

AN OVERVIEW OF SOUTH AFRICA'S IRON, MANGANESE AND STEEL INDUSTRY FOR THE PERIOD 1986 TO 2006

DIRECTORATE: MINERAL ECONOMICS



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Department:
Minerals and Energy
REPUBLIC OF SOUTH AFRICA

**AN OVERVIEW OF SOUTH AFRICA'S IRON, MANGANESE
AND STEEL INDUSTRY FOR THE PERIOD 1986 TO 2006**

DIRECTORATE: MINERAL ECONOMICS

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ETHICAL QUESTIONS IN A FINITE WORLD

The reality that our system is finite and that no expenditure of energy is free confronts us with a moral decision at every point in the economic process, in planning and development and production. What do we need to make? What are the real long-term costs of production, and who is required to pay them? What is truly in the interest of man, not in the present only, but as a continuing species? (Dally, 1992c)

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Introduction

Developments over the last ten years suggest that the long-term prospects for ferrous metals have fundamentally improved. An analysis of the trends from the mid 1980s to the present day reflects a progressive increase in demand for ferrous metals. The introduction of new technology, new working practices and new products has resulted in reduction of production cost .

Productivity and industry efficiency

The ferrous metals industry has made dramatic improvements in the last twenty years *in terms of energy efficiency*. For example, in today's production of steel, energy consumption per ton of steel produced is some 40% more efficient than twenty-five years ago in Europe and other regions. Output per man-hour is over three times the level of twenty years ago. The steel industry has been rejuvenated into a highly productive, highly flexible and dynamic business. At the same time, a new paradigm has emerged providing the basis on which society will assess the contribution of all materials including steel. This new paradigm is sustainability.

The SA Ferrous ores of Iron and Manganese

a) Iron

Occurrence

South African iron ore resources, an estimated nearly 5,370Mt, are ranked the 9th largest in the world. If the Bushveld Complex's lower-grade potential resources are included, the resource base increases by 26,400Mt, which would then rank South Africa's iron ore resources as the 6th largest in the world (Fig 3.1). In terms of export of iron ore, South Africa is ranked number 6th in the world.

The principal deposits of iron ore of South Africa are the Superior-type banded iron formations of the Transvaal Supergroup in the Northern Cape Province, which can be traced as a prominent, arcuate range of hills for some 400km from Pomfret in the north to Prieska in the south (Fig 1). The most significant deposits occur in the vicinity of Postmasburg and Sishen, where high-grade hematite concentrations have been preserved in the narrow north-south trending belt of the iron- and manganese-bearing lithologies of the Asbestos Hills Subgroup (~2,670Mt at Beeshoek Mine, Sishen Mine and Welgevonden deposit (Astrup *et al*, 1998).Figure 2 is a mine property distribution map showing iron ore occurrences.

An additional 100Mt is estimated to occur as hematite concentrations within the Penge Formation of the Chuniespoort Group (Transvaal Supergroup), which crops out along the northern rim of the Bushveld Complex near Thabazimbi in the Limpopo Province.

Other significant magnetite deposits are estimated to contain in the region of 2,600Mt iron ore resources (Astrup *et al.*, 1998). These include the high-grade Palabora and Mapochs Mines (300Mt) as well as the low-grade Zandriverspoort, Moonlight, Cascade, Delft, De Loskop, Kraaipan Station, Kromdraai and Crocodile River deposits (2,300Mt).

REGIONAL LOCALITY MAP MANGANESE AND IRON ORE OPERATIONS

