 2013, industrial minerals contributed 3.7 percent to total revenue generated from South Africa's primary mineral sales, with R12.1 billion coming from local sales and R1.9 billion from exports (Table 87).

FIGURE 64: INDUSTRIAL MINERAL SALES, 2009 – 2013

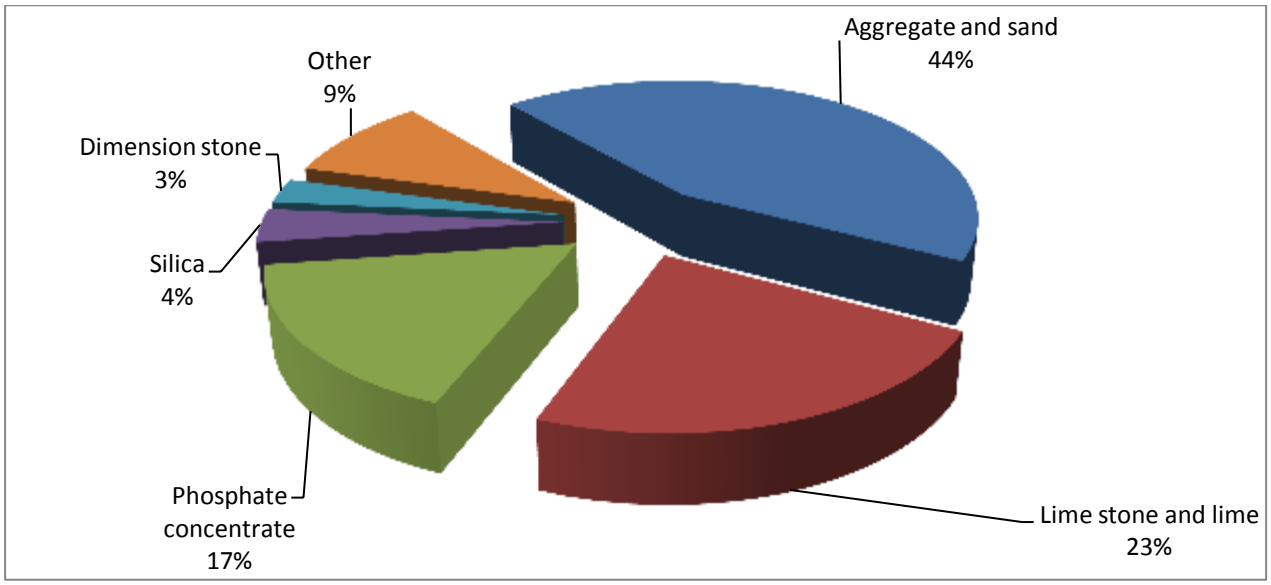


Source: DMR, Directorate Mineral Economics

The bulk of industrial minerals are consumed in the local construction industry with aggregates, limestone and dimension stone together accounting for 70 percent of consumption and the balance in the agricultural industry and other sectors (Fig. 2). As most industrial minerals are low priced commodities and sold in large volumes, their economic exploitation is highly affected by transport costs and distance to markets. Local sales value of industrial minerals increased by 9 percent from R11.1 billion in 2012 to R12.1billion in 2013 (Table 86 & 87), as a result of moderate growth in the construction industry on the back of improved workload activity in the civil sector.

According to Industry Insight, the real value of civil contracts awarded increased by 3.7 percent y-o-y in 2013, following a 12 percent contraction reported during 2012. This is mainly due to an increase in tendering activity by government, which improved by 3 percent y-o-y during the third quarter.

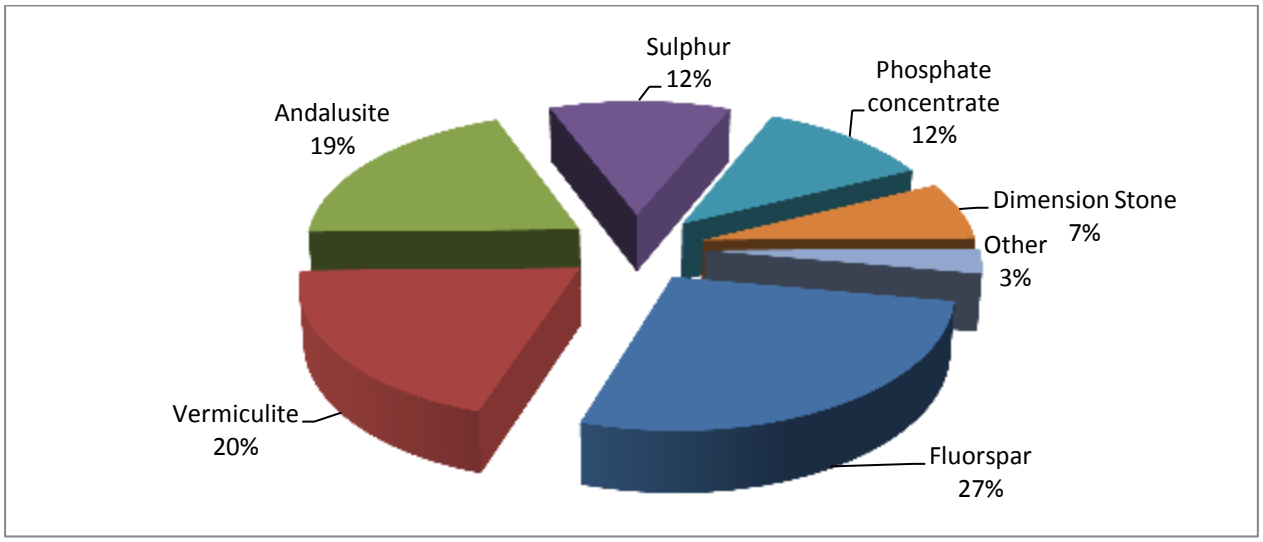
FIGURE 65: LOCAL SALES VALUE OF INDUSTRIAL MINERALS, 2013



Source: DMR, Directorate Mineral Economics

Export sales values of industrial minerals decreased by 35 percent from R3 billion in 2012 to R1.9 billion in 2013. The biggest contributors to export sales of industrial minerals were fluorspar (27 percent), vermiculite (20 percent) and andalusite (19 percent) (Fig 3).

FIGURE 66: EXPORT SALES OF INDUSTRIAL MINERALS, 2013

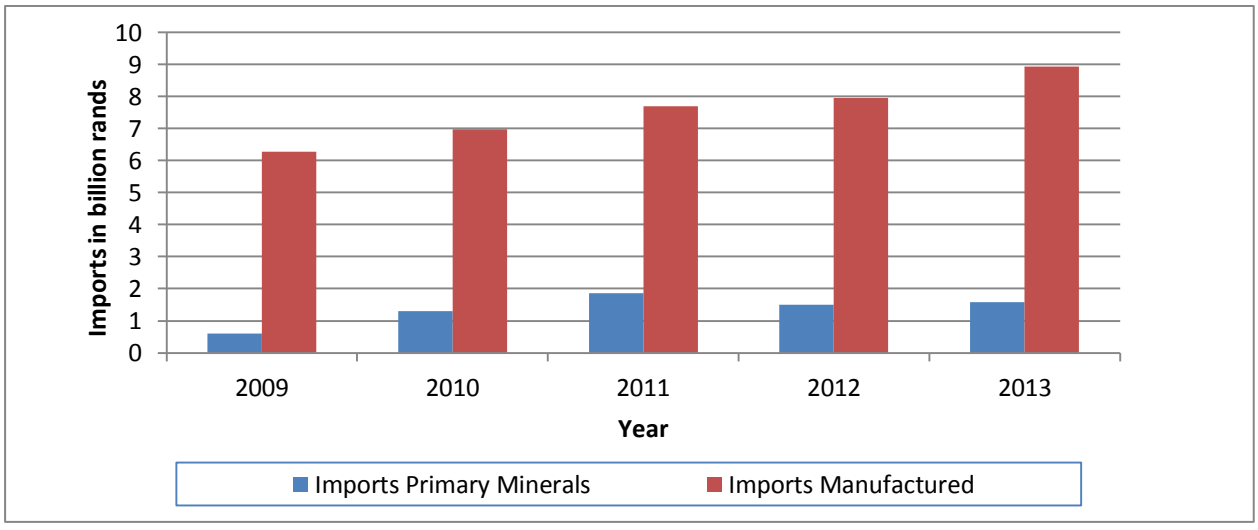


Source: DMR, Directorate Mineral Economics

IMPORTS

In 2013, expenditure on imports of primary industrial minerals increased by 5 percent to R1.58 billion compared with 2012 (Table 88 and Fig 4), as a result of influx of salt products from Botswana and Namibia. South Africa produces less than 50 percent of its salt requirements, with the shortfall being made up by imports from Southern African Customs Unions countries. Imports of manufactured industrial commodities also increased by 12.4 percent to R8.9 billion, resulting from increase in demand for glazed ceramic products (Table 89).

FIGURE 67: IMPORTS OF PRIMARY AND MANUFACTURED INDUSTRIAL MINERALS, 2009 – 2013

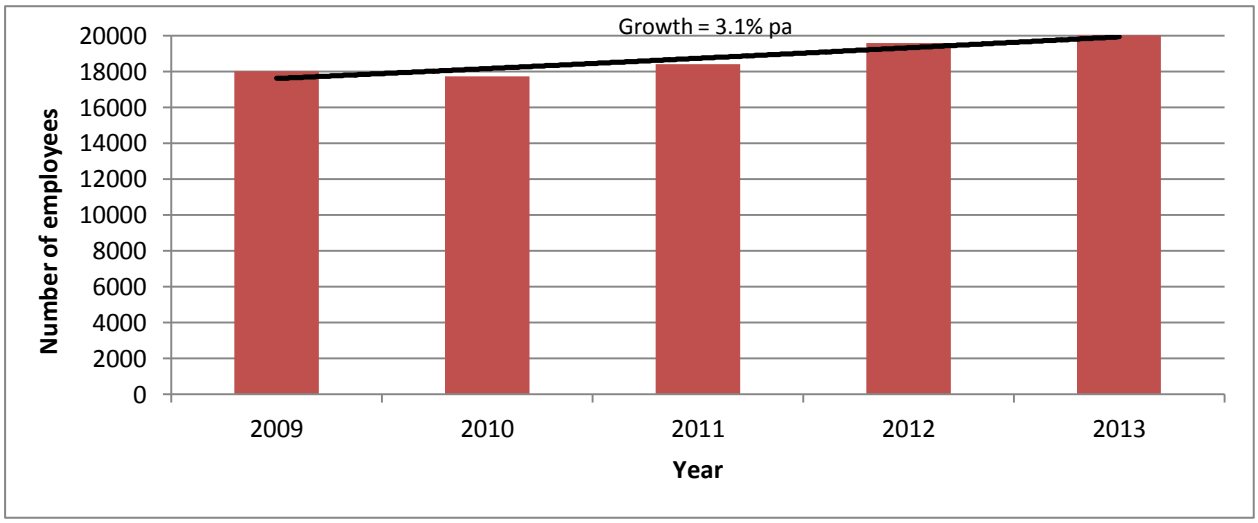


Source: RSA, Commissioner for South African Revenue Service, 2009 – 2013

EMPLOYMENT

Employment in the industrial minerals sector maintained a compound annual rate of 3.1 percent between 2009 and 2013 (Fig 5). The sector's employment increased by 2.1 percent to 20 011 employees, which accounted for 3.6 percent of the total mining workforce. Average annual earnings generated per employee in 2013, increased by 7.4 percent to R147 600/employee, while revenue generated per employee decreased by 2 percent, owing to scheduled maintenances at some operations.

FIGURE 68: EMPLOYMENT IN THE INDUSTRIAL MINERALS SECTOR, 2009 – 2013



Source: DMR, Directorate Mineral Economics

OUTLOOK

Despite being blessed with an abundance of natural resources, South Africa still relies heavily on the developed nations in the area of finished or manufactured goods. Although imports are essential for industrial growth, it is a concern that generally in this country a large percentage of mineral exports are made up of raw materials. Export destinations for most of South Africa's industrial minerals are Pacific Rim countries, such as China, Hong Kong, Japan. These countries are highly industrialised and rely heavily on the supply of industrial minerals from resource rich nations in Africa.

The industrial minerals sector presents the country with the opportunity to develop a strong and varied industrial base along with potential creation of a critical mass of small scale miners contributing to the creation of decent jobs as well as alleviating poverty. This is in line with the Governments' various industrial policies (Mineral Beneficiation Strategy, the NGP, NIPF/ IPAPII), with the National Development Plan lying at the centre of the all priorities of the South African Government.

In the case of Industrial minerals, export sales values decreased by 35 percent from R3 billion in 2012 to R1.9 billion in 2013, with significant exports of fluorspar (27 percent), vermiculite (20 percent) and

andalusite (19 percent) being the largest contributors. South Africa enjoys ranking of some significance in these commodities.. In the domestic market, the sales value of industrial minerals increased by 9 percent from R11.1 billion in 2012 to R12.1billion in 2013. Total sales of primary industrial minerals have grown at a compound annual rate of 7.5 percent from 2009 to 2013 with the sector contributing 3.7 percent to total revenue generated from South Africa's primary mineral sales, with R12.1 billion coming from local sales and R1.9 billion from exports pointing out South Africa's important position in the world with respect to industrial minerals.

The main driver for growth in the industrial minerals sector has always been the agricultural and construction sectors. A niche market that is fast gaining momentum is in downstream activities in the fluorochemicals space fuelled by demand from developing nations. Investment in this sector will ensure an established and globally competitive fluorspar beneficiation industrial cluster in South Africa.

Infrastructure development is one of the key focus areas of South Africa's National Development Plan (NDP), as is considered to be major catalysts for economic growth. The continued investment by Government on economic and social infrastructure will maintain a healthy demand for most industrial minerals in the medium term particularly transport sector where strong growth is predicted to driving civil construction demand.

The future of the South African industrial minerals sector looks positive, especially at the back of local demand for industrial mineral commodities consumed by sectors like manufacturing, refractories, glass, cement, construction, chemical and paint as well as the agricultural sector. The Mid Term Strategic Framework (2009-2014) emphasizes the need for a growth trajectory that will address the country's structural constraints, expand the industrial base by creating competitive industries that provide long-term decent jobs. Therefore all of these sectors are very critical in supporting these plans of Government.

TABLE 86: SOUTH AFRICA'S PRIMARY INDUSTRIAL MINERAL PRODUCTION AND SALES, 2012

	Production	Local Sales (FOR)		Export Sales (FOB)		Total Sales	
Commodity	Mass (t)	Mass (t)	Value (R)	Mass (t)	Value (R)	Mass (t)	Value (R)
General							
Andalusite	163 801	117 186	225 254 147	112 013	305 355 484	229 199	530 609 631
Asbestos	*	*	*	*	*	*	*
Barytes	*	*	*	*	*	*	*
Calcite	*	*	*	*	*	*	*
Feldspar	94 458	92 918	45 898 555	*	*	92 918	45 898 555
Fluorspar	170 338	14 484	**	188 813	**	203 297	**
Gypsum	558 242	357 574	56 876 011	*	*	357 574	56 876 011
Kieselguhr	282	282	639 280	*	*	282	639 280
Limestone & lime	21 637 069	18 478 702	2 517 772 313	13 126	13 190 183	18 491 828	2 530 962 496
Magnesite	**	**	**	**	**	**	**
Mica	400	185	964 290	195	1 357 237	381	2 321 527
Perlite	**	**	**	**	**	**	**
Pigment minerals	*	*	*	*	*	*	*
Phosphate	2 242 213	2 015 353	**	689 915	**	2 705 268	**
Pyrophyllite	**	**	7 511 261	**	4 584 742	**	12 096 003
Salt	399 135	479 827	155 293 599	*	*	479 827	155 293 599
Silica	2 151 377	2 656 427	543 599 024	18 821	334 899 206	2 675 248	878 498 230
Sulphur	257 019	150 322	123 405 090	125 423	241 351 253	275 745	364 756 343
Talc	4 765	5 568	7 084 046	*	*	5 568	7 084 046
Vermiculite	132 886	7 467	15 692 069	96 516	279 696 465	103 983	295 388 534
Clays							
Attapulgite	15 850	15 866	7 171 053	*	*	15 866	7 171 053
Bentonite	120 566	159 935	119 629 487	21	29 661	159 956	119 659 148
Fire clay	643 285	629 976	14 607 766	*	*	629 976	14 607 766
Flint clay	21 065	19 314	28 929 042	527	1 330 174	19 841	30 259 216
Kaolin	20 499	22 273	12 480 240	*	*	22 273	12 480 240
Dimension and building stone							
Granite		187 475	285 865 145	84 014	124 246 393	271 489	410 111 538
Sandstone		2 018	5 859 143	*	*	2 018	5 859 143
Siltstone		739	354 546	*	*	739	354 546
Slate		23 938	7 992 490	*	*	23 938	7 992 490
Aggregate and sand		53 373 626	4 476 359 468	*	*	53 373 626	4 476 359 468
Miscellaneous			2 440 610 250		1 652 071 282		4 092 681 532
TOTALS			11 099 848 315		2 958 112 080		14 057 960 395

Source: *DMR, Directorate Mineral Economics*

Notes: *All quantities are in metric tons, unless otherwise specified*

**Nil*

***Classified, included under Miscellaneous*

TABLE 87: SOUTH AFRICA'S PRIMARY INDUSTRIAL MINERAL PRODUCTION AND SALES, 2013

COMMODITY	PRODUCTION	LOCAL SALES (FOR)		EXPORT SALES (FOB)		TOTAL SALES	
	Mass (t)	Mass (t)	Value (R)	Mass (t)	Value (R)	Mass (t)	Value (R)
General							
Andalusite	175 328	82 683	158 932 654	127 577	376 723 345	210 260	535 655 999
Asbestos	*	*	*	*	*	*	*
Barytes	*	*	*	*	*	*	*
Calcite	*	*	*	*	*	*	*
Feldspar	191 443	186 535	101 444 059	*	*	186 535	101 444 059
Fluorspar	157776	16336	43171624	158046	525208396	174382	568380020
Gypsum	559 443	327 275	58 287 993	*	*	327 275	58 287 993
Kieselguhr	144	143	218 516	*	*	143	218 516
Limestone & lime	21 965 622	20 096 700	2 804 944 148	58 556	20 539 017	20 155 256	2 825 483 165
Magnesite	8219	14718	19142850	*	*	14718	19142850
Mica	309	113	835 245	*	*	113	835 245
Perlite	1078	2520	2894472	*	*	2520	2894472
Pigments minerals	*	*	*	*	*	*	*
Phosphate rock	2 131 854	1 634 067	2 042 981 668	170 926	222 723 000	1 804 993	2 265 704 668
Pyrophyllite	17336	15276	5750347	419	4943667	15695	10694014
Salt	479 024	479 677	154 464 758	*	*	479 677	154 464 758
Silica	2 198 273	2 428 001	458 456 927	10 789	28 383 975	2 438 790	486 840 902
Sulphur	270 173	132 532	67 127 100	140 626	231 605 529	273 158	298 732 629
Talc	4 924	7 117	8 806 136	*	*	7 117	8 806 136
Vermiculite	127 658	8 553	17 861 177	118 348	380 489 796	126 901	398 350 973
Dimension and building stone							
Granite		236 229	329 069 450	75 164	135 476 798	311 393	464 546 248
Sandstone		460	1 031 826	*	*	460	1 031 826
Slate		19 266	8 390 497	*	*	19 266	8 390 497
Clays							
Attapulgite	21 233	15 395	8 417 524	*	*	15 395	8 417 524
Bentonite	177 187	169 596	123 077 269	80	139 951	169 676	123 217 220
Plastic clays	1 328	1 328	308 457	*	*	1 328	308 457
Flint clay	506 019	514 914	18 732 223	*	*	514 914	18 732 223
Kaolin	22 295	35 222	16 740 341	*	*	35 222	16 740 341
Aggregate & sand		61 413 617	5 326 800 476	*	*	61 413 617	5 326 800 476
Miscellaneous			2 116 483 694		747 931 396		2 864 415 090
TOTALS			11 786 180 817		1 926 233 474		13 712 414 291

Source: *DMR, Directorate Mineral Economics*

Notes: *All quantities are in metric tons, unless otherwise specified*

**Nil*

***Classified, included under Miscellaneous*

TABLE 88: SOUTH AFRICA'S IMPORTS OF SELECTED PRIMARY INDUSTRIAL MINERAL COMMODITIES, 2011 – 2013

COMMODITY	2011		2012		2013	
	Mass (t)	Value (R)	Mass (t)	Value (R)	Mass (t)	Value (R)
Salt (25.01)	5 363	12 830 375	4 383 290	16 241 265	527 893	193 964 262
Iron pyrites (25.02)	341	940 227	409 260	1 169 195	462	1 276 140
Sulphur (25.03)	714 629	1 073 705 268	506 071 560	843 455 975	489 092	530 362 328
Graphite Natural (25.04)	1 053	18 178 053	768 156	10 371 894	704	8 389 823
Sands (25.05)	5 171	9 607 781	6 614 821	14 594 027	7 329	17 085 535
Quartz (25.06)	408	1 877 186	161 486	500 291	446	3 445 548
Kaolin (25.07)	13 013	30 533 235	17 831 991	46 389 642	14 761	47 482 294
Bentonite (25.08.10)	28 255	45 196 964	42 833 745	59 402 857	37 680	68 794 998
Fire clay (25.08.30)	178	961 624	287 932	1 017 866	955	3 419 825
Other clays (25.08.40)	4 348	13 476 855	6 203 549	25 266 115	6 400	24 515 379
Alumino silicates (25.08.50)	164	323 974	240 142	627 976	359	956 749
Mulite (25.08.60)	50	412 825	112 622	823 500	200	1 717 575
Chamotte (25.08.70)	77	504 361	80 352	562 947	87	278 151
Chalk (25.09)	353	870 211	3 793 686	4 997 543	2 950	5 603 112
Phosphates (25.10)	93 191	116 297 833	265 190	1 321 463	9 778	10 087 752
Barrytes & Witherite (25.11)	3 170	11 921 315	2 961 567	11 468 513	3 128	10 194 800
Kieselguhr (25.12)	5 261	19 572 143	5 216 802	19 969 935	4 016	18 939 815
Natural Abresives (25.13)	2 095	6 392 899	2 250 975	7 152 239	2 088	8 239 185
Slate (25.14)	2 401	6 206 264	1 969 603	8 062 338	3 376	12 187 002
Marble (25.15)	80	469 448	226 225	2 465 778	8 160	9 268 421
Granite (25.16)	4 930	9 405 849	5 976 523	13 549 218	35 165	53 979 936
Pebbels (25.17)	2 138	2 693 491	1 860 203	3 729 155	37 208	20 708 123
Dolomite (25.18)	1 106	2 625 248	1 255 288	3 949 369	7 116	6 449 717
Magnesite & Magnesia (25.19)	106 670	339 631 034	61 922 324	207 573 638	76 472	267 322 588
Gypsum & Plasters (25.20)	9 150	15 742 308	18 363 515	22 789 972	12 375	31 706 268
Limestone (25.21)	1 015 808	609 645	37 838 260	1 527 948	9	185 370
Slaked,quick, hydraulic lime (25.22)	30 787 004	42 883 920	34 801 330	64 415 926	32 623	70 710 718
Asbestos (25.24)	0	0	0	0	47	8 376
Mica (25.25)	507	1 353 541	424 579	1 353 366	663	2 997 339
Steatite (25.26)	7 126	28 015 008	7 695 739	27 556 285	8 182	33 407 817
Borates Natural (25.28)	1 517	4 889 887	1 156 890	4 360 705	611	3 022 801
Feldspathoids (25.29)	4 332	9 389 122	10 414 783	20 998 959	8 217	19 999 601
Other Minerals (25.30)	47 848	38 633 395	55 704 173	61 649 676	52 473	98 154 185
TOTAL		**1 866 151 289**		**1 509 315 576**		**1 584 861 533**

Source: *RSA, Commissioner for South African Revenue Service, 2011 – 2013*

Note: *Codes in brackets refer to subchapters of the Harmonised System*

TABLE 89: SOUTH AFRICA'S IMPORTS OF MANUFACTURED INDUSTRIAL MINERALS COMMODITIES, 2010 – 2012

Commodity	2011 Value (FOB) R	2012 Value (FOB) R	2013 Value (FOB) R
Articles of stone, plaster, cement, asbestos, mica or similar materials	**1160052109**	**1 396 402 431**	**1 597 381 694**
Building stone (68.02)	272 751 878	338 271 668	321 331 515
Worked slate & articles of slate (68.03)	17 081 007	18 924 065	21 562 582
Millstones and grindstones (68.04)	123 129 954	164 570 865	208 879 780
Natural abrasive powders (68.05)	190 832 414	228 800 898	265 927 592
Slag wool, rock wool & similar mineral wools (68.06)	390 513 421	462 855 480	570 278 282
Articles of asbestos-cement (68.11)	35 215 937	49 830 085	51 090 138
Fabricated asbestos fibres (68.12)	6 856 316	3 260 126	9 818 302
Friction material (68.13)	108 652 598	111 374 572	129 805 188
Worked mica & articles thereof (68.14)	15 018 584	18 514 672	18 688 315
Refractories	**1 092 062 112**	**1095334542**	**1103337528**
Of siliceous fossil meals (69.01)	2 787 686	4 427 437	9 762 955
Other bricks (69.02)	943 968 648	948 032 067	920 252 714
Other refractory ceramic goods (69.03)	145 305 778	142 875 038	173 321 859
Ceramic products	**3 429 467 451**	**3235329552**	**3661461734**
Ceramic building bricks (69.04)	338 705	4 383 427	5 413 245
Roofing tiles (69.05)	8 612 039	11 341 669	14 795 951
Ceramic pipes (69.06)	3 264 033	3 315 428	3 403 989
Unglazed ceramic (69.07)	130 960 409	174 159 631	218 139 646
Glazed ceramic (69.08)	774 677 170	971 850 060	1 274 022 100
Ceramic wares for laboratory (69.09)	1 956 428 462	1 410 269 648	1 353 877 120
Ceramic sinks (69.10)	112 522 005	131 150 472	177 635 887
Tableware (69.11)	193 404 476	233 092 270	269 793 924
Ceramic tableware (69.12)	187 068 177	219 973 468	256 045 532
Ceramic articles (69.13)	49 903 695	59 448 361	72 703 674
Other ceramic articles (69.14)	12 288 280	16 345 118	15 630 666
Glass and glassware (70.00)	**2 002 294 168**	**2 218 794 980**	**2 569 511 317**
TOTAL	**7 683 875 840**	**7 945 861 505**	**8 931 692 273**

Source: *RSA, Commissioner for South African Revenue Service, 2011 – 2013*

Note: *Codes in brackets refer to subchapters of the Harmonised System*

AGGREGATE AND SAND

R Motsie

SUPPLY AND DEMAND

South Africa's sand and aggregate sector is driven by the construction industry, particularly the civil sector. In 2013, a total of 61.4 Mt of sand and aggregates to the value of R5.3 billion was supplied to the local market, a year-on-year increase of 15 percent in tonnages with a corresponding 19 percent increase in value (Table 90). The rise in both the quantity and the value was derived from improved workloads in the civil construction sector on the back of continued infrastructure development programmes provided by government. The industry has improved as a result of more roads, dams and power stations being developed in line with the programme of the Presidential Infrastructure Coordination Committee (PICC).

TABLE 90: SOUTH AFRICA'S SALES OF SAND AND AGGREGATE BY MASS, 2004 – 2013

YEAR	[+]COARSE			[x]FINE			TOTAL		
	Mass	Value (FOR)		Mass	Value (FOR)		Mass	Value (FOR)	
	kt	R'000	R/t	kt	R'000	R/t	kt	R'000	R/t
2004	39 035	1 948 642	49.9	8 347	136 721	16.4	47 381	2 085 364	44.0
2005	37 923	2 000 985	52.8	12 046	221 034	18.3	49 970	2 222 019	44.5
2006	47 144	2 549 709	54.1	11 419	239 846	21.0	58 563	2 789 555	48.0
2007	50 678	3 077 423	60.7	13 143	298 941	22.7	63 821	3 376 364	52.9
2008	45 218	3 358 639	74.3	13 391	416 364	31.1	58 609	3 775 003	64.4
2009	41 182	3 491 901	84.8	12 422	403 784	32.5	53 604	3 895 685	72.7
2010	39 078	3 419 386	87.5	13 279	457 693	34.5	52 357	3 877 079	74.1
2011	38 203	3 570 160	89.0	13 392	492 323	37.0	51 595	4 062 483	79.0
2012	40 009	3 948 031	98.7	13 365	528 329	40.0	53 374	4 476 359	84.0
2013	46 553	4 710 248	101.2	14 861	616 553	41.5	61 414	5 326 801	86.7

Source: *DMR, Directorate Mineral Economics*

Notes: [+]*Includes Crusher Sand*

[x]*Natural Sand*

Aggregates play an integral role in the economy, as they are a necessary building component in infrastructure development, being the principal material of concrete and asphalt. When infrastructure and construction stagnate, so does the rest of the economy. Construction aggregates demand is associated with population growth, which in turn demands new capital expenditure and ongoing need for repair and replacement of infrastructure. The latest population estimates from *Statistics South Africa* reveal that the mid-year 2014 population was at 54 million, a 3.8 percent increase compared with 52 million in 2011. These figures have a potential upside effect of driving demand for aggregates and sand as additional infrastructure would be required for development. The South African civil construction industry experienced a mixed bag of business conditions during the fourth quarter of 2013, according to South African Federation of Civil Engineering Contractors (*Safcec)*. Industry turnover (nominal) improved by 13 percent, in the fourth quarter compared with the same quarter in 2012, but contracted by 5 percent for the whole year.

CONSTRUCTION

Overall construction activity in South Africa has been weak over the past few years. However, the underlying trend started to show some improvement, but at a moderate pace, suggesting conditions are not deteriorating any further. In 2013, investment by government in construction increased by 8 percent in real terms to R52.5 billion compared with 2012 and private investment increased by 0.2 percent to R63.2 billion, while State Owned Enterprises (SOEs) investment contracted by 5.7 percent to R48.5 billion. The South Africa National Roads Agency Limited (SANRAL) has been a significant contributor to total civil construction expenditure and a reliable source of work for construction companies. The industry is currently experiencing pressure with shrinking margins owing to escalating costs of input materials and competition between companies for securing projects.

According to *Industry Insight*, the real value of civil contracts awarded increased by 3.7 percent y-o-y in 2013, following a 12 percent contraction reported during 2012. This is mainly due to an increase in tendering activity by government, which improved by 3 percent y-o-y during the third quarter. Nearly 40 percent of civil tenders issued in the first quarter of 2013 are related to road projects, which boosted demand for aggregate and sands.

PRICES AND REVENUES

The unit value for aggregates increased by 2.5 percent to reach R101.2/t, the highest unit value recorded for the past ten years. Sales also improved on the back of favourable prices coupled with an increase in volumes traded resulting in a 19.2 percent rise in revenue to R4.7 billion. The unit value for sand increased by 3.8 percent to R41.5/t with a corresponding increase in sales value of 16.7 percent to R617 million.

EMPLOYMENT

The sand and aggregate sector employed 7 579 employees in 2013, an increase of 0.5 percent compared with 2012 (Table 91). Labour productivity increased by 14.5 percent to 8.1 kt/employee, while revenue generated per employee increased by 18.5 percent to R702 837/employee. Average annual earnings increased by 7.6 percent to R124 215/employee indicating improvement in remuneration packages of workers.

TABLE 91: SOUTH AFRICA'S AGGREGATE AND SAND QUARRIES EMPLOYMENT AND REMUNERATION, 2009 – 2013

YEAR	EMPLOYEES	TOTAL REMUNERATION
		R'000
2009	6 773	604 730
2010	7 009	693 767
2011	7 123	746 991
2012	7 544	870 694
2013	7 579	941 425

Source: DMR, Directorate Mineral Economics

DEVELOPMNETS

Afrimat has continued to make great strides in the aggregate sector in 2013 with revenue growing by 20.1 percent to R1.3 billion. The acquisition of Infrasors holdings has further expanded Afrimat's hold in industrial minerals as well as its geographical reach within the Gauteng region. The increased spending on the infrastructure development will enable the group to take advantage of opportunities across Africa irrespective of the location of fixed quarries.

Raubex Group Limited is currently solidifying its position in the local market with its latest acquisition in Oranje Mynbou en Vervoer's (OMV's) aggregate crushing and ready-mix concrete and alpha sand based in Limpopo. Raumix is the materials division of the Group with its core focus spread over three areas including contract crushing, production of aggregates for the commercial market and materials handling for the mining industry. Revenue for the division increased by 8.2 percent to R1.62 billion in the 2013 financial period

PPC Ltd has made in-roads in the markets with its acquisition of quarries in Botswana, which will ramp up local supply of aggregates. The acquisition will also make PPC's aggregates division the largest aggregate producer in Botswana .The firm's revenue increased by 8 percent in 2013 financial year and aggregate production increased from 3 Mt to 4 Mt in the same period.

OUTLOOK

The outlook for the construction sector is expected to be positive in the medium term on the back of government spending on economic infrastructure, particularly transport sector where strong growth is predicted to driving civil construction demand. However, there remains concern that fiscal austerity and ratings declines for South Africa and key SOEs may negatively impact state of growth.

Government's commitment to spend R847 billion on infrastructure over the next three years could improve construction industry market conditions. A key factor that could affect the pace of recovery is the rate at which the roll-out of planned infrastructure expenditure will be effected, as turnover in the construction

industry is highly sensitive to government spending. According to *Industry Insight,* government infrastructure expenditure on civil works is projected to increase by an estimated 12 percent in real terms in 2014/15. Infrastructure development is one of the key focus areas of South Africa's National Development Plan (NDP), as is considered to be major catalysts for economic growth.

The non-building market for construction aggregates is expected to outpace the building segment in the medium term, as government continues to invest heavily in public infrastructure, with projects such as the building of the new water infrastructure for eastern basin in Springs, Gauteng province. Sales of aggregates for road base and coverings are expected to accelerate through 2017 on the back of advances in new road constructions and existing road improvement and repair. Crushed stone is projected to gain a larger share of the aggregates market due to more restrictive land use and environmental regulations as sand and gravel resources closer to infrastructure developmental nodes get depleted.

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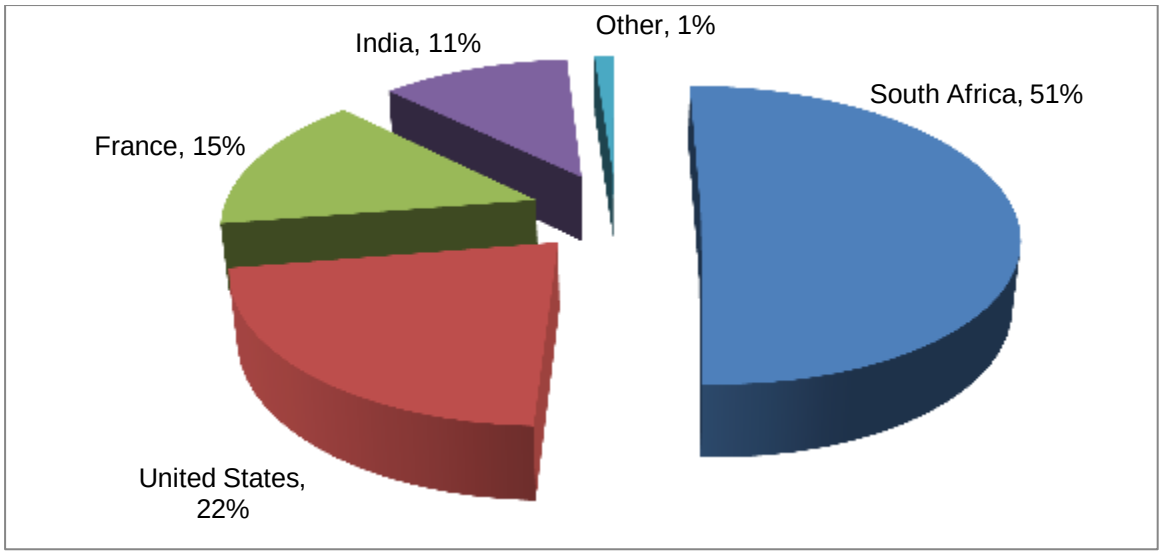
ALUMINO-SILICATES

Mphonyana Modiselle

SUPPLY AND DEMAND

The iron and steel industries are the main consumers of andalusite in the form of refractory minerals. Andalusite is also used in cement and lime, ceramics and foundry industries, glass as well as chemicals at some of the stages of production line. Global production of the three alumino-silicate minerals, namely: andalusite, kyanite and sillimanite, increased by 6.4 percent from 409 kt in 2012 to 435 kt in 2013, as a result of expansions in steel production. Global andalusite supply is mainly dominated by South Africa at 51 percent, followed by the United States (US) at 22 percent and France's 15 percent (Fig. 1).

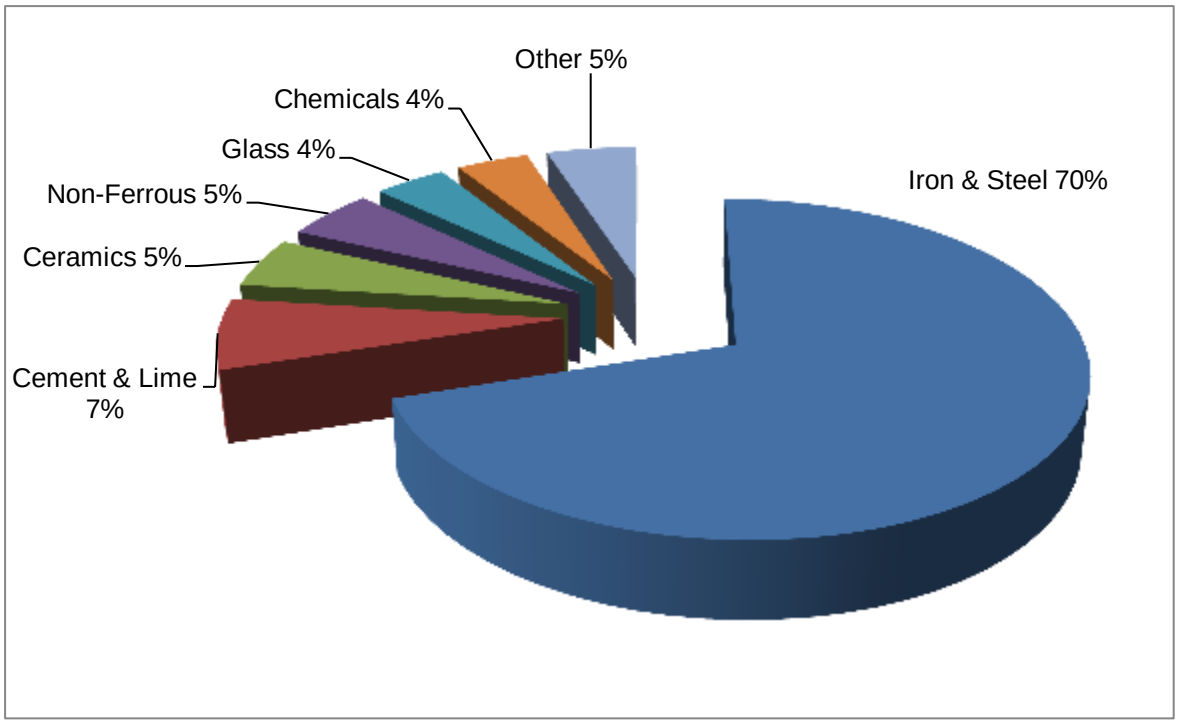
FIGURE 69 – WORLD PRODUCTION OF ALUMINO-SILICATES BY COUNTRY, 2013



Sources: USGS, 2014

The total world refractories demand market was estimated at 24 Mt with crude steel manufacturing accounting for 70 percent (Fig. 2). The Industrial Minerals publication states that the steel markets were hit hard in 2012 by an unsettled economic climate, when factors including Eurozone crisis, potential US fiscal constraints, a possible hard landing for Chinese economy and tough microeconomic conditions around the world, caused the apparent steel to decline. However in 2013, there was improved stability as the refractories rebounded on the back of growth of iron and steel markets, which in turn led to a resurgence in demand for andalusite. According to the World Steel Association, steel production grew by 3.5 percent year-on-year (y-o-y) in 2013 to 1.61 billion tons.

FIGURE 70 – WORLD REFRACTORIES MARKET BY END-USERS, 2013



Source: Andalusite Resources / Industrial Minerals, 2013

Imerys South Africa operates andalusite mines in the Limpopo Province through its subsidiaries Samrec Pty (Ltd) and Rhino Minerals. Samrec (Pty) Ltd has the Annesley - Segorong mines on the outskirts of Burgersfort in the Limpopo Province and Krugerpost, which is located near Lydenburg in the Mpumalanga Province. Rhino (Pty) Ltd holds the Rhino Andalusite mine near Thabazimbi in the Limpopo Province. Andalusite Resources is the only alternative producer outside the Samrec group. The company mines andalusite in the Maroeloesfontein deposit in Thabazimbi in the Limpopo Province and holds a 26 percent interest Black Economic Empowerment (BEE) consortium with Simang Resources Pty (Ltd).

South Africa's production of andalusite increased in 2013 due to improvements in mining operations (Table 92). Samrec reopened the Annesley- Segorong mine at the end of March 2013 and is currently improving operations on the plant to guarantee a sustainable supply with consistent quality through its investment in the mine. Local sales decreased in 2013 owing to the closure of two andalusite mines that year. Havercroft mine closed in February 2013 as the mine became inactive due to lower output and moved to the Segorong mine with the more economically viable deposit. Krugerspost mine was placed on care and maintenance from November 2013, ceasing all mining operations on site owing to low plant utilisation. South Africa's exports of andalusite increased in 2013 as the refractory markets showed signs of recovery.

TABLE 92: SOUTH AFRICA'S PRODUCTION, LOCAL SALES AND EXPORTS OF ANDALUSITE, 2004–2013

		LOCAL SALES			EXPORTS		
YEAR	PRODUCTION	Mass	Value (FOR)		Mass	Value (FOB)	
	Kt	kt	R'000	R/t	Kt	R'000	R/t
2004	235	50	64 430	1 284	168	211 719	1 263
2005	228	47	57 568	1 236	135	186 229	1 380
2006	221	47	59 022	1 249	129	183 581	1 421
2007	265	51	70 554	1 382	175	282 164	1 612
2008	217	75	115 292	1 534	148	289 175	1 954
2009	165	53	97 918	1 855	109	253 554	2 326
2010	189	92	167 667	1 829	134	321 933	2 406
2011	*	*	*	*	*	*	*
2012	*	*	*	*	*	*	*
2013	*	*	*	*	*	*	*

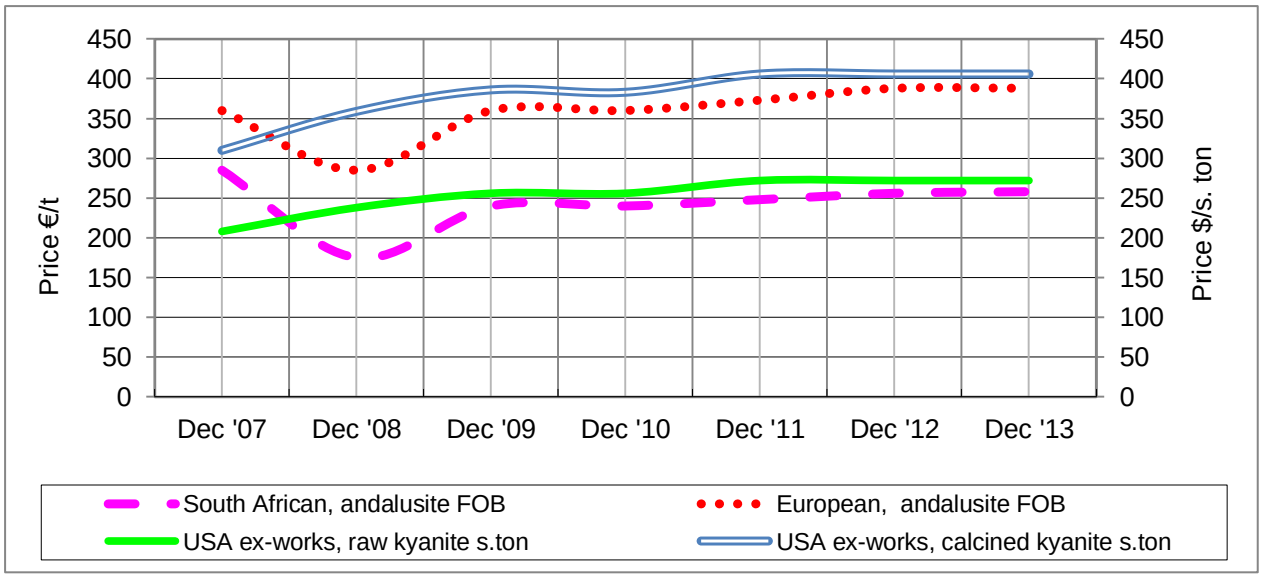
Source: DMR, Mineral Economics

*Note: *Data withheld for reasons of confidentiality*

PRICES AND REVENUES

In 2013, prices were stagnant when compared with the previous year. The South African market prices (2 000 tonne bulk, FOB) for 57-58 percent aluminium trioxide (Al_2O_3) andalusite concentrate were in the range of €235-€280/t in 2013 (Fig. 4). The European FOB prices for 55-59 percent Al_2O_3 were in the range of €350-425/t. The US prices for raw and calcined 54-60 percent Al_2O_3 kyanite remained in the range of $224-$320/t and $373-$439/t, respectively.

FIGURE 71 – WORLD ALUMINO-SILICATES PRICES, 2007–2013



Source: Industrial Minerals, 2014

Local sales revenues decreased by just under 30 percent in 2013 owing to mine closures. Export sales revenues increased by over 20 percent as global demand for andalusite improved.

EMPLOYMENT

Employment in the alumino-silicate industry increased by 1.5 percent from 392 employees in 2012 to 398 employees in 2013 (Table 93) as the Annesley-Segorong mine with the more economically viable deposit became fully operational. Annesley Mine was officially reopened in March 2013 and is currently employing 100 employees, 54 of whom are permanent, whilst the remainder are contractors.

TABLE 93: SOUTH AFRICA'S ALUMINO-SILICATE MINES: EMPLOYMENT, 2006–2012

YEAR	EMPLOYEES	TOTAL REMUNERATION R'000
2006	501	38 776
2007	567	48 581
2008	742	62 956
2009	765	68 471
2010	472	65 953
2011	429	*
2012	392	*
2013	398	*

Source: DMR, Mineral Economics

**Total Remuneration figures withheld for reasons of confidentiality*

RECENT DEVELOPMENTS

Imerys also owns Andalucita SA andalusite mine in the north-west of Peru, which increased production capacity to 48 kt per annum in 2012 from 25 kt per annum in 2011.

ASX- listed junior company Latin Resources Ltd has been developing a large deposit of andalusite at its Guadalupito project, which it acquired in 2011 and, is expected to produce 159 kt per annum at an estimated mine life of 56 years.

In 2001, Imerys South Africa took a decision to expand its mining operations at Annesley mine in the Segorong area through its subsidiary Rhino Minerals. Since this planned expansion was going to have a direct impact on the land occupied by the Segorong Community, it became necessary for Rhino Minerals to consult the concerned community to consider resettlement, compensation and redevelopment of the community. The resultant extensive 12 year consultative process has seen a total of 246 Segorong families relocated to Praktiseer and Pidima areas that are environmentally safer for the community. The expected life of mine is 15 years with a production capacity of 55 kt per annum. Annesley Mine was officially reopened on the 27th of March 2013.

The resettlement, compensation and redevelopment has seen Rhino Minerals investing over R190 million for relocation packages that were used for the building of the houses; compensation for grazing and livestock as well as a cash settlement allowance for each relocating family. The community benefits also include ownership holding at Imerys South Africa through Community Trusts that were established and are part of the Broad-Based Black Economic Empowerment (BBBEE) ownership structure.

OUTLOOK

Although considerable andalusite production capacity has been added to the andalusite market in recent years (through production expansions in South Africa and Peru), the global market has remained stable since the financial crisis in 2009. The duration of labour unrests in other sectors within mining in South Africa (iron and steel, foundries, platinum and ferro-alloys), had a severe negative impact on all sectors of andalusite business. However, Imerys South Africa continued to invest in the andalusite market to guarantee a sustainable supply with consistent quality through its investment in Segorong mine as well as engaging in a long term project with local communities. Production rates are set to continue to increase, with further investment planned in extraction and processing technology.

World refractories production will increase from 41.5 Mt to 46 Mt by 2017, buoying a sector that has been struggling through economic downturn and thereby increasing demand for alumino-silicates. Growth is also expected within Chinese cement industry, according to the USGS, an industry which could become a potential end market for andalusite, kyanite and sillimanite minerals as alternatives to bauxite-based

refractory products. The recent discovery of large andalusite resources in Peru and possibility of new producers entering the supply chain could attract Latin and North America as potential new markets.

Driving the demand for refractories will be steel industry, which accounts for around 70 percent of world refractories. Consumption of steel will increase owing to improving demand from the automotive and energy sectors. China's quotas on bauxite prices and rising prices could help andalusite permeate the refractory market worldwide. The Industrial Minerals publication states that andalusite prices are due to increase as a result of improved demand from refractory industry, partly because companies have started to substitute bauxite with andalusite as andalusite has some cost advantages due to its less energy consumption.

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DIMENSION STONE

O Mkhari and R Motsie

SUPPLY AND DEMAND

Globally, there are sufficient resources of dimension stone. However, supply depends on factors such as colour, texture and consistency of the material. There has been a significant growth in production of dimension stone in the world due to more frequent discoveries of new stones and technical advances in extraction methods.

Local sales volumes increased by 20 percent to 256.1 kt in 2013 (Table 94), due to improved domestic market conditions in the building sector. Conversely, export sales volumes decreased by 10.7 percent to 75 kt, due to a weaker demand from China and India.

TABLE 94: SOUTH AFRICA'S LOCAL SALES AND EXPORTS OF DIMENSION STONE 2004 – 2013

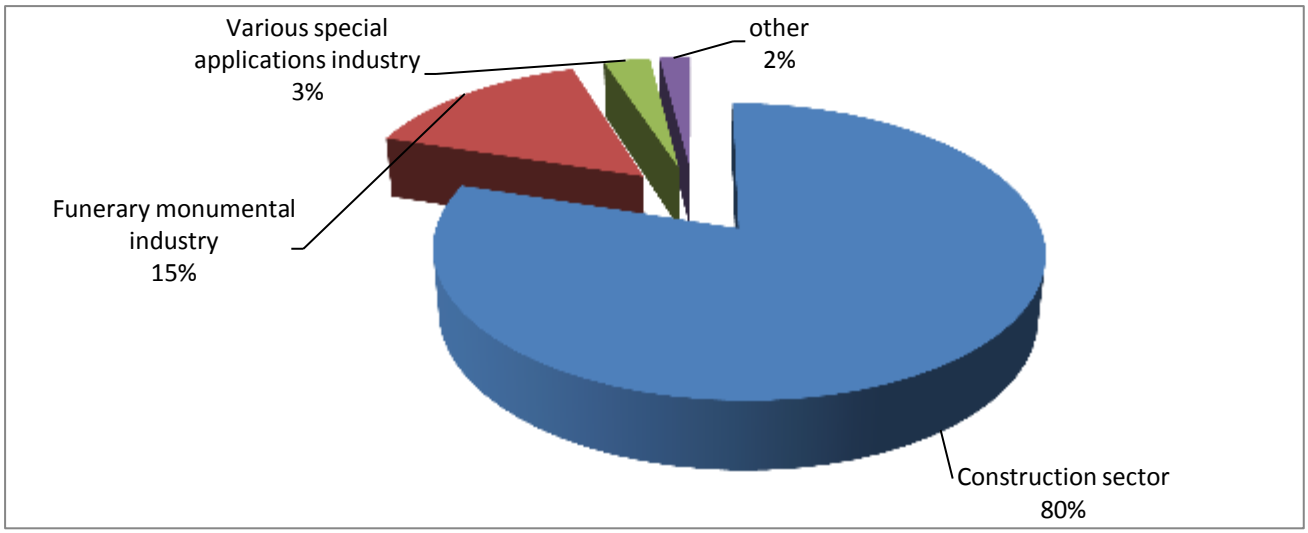
	LOCAL SALES			EXPORTS		
YEAR	Mass	Value (FOR)		Mass	Value (FOB)	
	kt	R'000	R/t	kt	R'000	R/t
2004	177.9	147 273	828	370.7	342 284	888
2005	302.5	165 783	548	305.0	260 493	854
2006	284.4	185 234	651	211.9	209 754	990
2007	394.8	319 455	809	159.3	156 810	984
2008	458.0	489 346	1 069	85.6	211 674	2 474
2009	334.6	340 493	1 018	61.7	126 508	2 050
2010	336.3	236 999	545	65.4	120 407	1 840
2011	271.4	241 802	1 014	111.2	150 212	1 350
2012	213.4	299 717	1 587	84.0	124 246	1 479
2013	256.1	338 568	1 322	75.0	135 477	1 802

Source: DMR, Directorate Mineral Economics

Notes: In the absence of available data, production is taken to be equal to total sales volume

The major application of dimension stone is within the construction sector, which alone accounts for over 80 percent of demand (interior designers, private home owners and government infrastructure projects), with the funerary monumental industry accounting for 15 percent and various special applications for around 3 percent (Fig. 1).

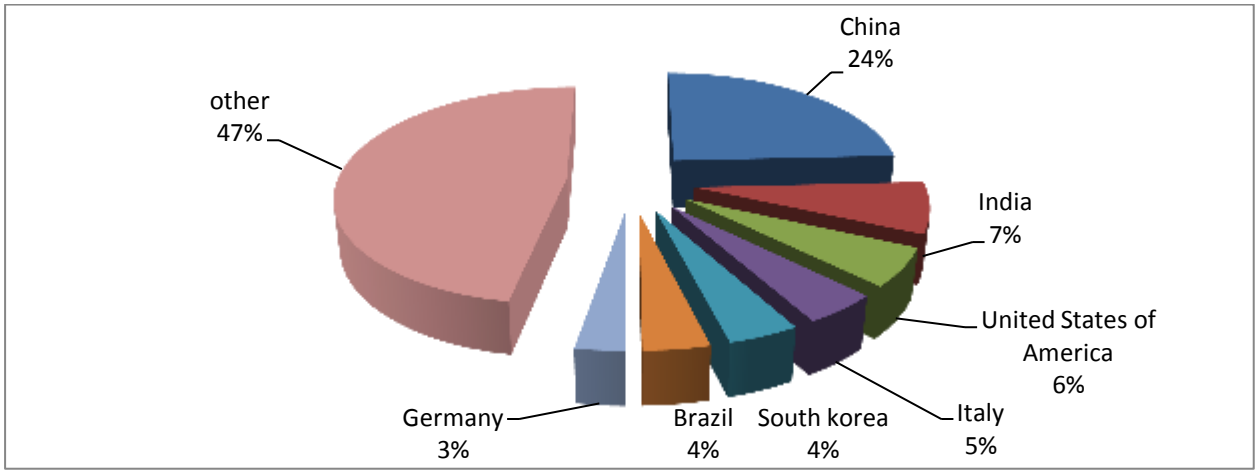
FIGURE 72: WORLD CONSUMPTION OF DIMENSTION STONE BY SECTOR



Source: The South African institute of Mining and Metallurgy, 2008

The United States is the world's leading market for dimension stone products. Imports of dimension stone in that country increased in value to about $1.86 billion in 2013 compared with $1.74 billion in 2012. Global consumption of dimension stone is driven by strong demand from China (24 percent), India (7 percent), United States of America (6 percent) and Italy (5 percent), where dimension stone blocks are used for tile production, buildings and in construction activities (Fig.2).

FIGURE 73: WORLD DEMAND OF DIMENSION STONE BY COUNTRY, 2013



Source: Stone Dimension, 2013

PRICES AND REVENUES

Prices for dimension stone are quite variable and depend on mineral quality and the type of stone. The average local sales prices for rough blocks decreased by 16.7 percent to R1 322/ton, while the corresponding sales value increased by 13 percent to R338.6 million on the back of higher sales volumes. On the other hand, export sales prices increased by 21.8 percent to R1 802/ton, resulting in a 9 percent increase in revenue to R135.5 million due to the variance in quality of the stone sold in the local and international markets. Demand for high end stone material is driven by the export market.

EMPLOYMENT

South Africa's dimension stone sector employed 1 782 employees in 2013, a decrease of 2 percent compared with 2012 (Table 95). However, labour productivity increased by 14 percent to 0.19 kt/employee, while revenue generated per employee also increased by 14 percent to R266 019/employee following moderate activity in the construction sector. Average annual earnings increased by 3.9 percent to R91 736/employee as a result of conducive market conditions.

TABLE 95: SOUTH AFRICA'S DIMENSION STONE EMPLOYMENT AND REMUNERATION, 2009 – 2013

YEAR	EMPLOYEES	TOTAL REMUNERATION
		R'000
2009	2 588	156 389
2010	2 081	140 990
2011	2 723	425 537
2012	1 819	160 577
2013	1 782	163 473

Source: DMR, Directorate Mineral Economics, 2013

DEVELOPMENTS

After Anglo American bought a 30 percent stake in German entity, Deutsche Steinindustrie AG, this stake was later converted to Finestone SA based in South Africa, the largest company in the industry. Finestones has invested almost US$27 million in its operations in the Rustenburg region to ensure quality in its extracted volume of dimensional stones. The group has developed new technology which has assisted in mining a diverse range of shapes and sizes of blocks. This increased production by 7.1 percent to 150 000 m^3 per annum.

OUTLOOK

South Africa's dimension stone production is expected to gain momentum in the near future due to anticipated activities in construction works, supported by the Infrastructure Investment Programme for South Africa (IIPSA). Government has appointed the Development Bank of Southern Africa (DBSA) as the implementing agent of the fund, which is expected to support the implementation of the South African government's infrastructure programme and to address constraints in infrastructure development. This will be in alignment with the government's R847 billion Strategic Infrastructure Projects (SIPs) programme, in which 18 priority areas have been identified towards advancing the country's social and economic development.

As activity in the building sector continues to recover, demand for dimension stone is also expected to improve on the back of increased expenditure in public infrastructure projects in the medium-term. The business confidence level in the local market is improving, which reflects a positive sign of growth in the commodity market. Similarly, prices for dimension stone are expected to rise as demand for raw material in the construction sector grows.

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FLUORSPAR

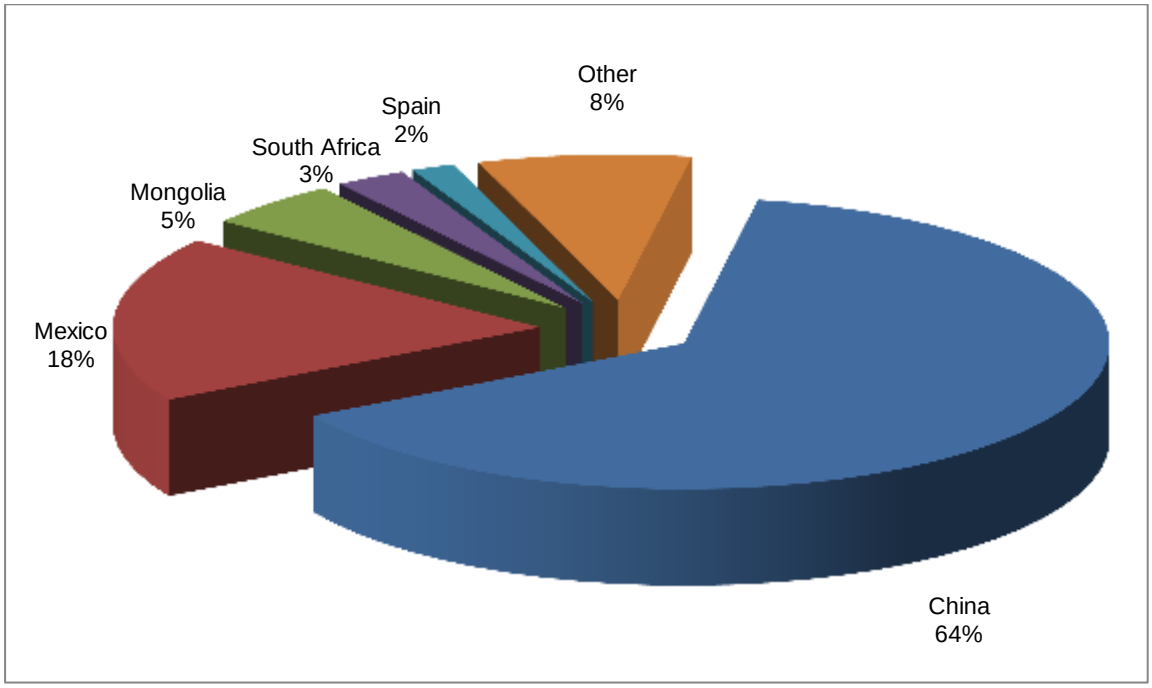
Mphonyana Modiselle

SUPPLY AND DEMAND

WORLD

Total world production of fluorspar decreased by 4.9 percent from 7.07 Mt in 2012 to 6.72 Mt in 2013, due to a collapse in the global fluorochemical markets, which led to reduced production as high cost producers were forced to cut back or suspend production in the face of falling prices. Fluorochemical markets have suffered from fragility of global economy. Overall world growth was sluggish, demand for white goods and cars were down and commodity prices depressed. Output was down in Mongolia, China and Africa. China remained the world's leading fluorspar producer accounting for 64 percent of world production followed by Mexico's 18 percent, Mongolia's 5 percent, South Africa's 3 percent and Spain's 2 percent (Fig.1).

FIGURE 74: WORLD FLUORSPAR PRODUCTION, 2013



Source: USGS, 2014

In 2013, the extent of the downturn in the fluorspar end-markets became apparent, particularly in the fluorochemical sector where demand continued to erode as a result of global economic uncertainty. A weak fluorochemical sector led to congestion throughout the supply chain causing acid-grade fluorspar (acidspar) inventories, a significant excess of supply on global markets. Acidspar consumption subsequently declined causing prices to fall. Both aluminium fluoride and fluorocarbons markets stalled throughout 2013, leading to a slowdown in hydrogen fluoride production and a subsequent slump in acidspar demand.

Metallurgical grade fluorspar (metspar) sector has exhibited relative stability over the previous year. This was driven by the demand from steel industry. The growth in Chinese consumption has also propped up international fluorspar markets.

SOUTH AFRICA

Vergenoeg mine is jointly owned by Spanish company called Minerales y Productos Derivados SA (Minersa) with 85 percent share and MEDU Capital (15%) and currently the only active mine in South Africa. The other fluorspar producers are Witkop and Buffalo, owned by Fluormin (63%) and Sallies (37%). Witkop mine was placed on care and maintenance since October 2012 – considering the current economic environment, and falling fluorspar prices below its production costs owing to low fluorspar grade. Buffalo mine was closed in October 2008, with no plans to recommence operations in the near future. However, in February 2013, Buffalo mine was sold to Rooiberg Stone, which is currently processing the stockpiles.

South Africa's fluorspar production decreased by 8.8 percent to 156 kt in 2013 compared with 170 kt in 2012 (Table 96) owing to the drop in the market demand as well as prices, which led to market excess. Local sales volumes increased by 21.4 percent from 14 kt in 2012 to 17 kt in 2013, due to the increase in sales from Vergenoeg mine commissioned briquetting plant, which now accounts for 95 percent of all possible sales locally. Export sales volumes decreased by 28.0 percent to 136 kt in 2013 compared with 189 kt in 2012. Witkop mine is still on care and maintenance since October 2012, citing weakness in the fluorspar market.

TABLE 96 - SOUTH AFRICA'S PRODUCTION AND SALES OF FLUORSPAR, 2004 – 2013

YEAR	PRODUCTION	LOCAL SALES			EXPORTS		
		Mass	Value (FOR)		Mass	Value (FOB)	
	Kt	Kt	R'000	R/t	kt	R'000	R/t
2004	265	23	18 247	793	233	183 329	787
2005	266	25	21 576	863	250	215 652	863
2006	256	27	25 798	973	218	244 933	1 125
2007	285	30	31 446	1 048	252	307 511	1 220
2008	299	25	*	*	276	*	*
2009	198	18	*	*	135	*	*
2010	157	18	*	*	179	*	*
2011	196	19	*	*	175	*	*
2012	170	14	*	*	189	*	*
2013	155	17	*	*	136	*	*

Source: DMR, Directorate Mineral Economics

*Note: * Sales figures withheld for reasons of confidentiality*

The World Trade Organization (WTO) ruling against China's fluorspar export duty has led the Chinese government to pursue domestic measures that limit production creating a greater demand for exports. As China's domestic bid to preserve its fluorspar resources and enhance its fluorochemical market continues following the WTO's ruling on export restraints, the country is developing a dependency on other major producing countries, like Mongolia.

PRICES

The collapse in the demand for fluorochemicals and subsequent excess capacity overwhelmed the acidspar prices causing an average 25 percent decrease. In 2013, fluorspar prices fell by an average of 45 percent from the highs of 2011. Prices have been trending downward with demand from fluorochemical markets stalling in the wake of slowing growth rates in the developing economies and weak sales into the major consuming regions in Europe and Asia. The mature economies demand was weak owing to weaker consumption levels as suppliers had to compete with low Chinese prices. The value of fluorspar has diminished throughout the year bringing acidspar prices close to cost levels, and causing a convergence of metspar and acidspar across the globe.

EMPLOYMENT

Productivity increased by 113.8 percent to 0.62 kt per employee in 2013 compared with 0.29 kt per employee in 2012. Average earnings increased by 46.1 percent from R174 418 per employee in 2012 to R254 841 per employee in 2013 (Table 97). Productivity and per capita payments higher increases were a result of fewer employees, which totalled 252 in 2013 compared with 573 in 2012. The substantial drop in employment was due to closure of Witkop mine in October 2012.

TABLE 97: SOUTH AFRICA'S FLUORSPAR QUARRIES: EMPLOYMENT AND REMUNERATION, 2007-2013

YEAR	EMPLOYEES	TOTAL REMUNERATION
		R'000
2007	490	51 608
2008	605	62 027
2009	432	59 128
2010	297	49 836
2011	453	68 467
2012	579	100 409
2013	252	64 220

Source: DMR, Directorate Mineral Economics

RECENT DEVELOPMENTS

SOUTH AFRICA

On 17th May 2013, Fluormin Plc, British Fluorspar, owner of Witkop fluorspar mine in South Africa, was sold to Vanoil Energy, a Canadian oil and gas company, after it landed a share offer worth $21.6 billion (R229.1 billion). It is unclear whether Vanoil intends to do with Fluormin's Witkop asset.

Sephaku Fluoride Ltd. (SepFluor) aims to set up a fluorspar beneficiation plant (crushing and screening) and a flotation mill at SepFluor's Nokeng Mine project in Gauteng Province in South Africa. Both plants were expected to be in operation by the end of 2017. Original plans called for mine production to begin in the late 2014.

SA Fluorite Pty Ltd - Doornhoek project is expected to be in production by 2017. The company is currently awaiting finalization of restructuring. The drill programme was approved and it is expected to upgrade the company's resources from "inferred" to "indicated". Metallurgical testwork at Mintek is underway, and environmental studies are ongoing.

INTERNATIONAL

Masan Resources Group's Nui Phao project in Vietnam operation is set to open late in 2014, with the expected 200 kt per annum of acidspar output onto a market which remains depressed.

Tertiary Minerals Plc. is currently working on three projects namely the two European projects, Storuman fluorspar project in Sweden and the Lassedalen fluorspar project in southwest Norway. The Storuman project is at the advanced stage of exploration, completion of prefeasibility study (PFS), is scheduled for the end of 2014 and targets 100 kt per annum acidspar. Tertiary has also started developing its Lassedalen fluorspar project in southwest Norway and is at the early stages of exploration. The third project is MB fluorspar deposits in Nevada, United States, were acquired in September 2012 and produced a Joint Ore Reserve Committee (JORC) compliant mineral resource estimate in April 2013.

OUTLOOK

The congestion throughout the supply chain hampered the chances of fluorspar price recovery. However, an upturn in Chinese activity and improvement in the United States (US) economic growth is likely to provide a positive platform for market development. The supply side, with a number of new projects coming on stream is expected to recover. Growth is expected to come from greater stability in Europe and the US, which will boost fluorochemical demand. In particular, fluoropolymers are forecast to be a big area of end-market growth this year. Recommencement of operations will be contemplated when the fluorspar industry enters into more favourable price environment.

Demand is expected to remain flat as the global economy improves, the developing nations will drive growth in the fluorochemical demand. The evolution in the fluorochemical sector is clearly a large area of prospective growth. Developing nations are going to be key, as growth in their economies will fuel consumption of refrigerants and air conditioners. Whilst South Africa had successes in the establishment of its existing fluorochemical industry (Pelchem), the key for the country's rise of the fluorochemical advancement lies in expediting development and growth in the requisite skills.

China's trend of decreasing exports will persist compared to some years ago. A reduction in Chinese exports will leave room for new projects to come on stream. However, in the short term demand will have to increase to prevent the reduction from having an adverse effect on price. Prices are expected to remain under pressure if demand fails to improve as expected.

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LIMESTONE AND DOLOMITE

R Motsie

SUPPLY AND DEMAND

Limestone is a low-value bulk product and hence not traded widely internationally. Since world resources of limestone and dolomite suitable for lime manufacturing are adequate, most countries are able to meet their own input requirements. South Africa's production of limestone and dolomite increased in 2013 by 1.5 percent to 22 Mt compared with 2012. Local sales volume increased by 8.8 percent to 20.1 Mt, following signs of moderate recovery in the construction sector (Table 98).

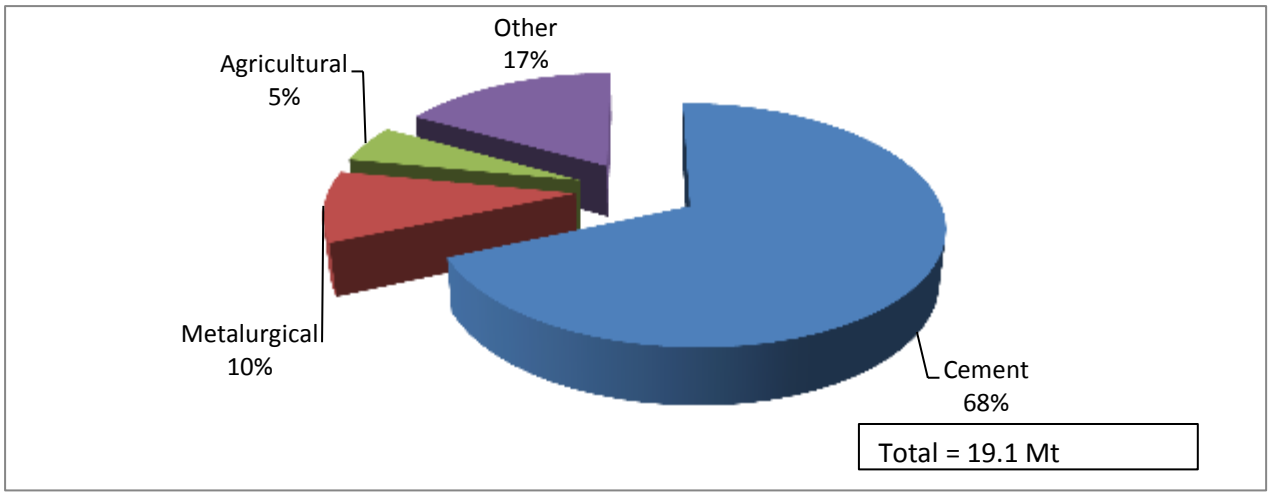
TABLE 98: SOUTH AFRICA'S PRODUCTION AND LOCAL SALES OF LIMESTONE AND DOLOMITE FOR NON-AGGREGATE USE, 2004 – 2013

YEAR	PRODUCTION	LOCAL SALES		
		Mass	Value (FOR)	
	Kt	kt	R'000	R/t
2004	22 031	17 466	1 227 322	70.3
2005	24 813	18 877	1 306 527	69.2
2006	27 366	20 359	1 517 661	75.0
2007	23 941	20 493	1 698 586	83.0
2008	23 495	19 781	1 899 279	96.0
2009	22 698	20 008	2 105 297	105.0
2010	22 480	19 226	2 271 133	118.0
2011	21 630	18 507	2 591 727	140.0
2012	21 637	18 479	2 517 772	136.0
2013	21 966	20 097	2 804 944	140.0

Source: DMR, Directorate Mineral Economics

Cement manufacturers are by far the largest users of limestone in the country at 68 percent followed by metallurgical applications (as a fluxing agent in steel making) at 10 percent and agriculture at 5 percent (Fig 1).

FIGURE 75: DEMAND FOR LIMESTONE BY SECTOR, 2013



Source: DMR, Directorate Mineral Economics

Local sales volume of limestone for the manufacture of cement increased by 5.5 percent to 13 Mt in 2013, even though, activity in the construction industry remained subdued (Table 99). Local sales volume for metallurgical grade carbonates increased by 8.6 percent to 1.9 Mt prompted by demand from the steel industry. However, local sales volumes of agricultural limestone and dolomite (aglime) decreased by 9.4 percent to 981 kt as a result of a decline in demand from fertiliser applications.

TABLE 99: SOUTH AFRICA'S LOCAL SALES OF LIMESTONE AND DOLOMITE BY APPLICATION, 2004 – 2013

YEAR	CEMENT			METALLURGICAL			AGRICULTURAL			OTHER		
	Mass	Value (FOR)		Mass	Value (FOR)		Mass	Value (FOR)		Mass	Value (FOR)	
	kt	R'000	R/t	kt	R'000	R/t	kt	R'000	R/t	kt	R'000	R/t
2004	11 565	225 433	19	2 041	107 887	53	948	48 404	51	1 139	275 612	242
2005	13 519	279 474	21	1 964	114 205	58	604	35 948	60	1 328	297 219	224
2006	14 225	313 038	22	2 183	131 284	60	707	51 779	73	1 533	335 919	219
2007	14 647	350 922	24	1 569	117 847	75	860	59 304	69	1 774	366 980	207
2008	14 252	403 215	28	1 372	120 083	87	879	72 263	82	1 646	381 021	231
2009	14 860	462 122	31	1 237	117 632	95	855	81 762	96	1 616	404 149	250
2010	13 458	443 978	33	1 910	190 589	100	783	86 553	109	1 780	447 341	251
2011	12 373	456 522	37	1 745	194 042	111	901	101 081	112	1 948	472 135	242
2012	12 358	463 196	37	1 703	208 933	123	1 083	140 557	130	2 125	525 422	247
2013	13 037	498 276	38	1 850	242 566	131	981	140 414	143	3 198	764 737	239

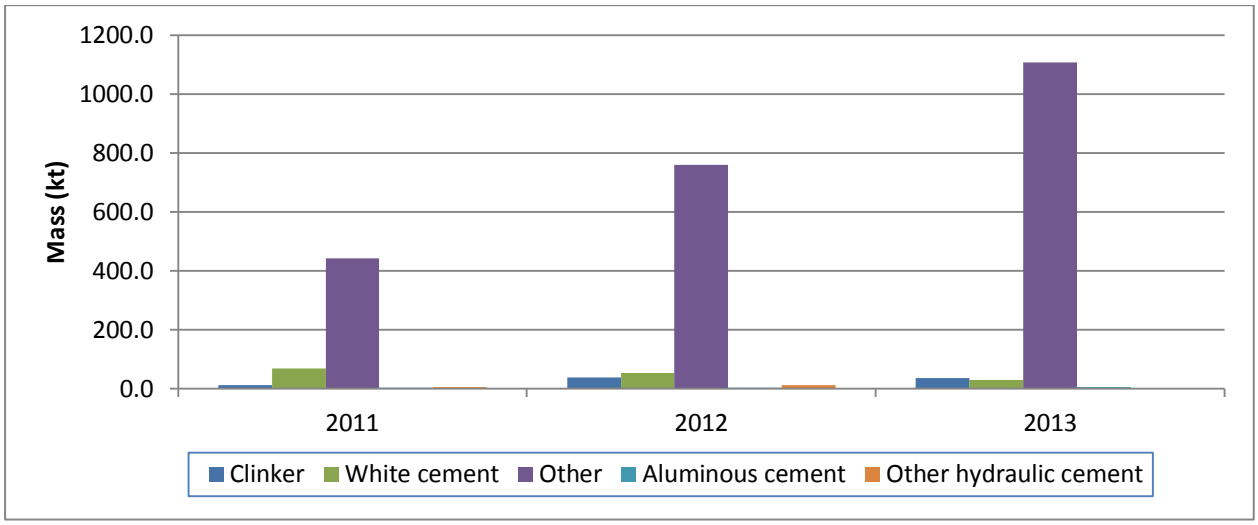
Source: DMR, Directorate Mineral Economics

CEMENT IMPORTS

South Africa's imports of cement soared to 1 177 kt in 2013, a 35.6 percent rise compared with 868 kt in 2012 (Fig 2). The increase comes amid allegations of dumping of cement products from Pakistan into the

local market as a result of oversupply in that country. About 93.9 percent of all types of imported cement were from Pakistan in 2013, with a notable increase in other types of cement at 1 104 kt. The South African International Trade Administration Commission (ITAC) is conducting an investigation on the uncompetitive behaviour by Pakistan for selling cement products of a similar quality and standard in South Africa at a price 48 percent lower than the normal value in Pakistan. This practise has led to local producers feeling the squeeze in their sales volumes, profit, output and the market share.

FIGURE 76: SOUTH AFRICA'S IMPORTS OF CEMENT PRODUCTS, 2011 – 2013



Source: South African Revenue Service, 2013

LIME

A commercially important property of lime is its ability to form solutions with silicates. It is used in steel and ferro-alloys manufacturing, chemical industries and in environmental applications such as water purification. Local sales volume of lime (Table 100), slightly decreased by 1.8 percent to 1.19 Mt in 2013, compared with the previous year owing to low volumes of steel production. Sales volume of quicklime for pyrometallurgical and chemical applications dropped by 2 percent to 1.09 Mt, while sales value increased by 1.3 percent to R1.07 billion. The increase in sales value resulted from favourable prices in chemical applications, which improved by 5.9 percent to average R1 040/t in 2013. Hydrated lime sales volumes for water purification decreased by 0.4 percent to 50.7 kt whilst the sales volumes for chemical use decreased by 14 percent to 12 kt as demand for other substitute products improved.

TABLE 100: SOUTH AFRICA'S LOCAL SALES OF LIME, 2012 – 2013

LIME PRODUCT,	2012			2013		
BY SECTOR USE	Mass	Value (FOR)		Mass	Value (FOR)	
	Kt	R'000	R/t	Kt	R'000	R/t
Quicklime						
Pyrometallurgical	564	520 823	923	559	520 484	931
Chemical	549	539 307	982	532	553 033	1 040
SUB-TOTAL	1 113	1 060 130	953	1 091	1 073 517	984
Hydrated lime						
Water purification	50.9	61 701	1 213	50.7	62 728	1 238
Chemical	14	14 540	1 062	12	12 520	1 086
Other	32	43 294	1 373	37	40 555	1 097
SUB-TOTAL	97	119 535	1 216	100	115 803	1 158
TOTAL	1 210	1 179 665	975	1 188	1 188 734	1 001

Source: DMR, Directorate Mineral Economics

PRICES AND REVENUES

In 2013, there was a general increase in prices of limestone for different applications. Local unit values for limestone increased by 29 percent to R140/t, resulting in a 11.4 percent increase in revenue to R2.8 billion. The moderate recovery in the construction industry has seen demand for limestone used for cement manufacturing rising to 13 kt from 12.4 kt, a 4.8 percent increase with a corresponding 2.7 percent increase in the unit value. Furthermore, prices of limestone used in metallurgical and agricultural applications trended upwards, averaging R131/t and R143/t respectively. The unit value for metallurgical applications increased by 6.5 percent despite weaker demand from the steel industry, while the unit value for agricultural applications increased by 10 percent owing to increased demand for fertilisers.

EMPLOYMENT

Employment in the limestone and dolomite sector increased by 6.3 percent to 2 987 employees compared with 2012 (Table 101). Labour productivity decreased by 4.2 percent to 7.4 kt/employee, while revenue generated per employee increased by 5.1 percent to R941 256/employee. Average annual earnings increased by 0.9 percent to R157 264/employee due to faster increase in earnings than employment.

TABLE 101: SOUTH AFRICA'S LIMESTONE AND DOLOMITE QUARRIES: EMPLOYMENT AND REMUNERATION, 2004 – 2013

YEAR	EMPLOYEES	TOTAL REMUNERATION
		R'000
2004	4 085	242 043
2005	5 210	312 073
2006	2 385	251 895
2007	2 452	286 461
2008	2 517	321 698
2009	2 490	359 959
2010	2 635	410 250
2011	2 723	425 537
2012	2 811	438 208
2013	2 980	468 648

Source: DMR, Directorate Mineral Economics

RECENT DEVELOPMENTS IN THE CEMENT INDUSTRY

The Built Environment unit at the Council for Scientific and Industrial Research (CSIR) has developed a cost-competitive ultrathin concrete pavement surface, which is more durable than many other pavement alternatives. The ultrathin concrete will be used for upgrading unpaved roads with minimal amount of steel reinforcement, a move likely to lead to stronger demand for cement and ultimately limestone.

Sephaku Cement's construction of an integrated clinker and cement production plant (Aganang) in Lichtenburg and a milling plant in Delmas has been completed. The Aganang plant is expected to produce 1.9 Mt of clinker and 1.2 Mt of cement per annum. The Delmas plant will have an annual cement production capacity of 1.4 Mt. Sephaku Cement is expected to reach steady production at both plants in 2015 with ramp up of production volumes to be in line with market demand. These developments will drive South Africa's cement production to 14 Mt per year. Aganang will employ about 170 people at the cement factory and create an additional 300 employment opportunities through subcontractors.

Mamba Cement, a joint venture between Jidong Development Group, the China-Africa Development Fund and investment group Women Investment Portfolio Holdings (WIPHOLD) plans to build a R1.8 billion cement plant with a capacity of more than 1 Mt/annum in Limpopo province at an established limestone deposit. Jidong Development Group and China-Africa Development Fund will hold 51 percent of the shareholding, while WIPHOLD and an unidentified shareholder will account for the remaining balance of 23.9 percent and 25.1 percent respectively.

AfriSam's ready-mix cement plant in the Saldanha Bay industrial development zone (IDZ) became fully operational in June 2014. The facility would have a production capacity of 70 m^3/hr and comprise storage

silos for cement and aggregates. The plant will provide ready-mix cement to the upcoming developments in the IDZ and the Saldanha Municipal area, which will create 10 000 jobs for locals during the initial development phase and 40 000 when the IDZ is fully operational.

Pretoria Portland Cement (PPC) has acquired the remaining 50 percent stake from Pronto Holdings, a Gauteng based ready-mix concrete and fly ash-supplier, for a total of $41.9 million. Within the continent, PPC is expected to commission a 600 kt/a plant in Rwanda later in 2014 as part of its strategy to generate 40 percent of its revenues from the rest of the continent by 2017. Feasibility studies for a 2 Mt per annum plant in Algeria are in advanced stages and the company hopes to add Algeria to its $1-billion African project portfolio. The main limitation currently on construction activity is the depressed private mining investment, which has led to subdued construction expenditure and has seen companies exploring opportunities outside of South Africa. However, government stimulus through infrastructure development programmes might offset the current market conditions.

OUTLOOK

The positive contribution to construction investment by government over the past three years cushioned the contraction of investment by SOE's and the private sector. During the same period, government spent R642 billion on infrastructure projects in a bid to unlock constraints in major strategic projects hindering economic growth. A further R847 billion is expected to be spent over the medium-term expenditure framework (MTEF) period, which will result in a stimulation of the local economy and a rise in demand for limestone and other construction minerals. The South African National Roads Agency Limited (Sanral), which is responsible for national road maintenance and upgrading, has been allocated R32.9 billion for national road improvements and R2 billion for the rehabilitation of coal haulage roads in Mpumalanga over the MTEF period. In addition, spending on road projects by provincial governments is expected to total R27.6 billion during the same period.

Civil construction activity is expected to pick up in future as 78 percent of the national road network is older than the original 20 year design life and will need rehabilitation, thus creating opportunities for construction companies. Furthermore, growth in approved residential plans by large municipalities signals a recovery in the sector. The entrants of new cement producers in the market and planned future operations will ensure sufficient supply for these developments. Cement prices are expected to be under some downward pressure in the long term due to increased competition as new plants come online.

The continued investment in road networks and social infrastructure will maintain a healthy demand for limestone and related minerals in the medium term. Similarly, the rise in demand for limestone will be driven by the agricultural sector on the back of growing population and flue-gas desulphurisation application at Eskom's power stations with Medupi and Kusile yet to be commissioned. Prices for limestone are therefore expected to continue increasing in correlation with rising demand from different applications.

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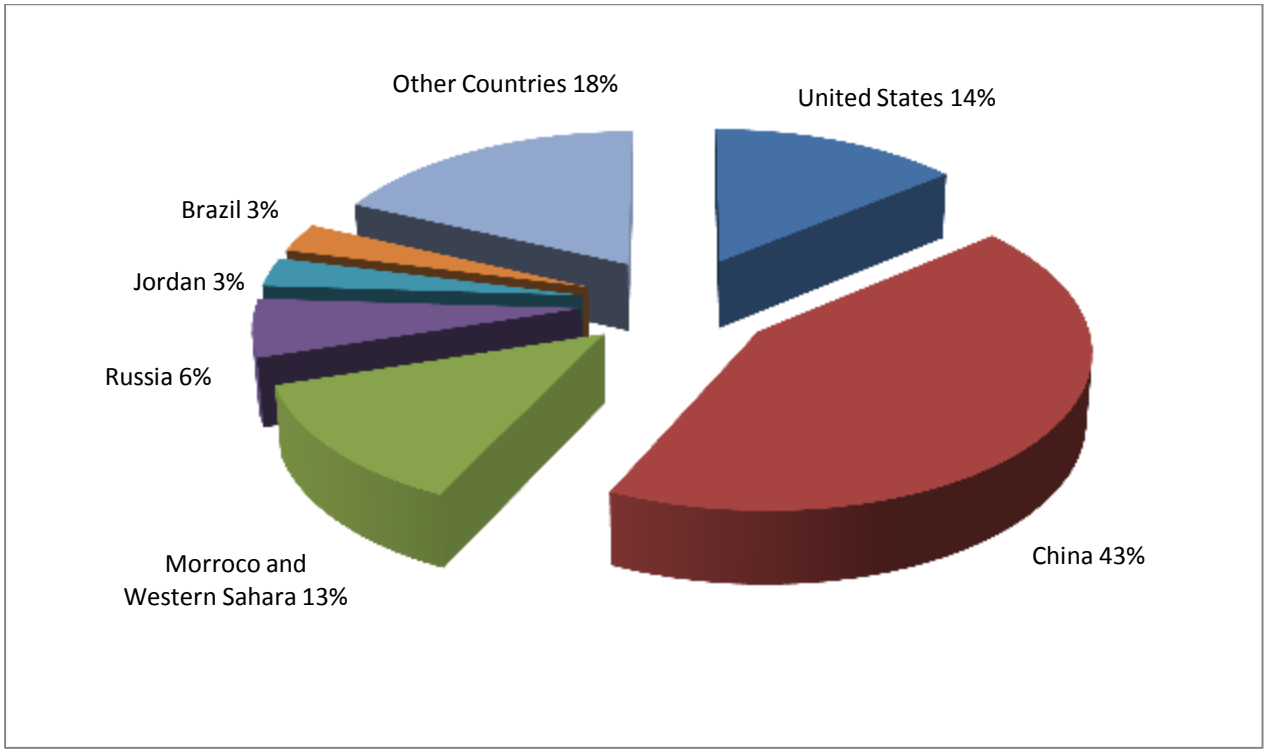
PHOSPHATE ROCK

Munyadziwa Muravha

SUPPLY DEMAND

World production of phosphate rock increased by 3.2 percent to 224 Mt in 2013 compared with 217 Mt in 2012 owing to increased production of phosphoric acid. China is the world's largest phosphate producing country, accounting for 43 percent of production followed by the United States at 14 percent and Morocco & Western Sahara at 13 percent. Russia's contribution decreased slightly to 6 percent compared to the previous year (Fig 1).

FIGURE 77: PHOSPHATE ROCK PRODUCTION BY COUNTRY, 2013



Source: USGS, 2013

Global capacity of phosphoric acid (H_3PO_4), measured as P_2O_5 content, by the end of 2013 amounted to 58.0 Mt/a while phosphate fertilizers capacity is estimated to have amounted to 49.6 Mt/a.

South Africa's production of phosphate rock increased by 16.4 percent to 2 131 kt in 2013 compared with 1 831 kt in 2012 due to increased demand. The type of phosphate rock mined at Foskor, the country's largest producer is highly sought after. Local sales mass increased by 15.4 percent to 1 634 kt compared with 1 415 kt in 2012 (Table 102). This increase was supported by improved transport logistics by producers. Local export volumes decreased by 72.5 percent from 620 kt in 2012 to 170 kt in 2013.

TABLE 102: SOUTH AFRICA'S PRODUCTION AND SALES OF PHOSPHATE ROCK, 2001– 2013

YEAR	PRODUCTION	LOCAL SALES	EXPORTS
	Mass	Mass	Mass
	Kt	kt	kt
2001	2 420	2 591	555
2002	2 803	2 532	349
2003	2 643		250
2004	2 735	2 484	268
2005	2 577	2 498	91
2006	2 629	2 252	0
2007	2 556	2 523	36
2008	2 287	2 687	0
2009	2 237	2 268	0
2010	2 148	1 880	25
2011	2 575	2 155	194
2012	1 831	1 415	620
2013	2 131	1 634	170

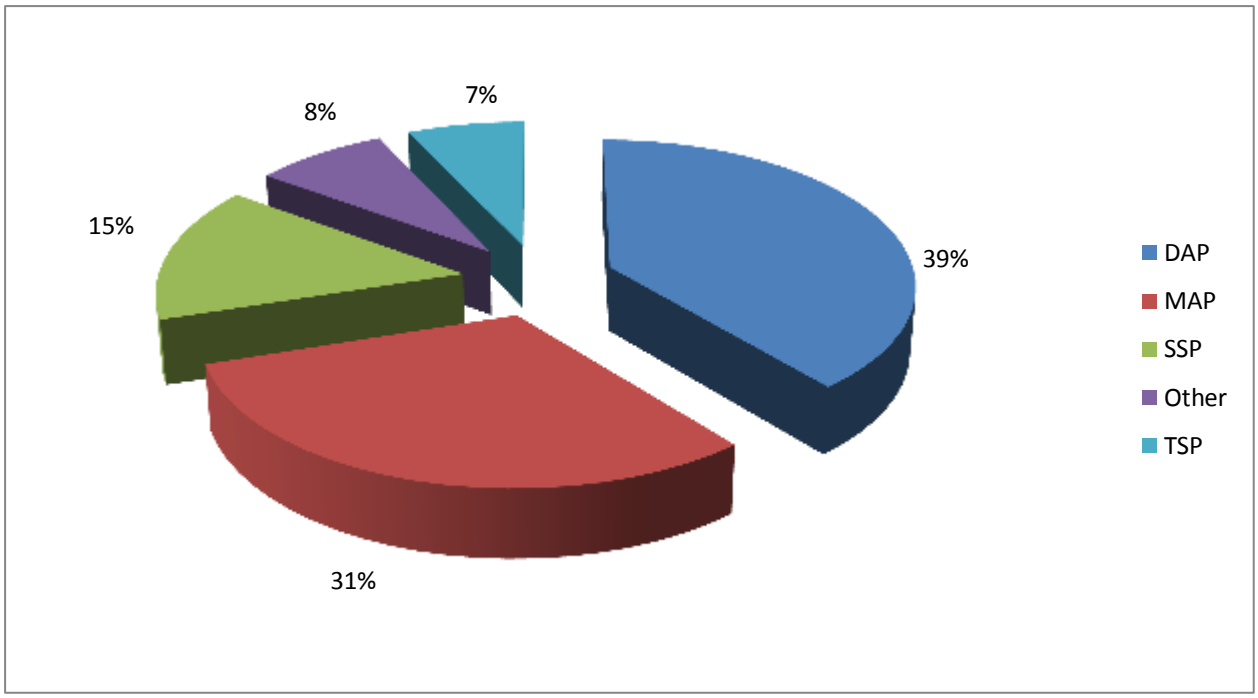
Source: DMR, Directorate Mineral Economics

World resources of phosphate rock are more than 300 000 Mt while world reserves are estimated at 67 Bt. Morocco holds the world largest reserves of Phosphate rock at 50 Bt, followed by China's 3.7 Bt and Algeria at 2.2 Bt. South Africa is ranked at 5th position with 1.5 Billion tons.

Foskor has mined an average of 2.4 Mt of phosphate rock per annum since 2004, of which 70 percent is used for the production of phosphoric acid, 15 to 20 percent is exported to Japan, New Zealand and the Netherlands, while the rest is sold locally. Omnia Fertiliser is the key local customer. Palabora Mining Company (PMC) provides 20 to 25 percent of crushing and milling capacity of Foskor phosphate rock production. The déclinant performance at. PMC has had a negative effet on Foskor's production and future planning. However, the two companies continue to engage in an effort to improve performance. Foskor is also planning to expand the fertiliser product range to include soluble MAP (Mono ammonium Phosphate), NPKs (fertiliser products containing nitrogen, phosphate and potassium), and bagged products for distribution to lucrative markets in New Zealand, Central Africa and Israel.

Fertilizers account for 87 percent of global phosphate demand, food and industrial uses comprise a further 6 percent while feed accounts for 7 percent. Of the phosphate rock produced globally, DAP accounts for 39 percent of demand, MAP 31 percent, SSP 15 percent, TSP 7 percent and 8 percent for other uses (Fig.2).

FIGURE 78: WORLD PHOSPHATE ROCK DEMAND, 2013



Source: CRU

More than 95 percent of phosphate rock mined from the United States was used to manufacture phosphoric acid and super-phosphoric acid, which were used as intermediate feedstock in the manufacture of granular and liquid ammonium phosphate fertilizers and animal feed supplements. Approximately 45 percent of the wet phosphate fertilizers (DAP and MAP) are merchant grade phosphoric acid. The balance of the phosphate rock was used for the manufacture of elemental phosphorus, used to produce phosphorus compounds for a variety of food-additive and industrial applications. In China, rising production costs experienced by producers, could affect production gradually. MAP and DAP are the most important phosphate fertilisers, and are manufactured by the neutralisation of phosphoric acid with ammonia. MAP contains 11 percent nitrogen and 22 percent phosphorus, whereas DAP contains 18 percent nitrogen and 20 percent phosphorus.

In South Africa, the Acid Division at Foskor has three production plants, for sulphuric acid, phosphoric acid and granular fertilizer. Sulphuric acid is combined with the rock concentrate from the Mining Division to produce phosphoric acid. The phosphoric acid is either exported in its acid form and sold and locally, or used in the production of granular fertilizer, which is mainly sold locally.

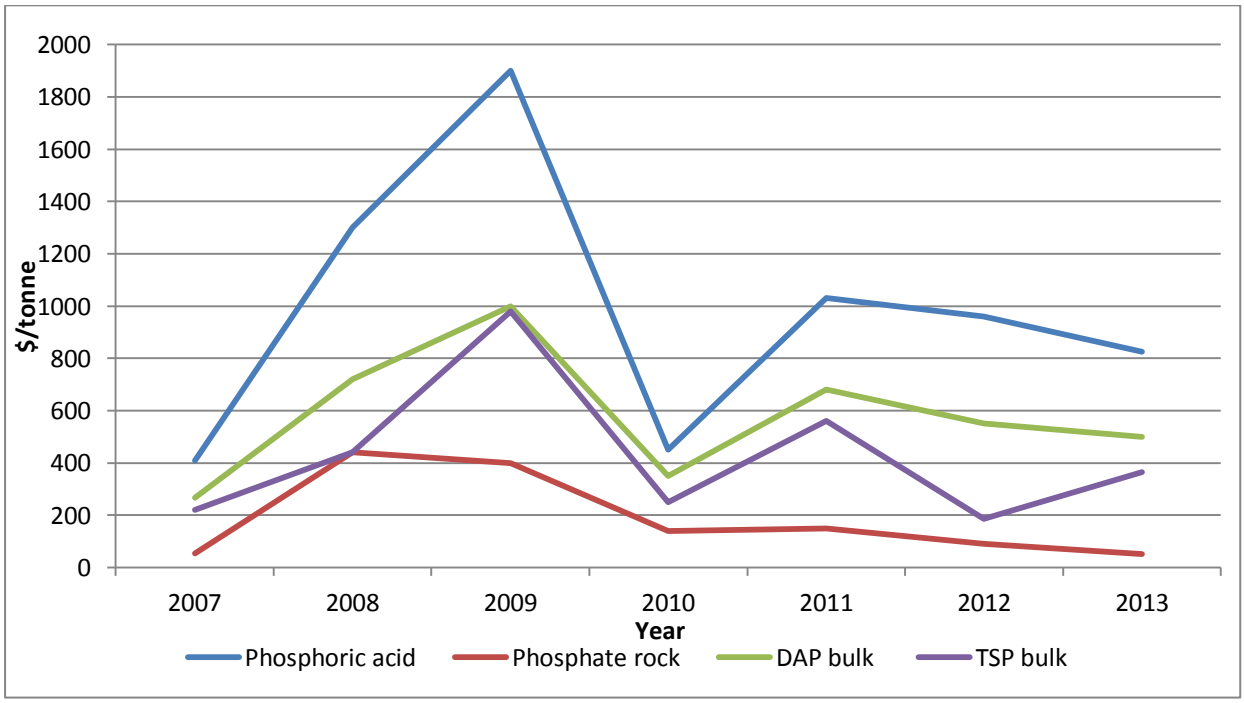
Global phosphate rock production amounted to 224 Mt in 2013. About 15 percent of the total 224 Mt was traded, despite the low volumes involved. Morocco and Jordan were the leading exporters in 2013. However, socio political risks in these two countries are raising fear of potential upheaval, which might affect phosphate rock availability. Amongst the largest exporters, Egypt and Peru have raised their output volumes while civil strife has impacted on Syria's supply. The largest concentration of phosphate rock exporters are in the Middle East and North Africa, which together account for 80 percent of world trade of

phosphate and are the suppliers of the best quality phosphate rock. India is the second largest global consumer of phosphates after China. With very limited indigenous rock supplies, India imports phosphate rock and phosphoric acids to produce DAP domestically. South Africa's Foskor, is one of the largest suppliers of phosphoric acid to India. The company also supplies other countries including Europe, the Middle East, North and South America and sub-Saharan Africa.

PRICES

Phosphate rock price decreased by 43.3 percent to $51/t in 2013 compared with $90/t in 2012 as a result of weak global market conditions while phosphoric acid price decreased by 14.1 percent to $825/t in 2013 compared with $960/t in 2012. Diammonium phosphate (DAP) price declined by 9.1 percent to $500/t and trisodium phosphate (TSP) price increased by 97.3 percent to $365/t in 2013 (Fig.3). Phosphate rock prices are now steadying after falling throughout 2013. Fertiliser products also experienced a large decline while the decline for feeds and industrial products were down moderately. Phosphate producers reported pressure on profit margins despite large sales as a result of weak prices.

FIGURE 79: PRICES OF PHOSPHATE RESOURCES, 2006 –2013



Source: Fertilizer International, 2013

EMPLOYMENT

Locally, employment increased by 14.1 percent to 3 684 employees due to increased number of contractors approved for projects. Remuneration increased by 16.1 percent from R756.9 million to R878.6 million. Each employee generated R240.5 thousand in 2013, an increase of 1.7

percent when compare with R236.4 thousand. Productivity increased by 2.0 percent to 583.2 t per employee per year due to aforementioned increase in employment and production.

OUTLOOK

According to the International Fertilizer Industry Association (IFA), world fertiliser demand rebounded firmly in 2013 going into 2014. Investments in new capacity by the fertiliser industry will have positive effects in the form of new supply to secure growing fertilizer demand and employment in the manufacturing and mining sector. Future expansions will be driven by increasing demand from fertiliser and feed markets despite the fact that phosphate rock is used to produce a wide range of products including food and industrial grade phosphates. India is expected to continue playing a major role in phosphate demand, encouraging the development of further export capacity in the Arab Gulf and China.

According to International Fertilizer Industry Association Fertilizer Outlook 2014-2018, global phosphate rock supply is expected to grow by 18 percent from 2014 to 258 Mt in 2018. Leading phosphate producers are expected to account for 62 percent of this increment. Global Phosphoric acid demand is forecast to grow at an annual rate of 2 percent over 2013 to reach 48 Mt in 2018. Supply/demand conditions show a stable potential balance in the short term, followed by a moderate increase starting in 2016 and reaching 4.3 Mt by 2018, representing 8 percent of potential supply. Global granulation capacity is estimated to rise by 7 Mt of phosphoric acid input between 2012 and 2017.

Phosphate rock and phosphoric acid prices have been decreasing since 2011 due to weak global market conditions. In 2014 prices continued to decline further but are expected to firm up by the end of 2014, which will urge buyers back into the market, notably in India and Pakistan. Prices are expected to increase slightly in 2015 at the back the anticipated improved demand.

South African production is expected to increase slightly on the back of improved production processes for phosphate at the country's leading phosphate producing mine (Foskor). The effect of population growth, food shortages and climate change patterns continue to drive the demand for phosphates. Phosphate rock is emerging as an essential tool to address food shortages as ways are sought to best use phosphate fertilisers to tackle food shortages.

Continuing plans and programmes towards securing food for South Africa will begin to take shape in the short term in line with government commitment to the National Development Plan aim of securing food for all South Africans. Collective efforts including studies to unpack the strong linkages between the mining industry and the agricultural industry will make a significant contribution towards food security. As new systems are introduced, jobs are created to accomplish the ultimate goal of alleviating poverty and unemployment.

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SPECIAL CLAYS

Munyadziwa Muravha

SUPPLY AND DEMAND

Clays are a complex group of naturally occurring fine grained minerals, that shows plasticity through a variable range of water content, and which can be hardened when dried. The term special clays refers to attapulgite, bentonite and kaolin.

Kaolin is a soft, white, plastic clay, comprising several minerals, the most important being kaolinite. Fine kaolin is used in the paper industry while coarse kaolin is used in the filler industry.

Bentonite is largely composed of montmorillonite, which is mainly a hydrous aluminium silicate. In drilling, bentonite is usually mixed with a major quantity of water to form a drilling mud, which is then pumped into a bore hole during the drilling process. Other than the oilfield end-market, the mineral is also used in a variety of applications such as sandcasting, iron ore pelletisation, insecticides, pet-litter, pharmaceuticals and cosmetics.

Attapulgite is a magnesium aluminium phyllosilicate which occurs in white and greyish colours. Its main applications are in drilling mud, coatings, pet litter, animal feed, floor absorbent, horticulture, pharmaceuticals bleaching clays, fertilizer, oil pollution control, carriers and anti-slip agents.

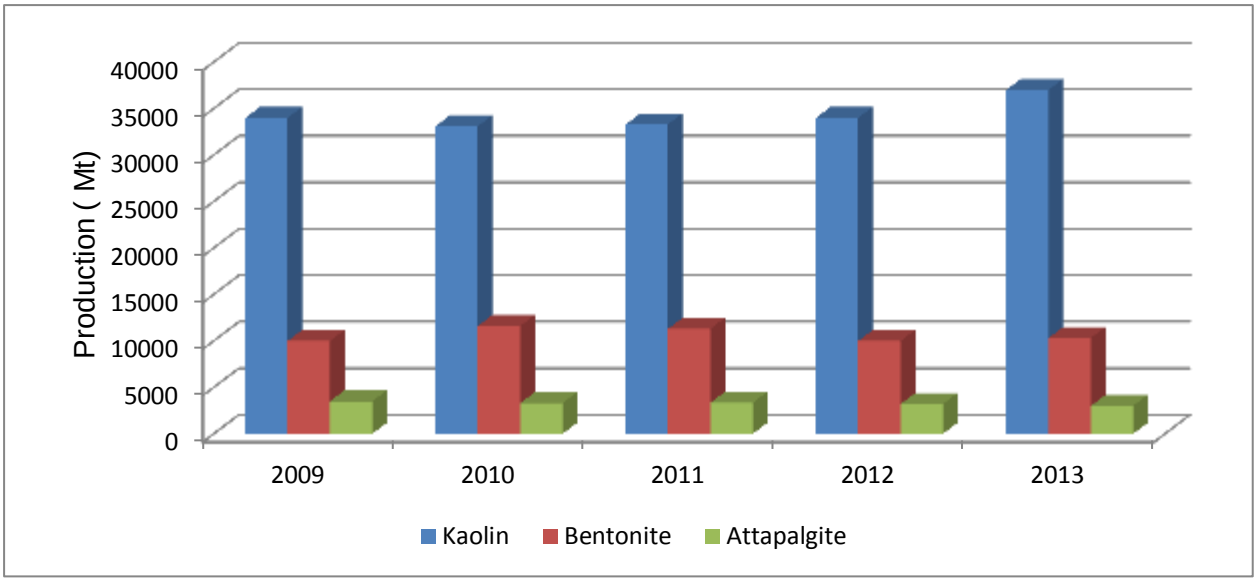
Total world kaolin production increased by 2.2 percent from 36.2.0 Mt in 2012 to 37.0 Mt in 2013. Demand from the paper end market was stable and remained unchanged in 2013. The United States (US) accounted for 16.1 percent of the total world production of kaolin followed by Uzbekistan at 18.9 percent and Germany at 12.2 percent.

Global bentonite production increased by 3.5 percent from 9.9 Mt in 2012 to 10.3 Mt in 2013 as a result of a stronger demand from the construction and pet litter industries. The US accounted for 48.1 percent of total world bentonite production, followed by Greece at 11.7 percent and Brazil at 5.5 percent. Production increased slightly in most of the bentonite producing countries.

World attapulgite production marginally increased from 2.9 Mt in 2012 to 3.0 Mt in 2013. The US is the major primary producer accounting for 68.0 percent of total world attapulgite production, followed by Spain’s 19.0 percent and Mexico’s 9.0 percent.

Global reserves are large and distributed throughout many countries, but country-specific data is not available.

FIGURE 80: WORLD PRODUCTION OF SPECIAL CLAYS, 2013



Source: USGS, 2013

In South Africa the biggest attapulgite producer is Arcelo Mining (owned by Meyers Minerals) in Limpopo Province. Other attapulgite producers are Atta Clay in Lydenburg (Mpumalanga Province), Matutu Absorbents and Dwaalboom Attapulgite (owned by G & W Base) in the Rustenburg area, Northwest Province. G & W Base is the largest bentonite producer followed by Cape Bentonite in the Western Cape and Atta clay. G & W Base is also the largest producer of kaolin.

South Africa's production of kaolin increased by 8.8 percent from 20.4 kt in 2012 to 22.3 kt in 2013 due to increased demand from paper end-market (Table 103). Local sales mass increased by 58.1 percent to 35.2 kt while local sales value increased by 34.1 percent to R16.7 million in 2013 compared with the previous year owing to higher unit values. Kaolin imports increased by 8.4 percent to 19.3 kt as a result of increased demand from the ceramics end-market.

TABLE 103: SOUTH AFRICA'S PRODUCTION, LOCAL SALES AND IMPORTS OF KAOLIN, 2002-2013

YEAR	PRODUCTION	LOCAL SALES			IMPORTS#		
		Mass	Value (FOR)		Mass	Value (FOB)	
	Kt	Kt	R'000	R/t	Kt	R'000	R/t
2002	86.7	79.4	37 332	470	17.8	53 254	2 988
2003	86.4	72.9	40 573	556	11.6	24 925	2 156
2004	81.9	67.8	42 880	633	15.9	23 562	1 478
2005	59.4	52.7	30 321	575	9.8	16 641	1 690
2006	51.6	39.1	15 809	404	17.6	31 219	1 774
2007	50.8	39.3	10 232	260	15.8	27 927	1 768
2008	39.2	33.5	9 068	271	10.2	25 775	2 527
2009	31.0	30.1	9 343	311	11.0	31 469	2 861
2010	29.9	28.2	9 960	353	18.1	36 233	2 002
2011	15.2	22.4	10 375	463	13.0	30 533	2 346
2012	20.4	21.9	12 187	586	17.8	46 389	2 601
2013	22.3	35.2	16 740	475	19.3	185 084	9 589

Source: DMR, Directorate Mineral Economics

Source: # RSA, Commissioner for South African Revenue Services, 2002-2013

Notes: Import figures also include "other kaolinitic clays"

Bentonite production increased by 47.0 percent to 177.2 kt in 2013 from 120.6 kt. Demand from the foundary and the ferrochrome end markets strengthened in 2013, providing for a huge increase throughout the year. Furthermore, local sales volumes increased by 6.0 percent from 159.9 kt in 2012 to 169.6 in 2013, while local sales value increased by 2.9 percent to R123.1 million (Table 104). Although the local sale price was slightly depressed, increased volumes sold locally offset a decline in local sales revenue. There was a significant increase (28%) in the export volumes of bentonite sold on the export market in 2013. This increase resulted from an increase in drilling oil activity globally.

Bentonite is currently used in many other construction projects in South Africa. Ecca Holdings supplies bentonite to Eskom's Medupi project. Some of the bentonite produced in the country is used as a binder at Xstrata Process Support (Glencore). High transportation costs continue to affect bentonite prices, creating a continued challenge for suppliers since consumers cut on demand when prices are high.

TABLE 104: SOUTH AFRICA'S PRODUCTION, LOCAL SALES AND EXPORTS OF BENTONITE, 2002-2013

YEAR	PRODUCTION	LOCAL SALES			EXPORTS		
		Mass	Value (FOR)		Mass	Value (FOB)	
	Kt	Kt	R'000	R/t	Kt	R'000	R/t
2002	101.1	67.8	32 916	485	10.0	4 065	408
2003	145.1	74.4	31 210	420	11.0	3 728	338
2004	55.9	75.5	35 662	473	10.5	5 956	566
2005	139.8	75.9	35 738	471	6.9	4 778	688
2006	32.9	75.1	39 005	520	4.0	2 887	715
2007	45.8	87.3	49 749	570	3.2	2 434	761
2008	44.1	96.1	64 670	673	3.4	4 399	1 294
2009	40.3	59.8	37 585	628	1.8	2 529	1 393
2010	82.3	124.6	82 594	659	1.3	1 667	1 293
2011	120.4	177.0	118 344	669	0.165	255	1 551
2012	120.6	159.9	119 629	748	0.021	29	1 412
2013	177.2	169.6	123 077	726	0.080	139	1 749

Source: DMR, Directorate Mineral Economics

About 90 percent of attapulgite is used for cat litter and the rest for environmental purposes (filtration of various products – acid, water, and oil). South Africa's production of attapulgite increased by 34 percent to 21.2 kt in 2013 from 15.8 kt in 2012 mainly driven by an increased demand for cat litter. Volumes sold locally decreased by 3.0 percent to 15.4 kt in 2013 whilst the corresponding sales value increased by 17.4 percent to R8.4 million (Table 105). Attapulgite, like the rest of the clay minerals, has seen improved demand during 2013. Although the industry is mostly driven by local demand, recently there has been a growing niche market in drilling mud worldwide.

TABLE 105: SOUTH AFRICA'S PRODUCTION, LOCAL SALES AND EXPORTS OF ATTAPULGITE, 2002-2013

YEAR	PRODUCTION	LOCAL SALES			EXPORTS		
		Mass	Value (FOR)		Mass	Value (FOB)	
	Kt	Kt	R'000	R/t	T	R'000	R/t
2002	13.3	11.0	5 883	535	0	-	-
2003	14.6	14.5	6 750	466	0	-	-
2004	20.4	20.2	8 962	443	0	-	-
2005	33.7	29.8	10 785	362	0	-	-
2006	49.2	49.0	13 201	270	0	-	-
2007	68.4	68.4	17 989	263	0	-	-
2008	69.9	69.9	20 783	297	0	-	-
2009	54.4	54.2	16 015	295	0	-	-
2010	57.6	57.3	17 585	290	0	-	-
2011	14.4	14.4	6 572	455	0	-	-
2012	15.8	15.9	7 171	452	0	-	-
2013	21.2	15.4	8 417	547	0	-	-

Source: DMR, Directorate Mineral Economics

The consumption of kaolin is led by Asia accounting for 36 percent of demand, Europe and North America accounting for 30 percent and 24 percent respectively. The largest proportion of kaolin production is consumed by the paper industry, though the mineral is also used as a filler, particularly ground and precipitated calcium carbonate. The paper industry consumes about 50 percent while the other 50 percent is consumed by all the other end users.

Production in North America has been declining because of the competition with calcium carbonate and imports from Brazil, leading to industry consolidation. This competition has fuelled global consolidation in the kaolin market since 2008. The major producing companies that were operating in the 1980s consolidated to about 12 in the 1990s and, the number has even reduced further to six companies. Imerys is the market leader with KaMin, Thiele, Sibelco, AKW (Quartzwerke) and Basaf being the other participants. Imerys now controls PPSA (Para Pigmentos SA) and has recently completed the acquisition of Goonvean. In Southwest England, Sibelco now controls the kaolin deposits in Devon (Lee Moor) whilst Imerys controls all kaolin deposits and operations in Cornwall.

About 53 percent of bentonite production is consumed by the absorbents and the drilling mud end-markets. With the increasing global demand for gas and oil, consumption in the oilfield market has expanded, although the idea of hydraulic fracturing (fracking) has not yet been fully embraced in most countries owing to the impact on environment.

PRICES

The kaolin price for No 1 paper coating grade increased by 1.0 percent by the end of 2013 compared with 2012, while No 2 paper coating grade, ex-works USA also increased by 7.5 percent in 2013 compared with 2012 (Table 106). The prices for cat litter grade FOB Kandla and FOB European port remained unchanged in 2012 and 2013.

US bentonite (ex-works Wyoming) remained stable except for the American Petroleum Institute (API) grade, bagged, railcars, ex-works Wyoming and Iron Ore Pelletising (IOP) grade, crude, bulk, ex-works Wyoming. The API grade increased from a range of $97-122/s.ton in 2012 to a range of $97-124/s.ton by the end of 2013 as a result of increased production logistics and energy costs. The Iron Ore Pelletising (IOP) grade remained constant at a range of $62-77s.ton in 2013. The Indian, crushed, dried, loose, in bulk, cat litter grade prices have now remained constant for three consecutive years since 2010. The largest global producer of kaolin, Imerys, will now be subjected to price control for the supply of kaolin, following its acquisition of Goonvean.

TABLE 106: WORLD PRICES OF KAOLIN AND BENTONITE, 2012-2013

KAOLIN	**2012**	**2013**
No 1 paper coating grade	$161-209	$163-211
No 2 paper coating grade	$107.50-166.70	$110.93-168.43
BENTONITE	**2012**	**2013**
Cat litter, grade 1-5 mm, bulk, FOB Main European port	€42-60	€42-60
Indian, cat litter grade, crushed, dried, loose, in bulk, FOB Kandla	$34-38/s.ton	$34-38/s.ton
Oil Companies Materials Association (OCMA)/Foundry grade, crude and dried, bulk, FOB Milos	€60-80	€60-80
American Petroleum Institute (API) grade, bagged, railcars, ex-works Wyoming	$97-122/s.ton	$97-124/s.ton
Foundry grade, bagged, railcars, ex-works Wyoming	$90-130/s.ton	$90-130/s.ton
Iron Ore Pelletising (IOP) grade, crude, bulk, ex-works Wyoming	66-72/s.ton	66-72/s.ton

Source: Industrial Minerals

EMPLOYMENT

South African special clays industry consists of 9 companies employing a total of 328 employees. Employment in the sector decreased by 2.7 percent compared with 353 in 2012, due to lay off of employees for completed projects. Remuneration increased by 5.8 percent from R35.2 million in 2012 to

R37.2 million in 2013. Each employee generated R113.300 thousand in 2013, an increase of 13.8 percent when compared with R99.600.

TABLE 107 - SOUTH AFRICA'S SPECIAL CLAYS EMPLOYMENT, 2009-2013

Year	Employees	Remuneration
2009	249	18 945 656
2010	294	22 604 229
2011	333	31 501 001
2012	353	35 154 401
2013	328	37 188 650

Source: DMR, Directorate Mineral Economics

OUTLOOK

The kaolin market struggled with the threat of substitution and the dramatic consolidation of the industry, but lately kaolin is slowly reclaiming its position as the preferred material in the paper and pulp industry. South Africa's kaolin output is expected to continue rising as demand from the construction industry strengthens, on the back of government's infrastructural programmes that are in the pipeline.

The global kaolin market is projected to continue growing at the back of a number of global projects online for the paper industry. The key factor that is leading to this growth is the abundant sources of good quality kaolin in many parts of the world. However, demand is expected to increase as GDP of most countries increases. According to the Industrial Minerals Magazine, worldwide consumption of paper and board is set to grow by approximately 2-2.5 percent for the next two decades. Prices are forecast to increase slightly but not to largely affect demand.

The future for the bentonite industry seems promising as clay is both low cost and found in abundance across the country, making it a mineral of choice for many markets like oil-field, iron ore pelletisation and pharmaceuticals. Bentonite demand from the oil-field market is likely to increase in the near future. Logistics costs and energy issues are expected to plague most industrial minerals markets which are high bulk with low revenue. However, strong demand from the end-markets, such as clay uses in niche markets like the drilling rigs, can be expected to steady the market supply situation for minerals like bentonite. According to the Industrial Minerals Magazine, global production of bentonite is expected to increase by approximately 2.5 percent per annum to 17 Mt by 2016. Prices are expected to increase further, as demand for minerals increases. Therefore, larger exploration programmes into difficult mining areas will be required.

South Africa's production of bentonite is forecast to continue increasing taking advantage of projects like Eskom's Medupi. The country's approval of exploration for shale gas and oil could raise this further. This

signals a potential growth of the bentonite industry as bentonite can be used as a drilling fluid. The continued influx of imports is expected to put some downward pressure on local prices, as competition for customers increases from the foundry markets.

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SULPHUR

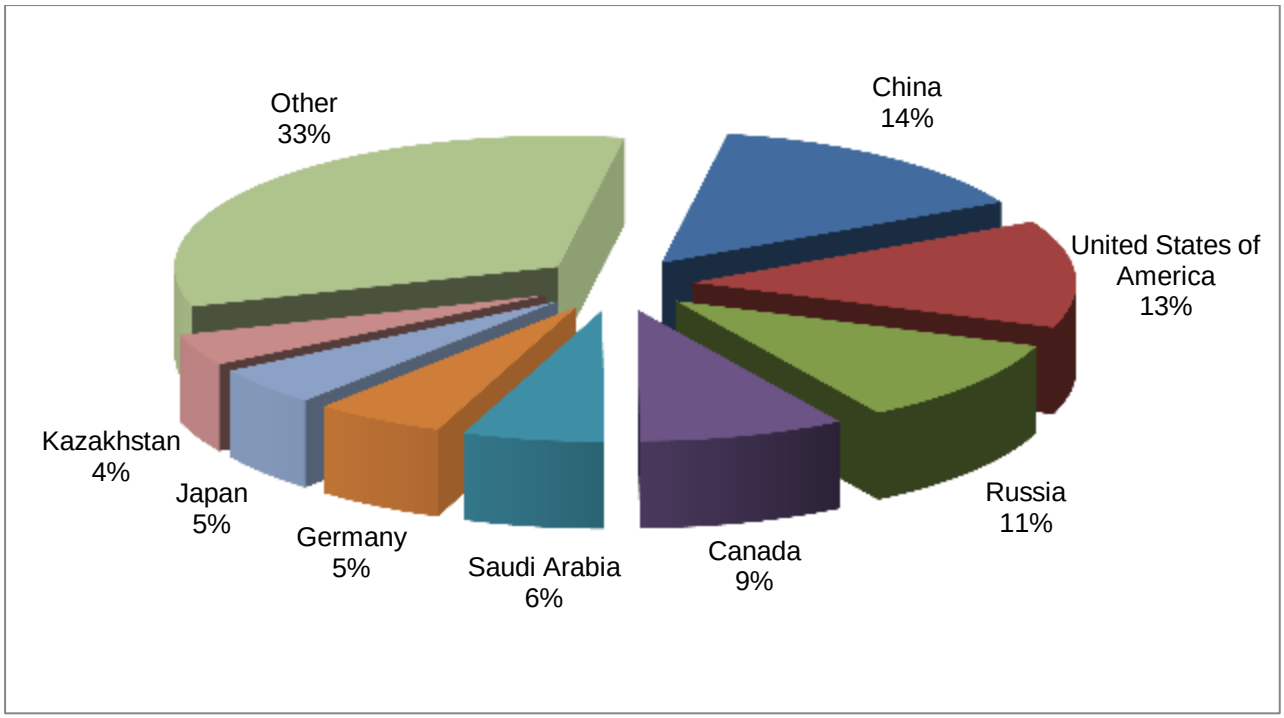
Mphonyana Modiselle

SUPPLY AND DEMAND

WORLD

World production of sulphur in all forms (SAF) increased slightly by 700 kt from 68.1 Mt in 2012 to 68.8 Mt in 2013 as fertiliser demand stabilised. In the fertiliser industry, sulphur is used to process the phosphate rock into phosphate fertilisers. China was the largest producer accounting for 14 percent, followed by the United States of America (USA) at 13 percent, Russia at 11 percent (Fig. 1).

FIGURE 81: WORLD PRODUCTION OF SULPHUR BY COUNTRY, 2013



Source: USGS, 2014

Supply has been rising in line with increased activity in the production of oil and gas, where sulphur is a by-product and the balance depends on the fertiliser demand growth. According to CRU group one of the most prominent features of the sulphur and sulphuric acid market in 2013, was the fall of demand, which affected both markets. Demand from the phosphate market contracted in 2013, as India retreated from its global buying position when its currency depreciated heavily against the dollar. Because of its use in the phosphates industry, demand for sulphur is closely linked to phosphate rock consumption. Phosphates have been particularly affected with subdued buying of Diammonium phosphate (DAP) from India. DAP fertilisers saw reduced demand in 2013 because of unfavourable crop market conditions and competition from cheaper nutrient products, particularly in India. The knock-on effect in the sulphur market was extensive, with largest sulphur importer, China, staying away.

SOUTH AFRICA

In South Africa, elemental sulphur is recovered from pyrite, sulphide smelter gasses mainly in the platinum mining industry, coal and crude oil. Most elemental sulphur is converted to sulphuric acid. In 2013, most of the sulphur was recovered as a by-product from one oil refinery/ synthetic fuels producer, nineteen platinum mines, two zinc mines and one copper mine.

South Africa's production of SAF increased by 5.1 percent from 257 kt in 2012 to 270 kt in 2013. SAF includes elemental sulphur and sulphuric acid. Sulphur recovery from synthetic fuels registered a 3.5 percent increase to 159 kt in 2013. Stable operations as well as the good performance during planned shutdowns resulted in improved production volumes.

Sulphuric acid production from the copper mine, Palabora Mining Company (PMC) increased by 11.8 percent to 76.9 kt in 2013 as production recovered from a number of challenges experienced in 2012. These included amongst others; failure of hoisting winder bearing and tail rope, underground and smelter industrial actions. There was no sulphuric acid production from zinc mines in 2013 owing to the closure of the Exxaro Base Metals' Zincor mine, the only by-product producer which has been operational. Sulphuric acid production from PGM mines decreased by 0.4 percent to 34.0 kt in 2013, owing to mine closures, declining labour efficiencies, falling ore grades as well as failure to ensure the timely commissioning of replacement projects.

TABLE 108- SOUTH AFRICA'S PRODUCTION OF SULPHUR IN ALL FORMS, 2012-2013

SOURCE	2012		2013	
	Mass		Mass	
	T	%	t	%
Oil refineries / Synthetic fuels	153 905	60	159 270	59
Gold mines	0	0	0	0
Copper mines	68 773	27	76 891	28
Zinc mines	196	0.08	0	0
PGM mines	34 145	13	34 012	13
	257 019	100	270 173	100

Source: DMR, Directorate Mineral Economics

TABLE 109 – SOUTH AFRICA'S PRODUCTION AND SALES OF SULPHUR IN ALL FORMS, 2003-2013

YEAR	PRODUCTION	LOCAL SALES			EXPORT SALES		
	Mass	Mass	Value		Mass	Value	
Kt	Kt	Kt	R'000	R/t	Kt	R'000	R/t
2003	614	480	237 783	495	32	21 799	671
2004	633	390	201 706	517	69	47 677	692
2005	776	481	231 118	481	103	65 592	638
2006	643	351	181 450	517	124	77 919	630
2007	642	358	212 258	593	125	96 571	770
2008	571	315	548 705	1 740	110	351 860	3 190
2009	536	332	293 105	883	62	27 193	436
2010	375	256	168 911	660	96	48 795	511
2011	338	217	116 645	538	121	199 581	1 658
2012	257	150	123 405	821	125	241 351	1 924
2013	270	133	67 127	506	141	231 606	1 647

Source: DMR, Directorate Mineral Economics

The SAF mass sold locally decreased by 11.3 percent to 133 kt in 2013 compared with 150 kt in 2012. The corresponding local sales value plummeted by 45.6 percent to R67.1 million in 2013 compared with R123.4 million in 2012 owing to reduced demand. Export sales mass of SAF increased by 12.8 percent from 125 kt in 2012 to 141 kt in 2013 (Table 109). Sales value from exports declined by 4 percent to R231.6 million in 2013 compared with R241.4 million in 2012. Price per ton of sulphur sold on the export market has gone up in response to the increased demand from the export and the exchange rate.

TABLE 110 – SOUTH AFRICA'S IMPORTS OF SULPHUR, 2007 – 2013

YEAR	CRUDE/UNREFINED			SUBLIMED & OTHER+			TOTAL		
	Mass	Value (FOB)		Mass	Value (FOB)		Mass	Value (FOB)	
	Kt	R'000	R/t	Kt	R'000	R/t	Kt	R'000	R/t
2007	599	365 921	610	78	87 705	1 124	677	453 626	670
2008	791	3 436 560	4 344	173	754 037	4 358	964	4 190 597	4 347
2009	525	354 611	675	46	10 141	220	571	364 752	639
2010	593	377 801	637	63	51 396	816	656	429 197	654
2011	715	1 073 705	1 502	191	336 572	1 762	906	1 410 277	1 557
2012	506	843 456	1 667	94	124 605	1 326	600	968 061	1 613
2013	489	530 362	1 085	160	223 846	1 399	649	754 208	1 162

Source: RSA, Commissioner for South African Revenue Service, 2007 – 2013

Notes: + All forms of sulphur other than those specifically referred to

South Africa's imports mass of SAF increased by 8.2 percent from 600 kt in 2012 to 649 kt in 2013 while imports value decreased by 22.1 percent to 754 kt in 2013 compared with 968 kt in 2012 (Table 110). South Africa imports sulphur mainly from Canada, United Arab Emirates, Saudi Arabia, Kuwait and Qatar.

PRICES

The CRU group indicates that sulphur prices were affected globally, with a fall in demand for sulphur felt in most regions. Since the price for sulphuric acid is strongly related to that of sulphur, the price of sulphuric acid therefore also succumbed to demand side fundamentals in 2013. According to the Industrial Minerals publication, after months of weakness, prices began to look up towards the end of 2013. This is reportedly due to an uptick in demand from Chinese phosphate producers.

RECENT DEVELOPMENTS

The South African government has taken steps to formulate and implement measures to mitigate climate change. These steps are informed by the country's commitment to reduce its emissions below a baseline of 34 percent by 2020 and 42 percent by 2025. The primary approach to adapting to the impact of climate is to strengthen the national resilience and this involves: decreasing poverty and inequality, increasing levels of education, improving healthcare, creating employment, promoting skills development and enhancing integrity of ecosystems.

In support of the country's goal in moving towards a greener economy, the Department of Energy announced the initiative, Cleaner Fuels Program 2 (CF_2), on the 1st June 2012, which is envisaged to be completed by 2017. The clean fuel standards call for upgrade to all existing refineries and stipulate a reduction in sulphur, benzene, aromatics levels in petrol and diesel produced. The government has set aside, through the National Treasury, R40 billion to upgrade the country's oil refineries to produce low sulphur fuels.

In line with the programme, BP one of the major oil producers is investing R 2.5 billion to upgrade its South African Petroleum Refineries (Sapref) refinery in Durban, KwaZulu Natal Province to meet clean fuel specifications to align with the governments' 2017 implementation plan. Sapref is a 50 percent joint venture between Shell SA refining and BP SA. The adoption of the National Development Plan (NDP) as the road map to economic transformation for South Africa has inspired confidence to companies like BP, who made commitments to create more jobs and build entrepreneurs in South Africa. The investment will be spent over a number of projects across BP's fuel value chain, including refineries, terminals and retail network assets.

National Petroleum and Refiners of South Africa (Natref), a 50 percent joint venture between Sasol and Total, is also planning clean fuel projects. According to Hydrocarbon Processing publication, the company is upgrading its refinery to reduce concentrations of sulphur in both petrol and diesel, to meet the Euro 5 specifications for transportation fuels. Euro 5 specifications entails developing fuels to contain 10 parts per

million (ppm) or less sulphur, lowering of benzene from 5 percent to 1 percent and the reduction of aromatics from 50 percent to 35 percent.

Petroleum Oil and Gas Corp of South Africa (PetroSA) has proposed construction of a new 400 000 barrels a day oil refinery at Coega near Port Elizabeth, known as Project Mthombo (also known as the Coega plant). If the refinery is built, the refinery would be made to meet the clean fuel standards. According to PetroSA, the refinery could reduce the shortfall in locally refined diesel and gasoline by 2020, if there is no significant investment in domestic refinery capacity and the project cost is estimated at $ 10 billion. PetroSA and Sinopec are jointly funding a study for the construction of the refinery, but no official decision to undertake the venture has been made.

OUTLOOK

According to International Fertilizer Industry Association (IFA), global production of elemental sulphur is projected to grow by 31 percent over 2013, to reach 73.3 Mt sulphur (*S)* in 2018, owing to higher recovery of sulphur from the oil and gas sectors. Global consumption of elemental sulphur is projected to grow at an annual rate of 3.8 percent over 2013, to 70.4 Mt of sulphur in 2018. This increase will mainly be driven by firm growth of sulphuric acid consumption in industrial segments (particularly in ore leaching operations) and by recovery in the demand for fertilisers. Supply is growing faster than demand, driven by oil and gas markets; however, this steady growth may lead the industry into a sulphur oversupply in the near future, unless demand for sulphur can keep up. However, expected increase in the fertiliser industry will be a catalyst for the demand of sulphur. This is supported by forecast from the institutions like The Sulphur Institute (TSI), which indicates that global population and consumption growth is expected to double food demand by 2050.

To meet the expected food demand growth, strategies to increase food production are an imperative for any nation. Continuing plans and programmes towards securing food for the country are underway, in line with government‘s commitment to secure food for all South Africans. Collective efforts including studies to demonstrate the strong linkages between the mining and the agricultural industries will make a significant contribution towards the sustainability of both sectors which is likely to ensure food security.

2013 was a turbulent year for sulphur markets owing to its close link to the fertiliser industry, as values were marked down very sharply in reflection of weak phosphate demand. However, the Fertiliser International states that more bullish sentiments are forecasted as the markets renew their firmness from 2014 onwards. New phosphate fertiliser projects are preparing for commissioning within the next five years, mainly in Middle East, North Africa, Brazil and China. This is a positive indication of a strong demand for sulphur.

The demand outlook is largely driven by the phosphate fertiliser sector. Sulphuric acid prices are set to remain stable as long as contractual volumes are lifted and adequate spot demand emerges. In the medium term, the supply surplus coupled with a recovering demand will serve to keep prices low, but with

demand recovering towards 2015 to 2016 and new supply coming online, the price of sulphur is very much likely to recover. The rise in sulphur prices will be particularly from China, fuelled by speculative purchases by traders. Since the Chinese market influences demand for phosphate consumption, making up the largest demand sector for sulphur and sulphuric acid.

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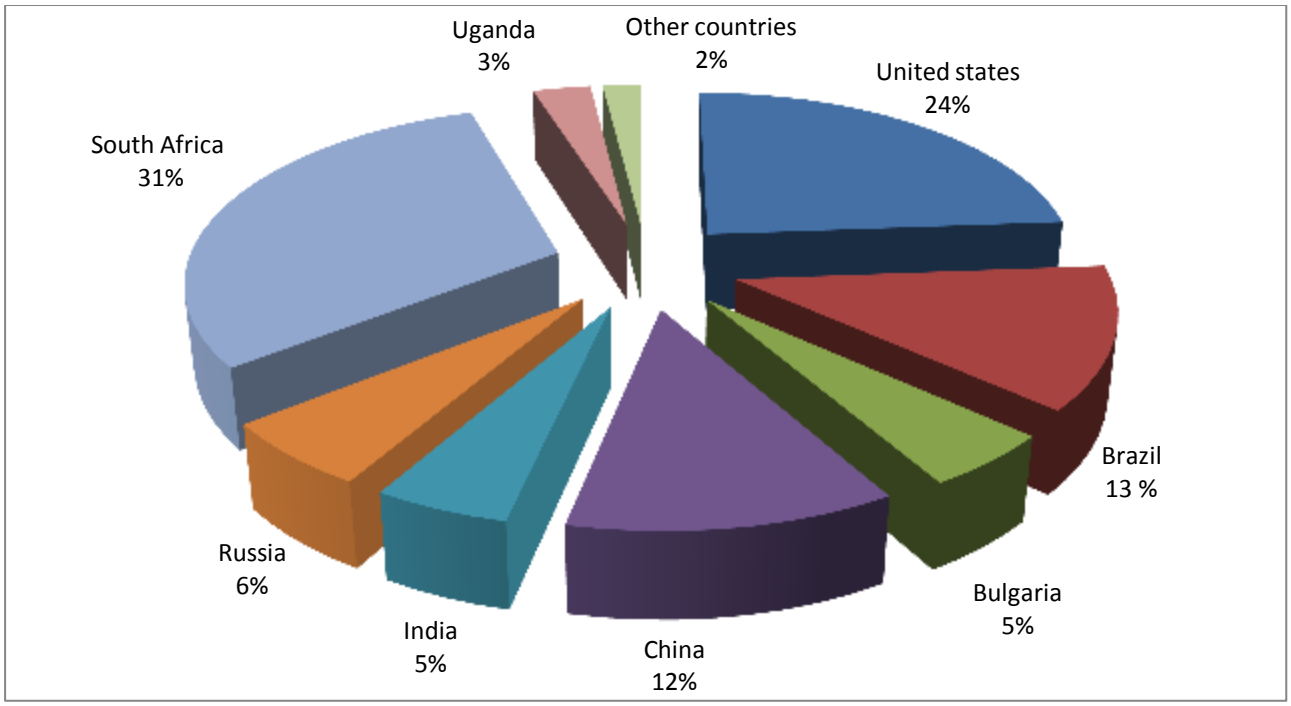
VERMICULITE

Munyadziwa Muravha

SUPPLY DEMAND

World vermiculite production continues to increase as different companies worldwide execute long awaited expansion plans. World production is estimated to have increased by 10.5 percent to 420 kt in 2013 compared with 380 kt in 2012. Most of the vermiculite producing companies experienced an increase or were consistent in production.

FIGURE 82: WORLD PRODUCTION OF VERMICULITE BY COUNTRY, 2013



Source: USGS, 2013

South Africa remained the world's largest producer contributing about 31 percent to total production, followed by Virginia Vermiculite in USA at 24 percent, Basil's Minerios Ltd of Brazil at 13 percent and China at 12 percent.

Palabora Mining Company now known as Palabora Copper (PC) is the world's largest producer of vermiculite and South Africa's sole vermiculite producer. SA's production of vermiculite decreased by 3.93 percent to 127.7 kt in 2013 (Table 111) compared with 132.9 kt in 2012. PC's production in 2013 was less than the mines optimal capacity. However, improved mine planning and more efficient recovery is resulting in the right quantity of grades for the market.

Local sales tonnages increased by 14.5 percent to 8.6 kt in 2013 compared with 7.5 kt in 2012, while local sales values increased by 13.8 percent to R17.9 million in the same period, due to stronger demand. Export volumes increased by 22.6 percent to 118.3 kt in 2013, while export sales values increased by 36.0

percent to R380.5 million, owing to increased supply distribution on finer grades, which the consumers have now adjusted to.

TABLE 111: SOUTH AFRICA'S PRODUCTION, LOCAL SALES AND EXPORTS OF VERMICULITE, 2003 – 2013

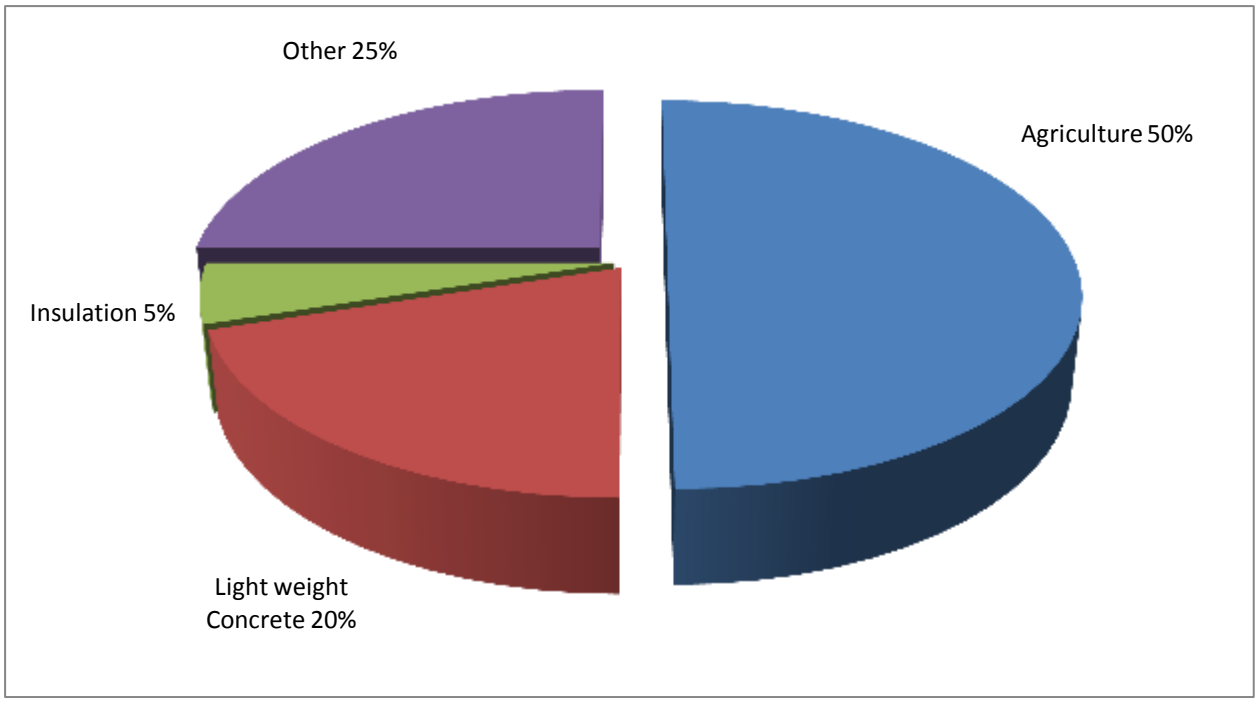
YEAR	PRODUCTION	LOCAL SALES			EXPORTS SALES		
	Mass	Mass	Value (FOR)		Mass	Value (FOB)	
	kt	kt	R'000	R/t	kt	R'000	R/t
2003	182.8	6.5	5 114	784	163.3	144 759	886
2004	196.9	7.3	6 229	855	178.8	150 944	844
2005	209.9	6.9	6 368	923	163.7	188 402	1 151
2006	197.8	7.6	7 087	927	166.7	170 029	1 056
2007	198.5	9.1	8 896	981	173.2	195 577	1 129
2008	199.8	10.7	11 002	1 026	204.5	273 239	1 336
2009	193.3	9.5	10 236	1 073	164.6	238 295	1 448
2010	199.3	10.4	12 927	1 241	166.5	216 305	1 299
2011	167.5	9.6	16 576	1 722	162.4	328 921	2 215
2012	132.8	7.5	15 692	2 102	96.5	279 696	2 898
2013	127.7	8.6	17 861	2 088	118.3	380 489	3 215

Source: DMR, Directorate Mineral Economics

Production of sufficient quantities of coarse grained grades by PC became increasingly challenging in 2011 when the company could not meet a substantially increasing world demand. However, more efficient mining in the last few years has resulted in the production of more medium and fine grades. Both these grades have been in short supply, and the ability of the company to supply will definitely benefit the country.

Vermiculite is used in five principal applications: agriculture, refractory bricks, fire proofing, metallurgical and construction industries. Smaller niche markets include: animal feeds, brake linings, sanitation and packaging. Other opportunities exist in the manufacturing of insulating material, and sound proofing industries. Horticulture accounts for at least 50 percent of vermiculite end markets followed by light weight concrete at 20 percent and insulation at 5 percent (Fig. 2). The agricultural/horticulture end market has always been the biggest consumer of vermiculite and continues to grow. In horticulture and agriculture, vermiculite is used for different purposes: retention of soil moisture and hosting a number of mineral fertilisers such as ammonium, potassium, calcium and magnesium. Vermiculite faces the challenge of many other substitutes that are denser but less costly, which have become better alternatives in the market such as expanded perlite, shale, clay and slag.

FIGURE 83: VERMICULITE CONSUMPTION BY SECTOR, 2013



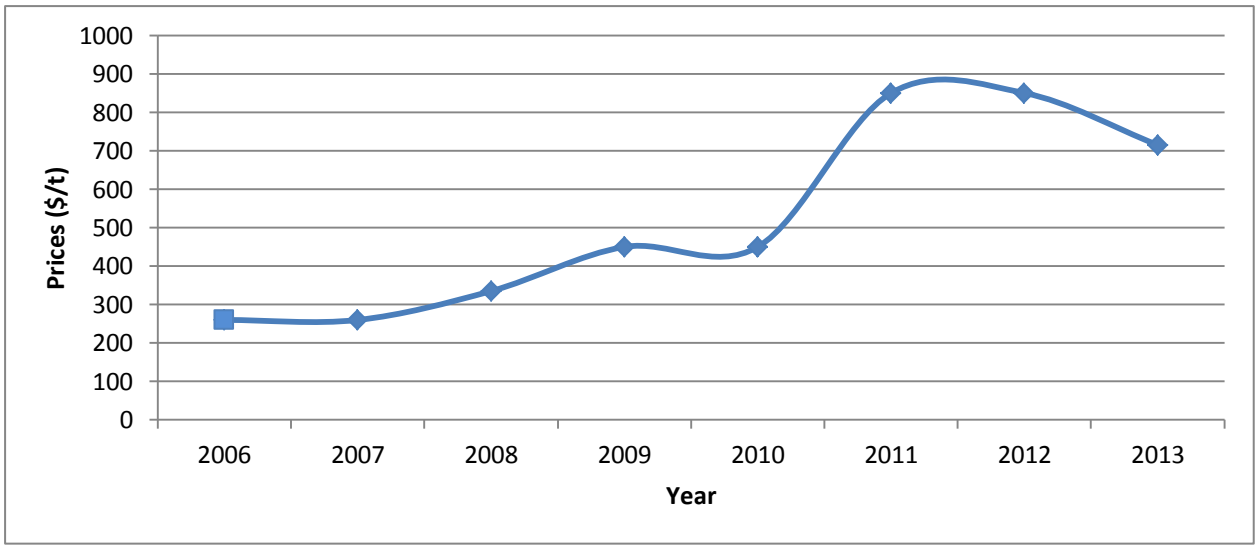
Source: USGS Commodity Summaries 2013

South Africa's export volumes increased by 22.6 percent from 96.5 kt to 118.96.5 kt in 2013, with Europe being the main market for SA's vermiculite and North America and Asia showing big potential for growth for SA's vermiculite markets. Supplies of coarse grade vermiculite was very tight and prices rose slightly up once more in 2013. Imports into the USA decreased by 13 percent in 2013 as compared to 2012.

PRICES

Although the cost of mining vermiculite is increasing, producers have no plans to increase the price of their bulk concentrate at present. Tight supply conditions have been the driver of the rocketing vermiculite prices in the past years, but recently, customers have been adjusting to finer grains. Vermiculite prices depend largely on size, with coarser grades commanding much higher prices. Prices that had risen significantly in mid-2011 as a result of limited supply. Prices then began to level off in 2012 as suppliers reduced prices in a bid to hold on to market share. Concentrate (bulk FOB Antwerp) prices ranged from $315-715/t in 2013, a 15 percent decrease from $400-850/t throughout 2012 (Fig. 3).

FIGURE 84: VERMICULITE PRICES, 2006-2013



Source: Various editions of Industrial Minerals Magazine

DEVELOPMENTS

Dupre Minerals in Uganda was on care and maintenance status as a result of oversupply of the medium to finer grades in the world market as well as transportation and related infrastructure improvements issues. Dupre Minerals did not mine vermiculite, but removal of overburden continued at the mine. Consequently Uganda contributed 3 percent to the overall world production in 2013, down by 3 percent compared to 2012.

In December 2013, Palabora Mining Company was sold to a consortium of South African and Chinese private and parastatal companies. Rio Tinto and Anglo American PLC, sold their respective 57.7 percent and 16 percent stakes in Palabora Mining Company to state-owned Industrial Development Corporation (IDC) and a Chinese consortium including private-owned Hebei Iron Steel Group, state owned Tewoo Group Co. Ltd and privately-owned General Nice Development Ltd. The company plans to move back to producing 150 kt by the end of 2015. Production capacity of PC is about 200 kt/pa. Expansion of the mine's operation will extend the mine lifetime to over 24 years. This has resulted in creation of new sections within the company, in turn increasing the number of employees.

OUTLOOK

South Africa's PC has laid out significant expansion plans, which could see prices fall as soon as additional output comes online. Production at PC is expected to increase as the company tries to reach its capacity of 200 kt. The year 2014 has seen significant rises in fuel and electricity, continuously putting a strain on the cost of vermiculite. However, as producers adjust to these costs, vermiculite prices are also stabilizing slowly. Consequently, transportation costs, especially higher fuel prices might mitigate against a significant decrease in prices.

Despite plans to raise the current production capacity, PC's production is forecast to increase on the back of growing horticulture/agriculture markets. Vermiculite end-use-markets are also growing, indicating a rising demand ahead. Horticulture and agricultural end-markets continue to be strong and will continue to see growth in vermiculite demand. This is an exciting opportunity for the vermiculite industry.

The construction end market has not been performing well, but is expected to improve as government ramp up lined up infrastructural programmes. The government's Strategic Infrastructural Projects (SIPs) could create the much needed employment opportunities and further alleviate poverty.

World supply of vermiculite is on the rise and is still expected to continue increasing as producers around the world are expanding their operations to ramp up capacity. Amongst many other companies that are already busy with expansion plans, Brasil Minerios of Brazil aims to expand its production capacity to 200 kt pa in 2016, while Uganda Gulf Industrials is planning to increase its capacity to 50 kt pa in 2014 .Global demand for larger grades continues to be strong although supply distribution is increasing on finer grades as consumers try to contain costs. With the prices of vermiculite decreasing and coarse grained supply stabilizing, 2015 will see a much more steady vermiculite industry.

REFERENCES

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2. *Industrial Minerals, 2014.*
3. *Palabora Mining Company annual report, 2012*
4. *USGS commodity summaries, 2014*

STATISTICS FOR OTHER INDUSTRIAL MINERALS

R Motsie

NOTE: The following applies to all tables.

** Withheld for reasons of company confidentiality

* Nil

1. NATURAL ABRASIVES

TABLE 112: SOUTH AFRICA'S IMPORTS OF NATURAL ABRASIVES, 2004–2013

YEAR	Mass	Value (FOB)	
	t	R'000	R/t
2004	1 554	5 573	3 586
2005	1 706	3 610	2 112
2006	1 311	4 888	3 728
2007	1 282	6 095	4 654
2008	1 183	5 198	4 394
2009	1 208	7 419	6 141
2010	1 919	6 837	3 563
2011	2 095	6 393	3 051
2012	2 251	7 152	3 177
2012	2 251	7 152	3 177
2013	2 088	8 239	3 946

Source: RSA, Commissioner for South African Revenue Service, 2004–2013

2. BARYTES

TABLE 113.1: SOUTH AFRICA'S PRODUCTION AND LOCAL SALES OF BARYTES, 2004–2013

YEAR	PRODUCTION	LOCAL SALES		
	Mass	Mass	Value (FOR)	
	t	t	R'000	R/t
2004	*	275	116	795
2005	*	146	61	418
2006	*	126	52	413
2007	*	535	225	421
2008	*	432	181	419
2009	*	284	119	419
2010	*	319	134	420
2011	*	189	79	420
2012	*	*	*	*
2013	*	*	*	*

Source: DMR, Directorate Mineral Economics

TABLE 113.2: SOUTH AFRICA'S IMPORTS OF BARYTES, 2004–2013

YEAR	Mass	Value (FOB)	
	t	R'000	R/t
2004	3 056	7 008	2 293
2005	2 013	7 748	3 849
2006	2 736	7 908	2 890
2007	3 114	14 921	4 792
2008	3 568	14 106	3 953
2009	2 823	13 805	4 890
2010	4 105	17 200	4 190
2011	3 146	11 747	3 740
2012	2 962	11 469	3 872
2013	3 128	10 195	3 259

Source: RSA, Commissioner for South African Revenue Service, 2004–2013

3. DIATOMACEOUS EARTH (KIESELGUHR)

TABLE 114: SOUTH AFRICA'S IMPORTS OF DIATOMACEOUS EARTH, 2004–2013

YEAR	Mass	Value (FOB)	
	t	R'000	R/t
2004	4 594	10 670	2 232
2005	5 318	12 944	2 434
2006	5 032	14 321	2 846
2007	4 828	18 930	3 921
2008	5 539	23 205	4 189
2009	3 930	16 075	4 090
2010	4 580	17 496	3 820
2011	5 261	19 572	3 720
2012	5 217	19 970	3 828
2013	4 016	18 940	4 716

Source: RSA, Commissioner for South African Revenue Service, 2004–2013

Note: Production statistics are not published because there is only one producer

4. FELDSPAR

TABLE 115: SOUTH AFRICA'S PRODUCTION, LOCAL SALES AND EXPORTS OF FELDSPAR, 2004–2013

YEAR	PRODUCTION	LOCAL SALES			EXPORT SALES+		
		Mass	Value (FOR)		Mass	Value (FOB)	
	kt	kt	R'000	R/t	kt	R'000	R/t
2004	53.7	66.4	37 477	565	*	*	*
2005	57.5	75.2	44 256	588	*	*	*
2006	75.4	85.2	54 649	641	0.2	218	903
2007	90.2	106.8	62 080	581	*	*	*
2008	105.8	70.1	49 260	702	*	*	*
2009	101.4	72.9	55 248	758	*	*	*
2010	94.3	69.9	56 204	804	*	*	*
2011	101.6	98.9	61 031	617	*	*	*
2012	94.5	92.9	45 899	494	*	*	*
2013	191.4	186.5	101 444	544	*	*	*

Source: DMR, Directorate Mineral Economics

5. GRAPHITE

TABLE 116: SOUTH AFRICA'S IMPORTS OF NATURAL GRAPHITE, 2004–2013

YEAR	Mass	Value (FOB)	
	t	R'000	R/t
2004	1 427	4 879	3 419
2005	1 270	3 909	3 078
2006	1 220	5 193	4 257
2007	1 008	8 207	8 142
2008	1 003	20 101	20 041
2009	921	8 657	9 400
2010	1 108	12 891	11 634
2011	1 099	54 29	49 390
2012	768	10 372	13 505
2013	704	8 390	11 925

Source: RSA, Commissioner for South African Revenue Service, 2004–2013

6. GYPSUM

TABLE 117.1: SOUTH AFRICA'S PRODUCTION, LOCAL SALES, AND CONSUMPTION OF NATURAL GYPSUM, 2004–2013

YEAR	PRODUCTION	LOCAL SALES			CONSUMPTION FOR CEMENT[+#]
		Mass	Value (FOR)		
	kt	kt	R'000	R/t	kt
2004	524	459	18 783	41	452
2005	547	503	18 690	37	500
2006	557	370	30 605	83	550
2007	627	388	33 517	86	543
2008	571	393	33 666	86	519
2009	598	397	36 616	92	***
2010	513	307	32 228	105	***
2011	476	323	36 831	114	***
2012	558	358	56 876	159	***
2013	559	327	58 288	178	***

Sources: DMR, Directorate Mineral Economics

Notes: [+] Based on cement sales and assuming 38,5t gypsum/1 000t cement.

[#] Includes synthetic gypsum.

**** Not available*

TABLE 117.2: SOUTH AFRICA'S IMPORTS OF GYPSUM AND GYPSUM PLASTERS, 2004–2013

YEAR	GYPSUM			GYPSUM PLASTERS		
	Mass	Value (FOB)		Mass	Value (FOB)	
	T	R'000	R/t	t	R'000	R/t
2004	2 624	3 039	1 158	4 761	6 365	1 337
2005	1 971	2 218	1 125	4 268	5 704	1 337
2006	2 408	3 703	1 537	5 313	8 827	1 661
2007	3 007	4 555	1 515	17 205	15 004	872
2008	1 939	3 343	1 724	11 290	14 303	1 267
2009	3 427	8 379	2 445	3 790	8 200	2 164
2010	24 506	7 884	321	6 386	10 903	1 707
2011	2 969	4 816	1 622	6 181	10 926	1 678
2012	10 957	10 015	9 141	7 407	12 775	1 725
2013	4 058	12 321	3 036	7 685	16 493	2 146

Source: RSA, Commissioner for South African Revenue Service, 2004–2013

7. MAGNESITE

TABLE 118.1: SOUTH AFRICA'S PRODUCTION AND LOCAL SALES OF MAGNESITE AND DERIVED PRODUCTS, 2004–2013

		LOCAL SALES		
YEAR	PRODUCTION	Mass	Value (FOR)	
	kt	Kt	R'000	R/t
2004	65.9	122.9	25 513	208
2005	54.8	103.4	31 327	303
2006	73.3	110.8	35 104	317
2007	80.7	117.4	42 323	360
2008	83.9	111.1	51 864	467
2009	47.6	72.3	43 234	598
2010	27.7	73.6	63 982	869
2011	**	**	**	**
2012	**	**	**	**
2013	**	**	**	**

Source: DMR, Directorate Mineral Economics

TABLE 118.2: SOUTH AFRICA'S IMPORTS OF MAGNESITE AND MAGNESIA, 2004–2013

	MAGNESITE			MAGNESIA		
YEAR	Mass	Value (FOB)		Mass	Value (FOB)	
	kt	R'000	R /t	kt	R'000	R/t
2004	11.6	15 007	1 202	42.1	62 299	1 480
2005	13.4	24 599	1 840	38.6	58 729	1 521
2006	11.2	15 444	1 379	36.2	61 115	1 688
2007	24.9	51 790	2 080	48.0	91 115	1 898
2008	15.3	39 509	2 582	36.2	136 071	3 759
2009	25.5	10 850	4 254	41.8	139 175	3 328
2010	12.3	10 389	844.6	65.7	205 594	3 129
2011	10.4	14 709	1 410	96.2	324 992	3 376
2012	11.3	22 555	1 996	50.6	185 019	3 655
2013	21.8	37 277	1 710	54.6	230 046	4 208

Source: RSA, Commissioner for South African Revenue Service, 2004–2013

8. MICA

TABLE 119.1: SOUTH AFRICA'S PRODUCTION, LOCAL SALES AND EXPORTS OF SCRAP AND FLAKE MICA, 2004–2013

YEAR	PRODUCTION	LOCAL SALES			EXPORT SALES		
		Mass	Value (FOR)		Mass	Value (FOB)	
	t	t	R'000	R/t	t	R'000	R/t
2004	285	55	**	**	766	**	**
2005	922	*	*	*	856	**	**
2006	828	254	1 136.7	4 480	327	2 070.0	6 331
2007	437	201	870 727	4 329	261	1 679.8	6 428
2008	426	179	**	**	232	**	**
2009	299	245	**	**	106	**	**
2010	904	794	**	**	25	**	**
2011	633	431	**	**	174	**	**
2012	400	185	**	**	195	**	**
2013	309	113	**	**	*	*	*

Source: DMR, Directorate Mineral Economics

TABLE 119.2: SOUTH AFRICA'S IMPORTS OF MICA, 2004–2013

YEAR	Mass	Value (FOB)	
	t	R'000	R/t
2004	495	847	1 709
2005	581	1 073	1 847
2006	901	1 365	1 515
2007	865	1 667	1 928
2008	296	1 103	3 727
2009	358	933	2 608
2010	483	1 152	2 385
2011	507	1 353	2 668
2012	425	1 353	3 184
2013	633	2 997	4 524

Source: RSA, Commissioner for South African Revenue Service, 2004–2013

9. MINERAL PIGMENTS

TABLE 120: SOUTH AFRICA'S PRODUCTION AND SALES OF MINERAL PIGMENTS, 2004–2013

YEAR	PRODUCTION	LOCAL SALES			EXPORT SALES		
		Mass	Value		Mass	Value	
	t	t	R'000	R/t	t	R'000	R/t
2004	512	1 027	769	749	20	44	2 181
2005	510	801	554	692	226	472	2 091
2006	590	811	751	927	*	*	*
2007	232	737	769	1 043	*	*	*
2008	39	288	94	327	*	*	*
2009	183	119	40	339	*	*	*
2010	244	66	22	340	*	*	*
2011	226	19	7.6	400	*	*	*
2012	*	*	*	*	*	*	*
2013	*	*	*	*	*	*	*

Source: DMR, Directorate Mineral Economics

10. POTASH

TABLE 121: SOUTH AFRICA'S IMPORTS OF POTASH, 2004–2013

YEAR	POTASSIUM CHLORIDE		POTASSIUM SULPHATE		POTASSIUM NITRATE		TOTAL	
	kt	R'000	kt	R'000	kt	R'000	kt	R'000
2004	276.8	253 155	22.6	30 776	40.0	99 972	339.4	383 903
2005	198.3	241 859	39.0	58 400	30.1	85 496	267.4	385 755
2006	260.4	381 811	40.2	79 892	20.6	79 737	321.2	541 440
2007	255.4	409 632	38.8	93 446	26.0	79 083	320.2	582 181
2008	271.4	1 546 452	46.1	330 639	26.2	281 162	343.7	2 158 253
2009	139.6	618 360	24.0	129 297	14.8	101 451	178.4	849 108
2010	267.4	697 166	46.2	159 251	23.6	106 461	337.2	962 878
2011	265.1	867 674	52.6	219 149	27.8	170 730	345.5	1 257 553
2012	249.4	978 958	60.7	305 573	43.0	266 741	353.1	1 551 272
2013	274.1	1 209 391	50.5	253 304	23.0	189 429	347.5	1 652 124

Source: RSA, Commissioner for South African Revenue Service, 2004–2013

Note: Up to 10 percent of the imports were most likely for non-fertiliser uses

11. PYROPHYLLITE

TABLE 122: SOUTH AFRICA'S PRODUCTION, LOCAL SALES AND EXPORTS OF PYROPHYLLITE, 2004–2013

YEAR	PRODUCTION	LOCAL SALES			EXPORT SALES		
		Mass	Value (FOR)		Mass	Value (FOB)	
	t	t	R'000	R/t	t	R'000	R/t
2004	**	**	34 824	**	11 683	1 266	**
2005	**	**	34 798	**	**	6 038	**
2006	**	**	34 576	**	**	52 879	**
2007	**	**	39 962	**	**	7 483	**
2008	**	**	42 230	**	**	8 438	**
2009	**	**	38 449	**	**	9 795	**
2010	**	**	49 566	**	**	16 762	**
2011	**	**	31 277	**	**	201 423	**
2012	**	**	7 511	**	**	4 585	**
2013	**	**	5 750	**	**	4 944	**

Source: DMR, Directorate Mineral Economics

12. SALT

TABLE 123: SOUTH AFRICA'S PRODUCTION, LOCAL SALES AND EXPORTS OF SALT, 2004–2013

YEAR	PRODUCTION	LOCAL SALES			EXPORTS		
		Mass	Value (FOR)		Mass	Value (FOB)	
	kt	kt	R'000	R/t	kt	R'000	R/t
2004	332	349	65 730	188	<1	70	168
2005	399	436	79 306	182	*	*	*
2006	405	425	89 583	211	*	*	*
2007	411	450	101 951	227	*	*	*
2008	430	437	123 537	282	*	*	*
2009	408	438	104 309	321	*	*	*
2010	394	423	126 306	298	*	*	*
2011	380	440	139 829	318	*	*	*
2012	399	480	155 293	324	*	*	*
2013	479	480	154 465	322	*	*	*

Source: DMR, Directorate Mineral Economics

13. SILICA

TABLE 124: SOUTH AFRICA'S PRODUCTION, LOCAL SALES AND EXPORTS OF SILICA, 2004–2013

YEAR	PRODUCTION	LOCAL SALES			EXPORT SALES		
		Mass	Value (FOR)		Mass	Value (FOB)	
	kt	kt	R'000	R/t	t	R'000	R/t
2004	2 249	1 996	187 474	94	649	1 007	1 551
2005	2 671	2 290	189 469	83	652	1 017	1 560
2006	3 231	2 884	236 296	82	424	896	2 113
2007	3 352	2 726	280 191	103	806	1 541	1 913
2008	3 342	3 059	351 474	115	959	1 486	1 550
2009	2 306	2 431	330 404	136	1 222	1 652	1 352
2010	2 863	3 026	470 618	155	1 042	1 632	1 567
2011	2 688	3 008	487 779	162	3 843	5 127	1 334
2012	2 151	2 356	543 599	205	18 821	334 899	17 94
2013	2 198	2 428	458 457	189	10 789	28 384	2 631

Source: DMR, Directorate Mineral Economics

14. TALC

TABLE 125.1: SOUTH AFRICA'S PRODUCTION AND SALES OF TALC, 2004–2013

YEAR	PRODUCTION	LOCAL SALES			EXPORT SALES		
		Mass	Value (FOR)		Mass	Value (FOB)	
	t	t	R'000	R/t	t	R'000	R/t
2004	8 141	8 094	4 163	514	*	*	*
2005	8 469	7 439	4 319	581	*	*	*
2006	10 966	7 134	4 957	695	*	*	*
2007	14 281	7 326	5 639	770	*	*	*
2008	5 145	6 591	5 606	851	*	*	*
2009	4 718	6 213	5 893	948	*	*	*
2010	3 150	5 370	5 573	1 038	*	*	*
2011	4 453	5 489	6 050	1 102	*	*	*
2012	4 765	5 568	7 084	1 272	*	*	*
2013	4 924	7 117	8 806	1 237	*	*	*

Source: DMR, Directorate Mineral Economics

TABLE 125.2: SOUTH AFRICA'S IMPORTS OF TALC, 2004–2013

YEAR	Mass	Value (FOB)	
	t	R'000	R/t
2004	5 480	11 713	2 137
2005	10 541	17 713	1 694
2006	9 565	20 344	2 127
2007	11 721	26 040	2 222
2008	8 142	25 114	3 084
2009	10 254	23 851	2 326
2010	9 818	26 908	2 741
2011	7 126	28 015	3 931
2012	7 696	27 556	3 581
2013	8 182	33 408	4 083

Source: RSA, Commissioner for South African Revenue Service, 2004–2013

PART THREE: GENERAL INFORMATION

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65 Phakamile Mabija Street
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8240 Springbok

Hopley Centre
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Department of Rural Development & Land Reform
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Private Bag X 84 www.thedti.gov.za
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7499

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Petroleum Agency SA
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Copper Development Association (Pty) Ltd
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South African Mining Development Association (SAMDA)
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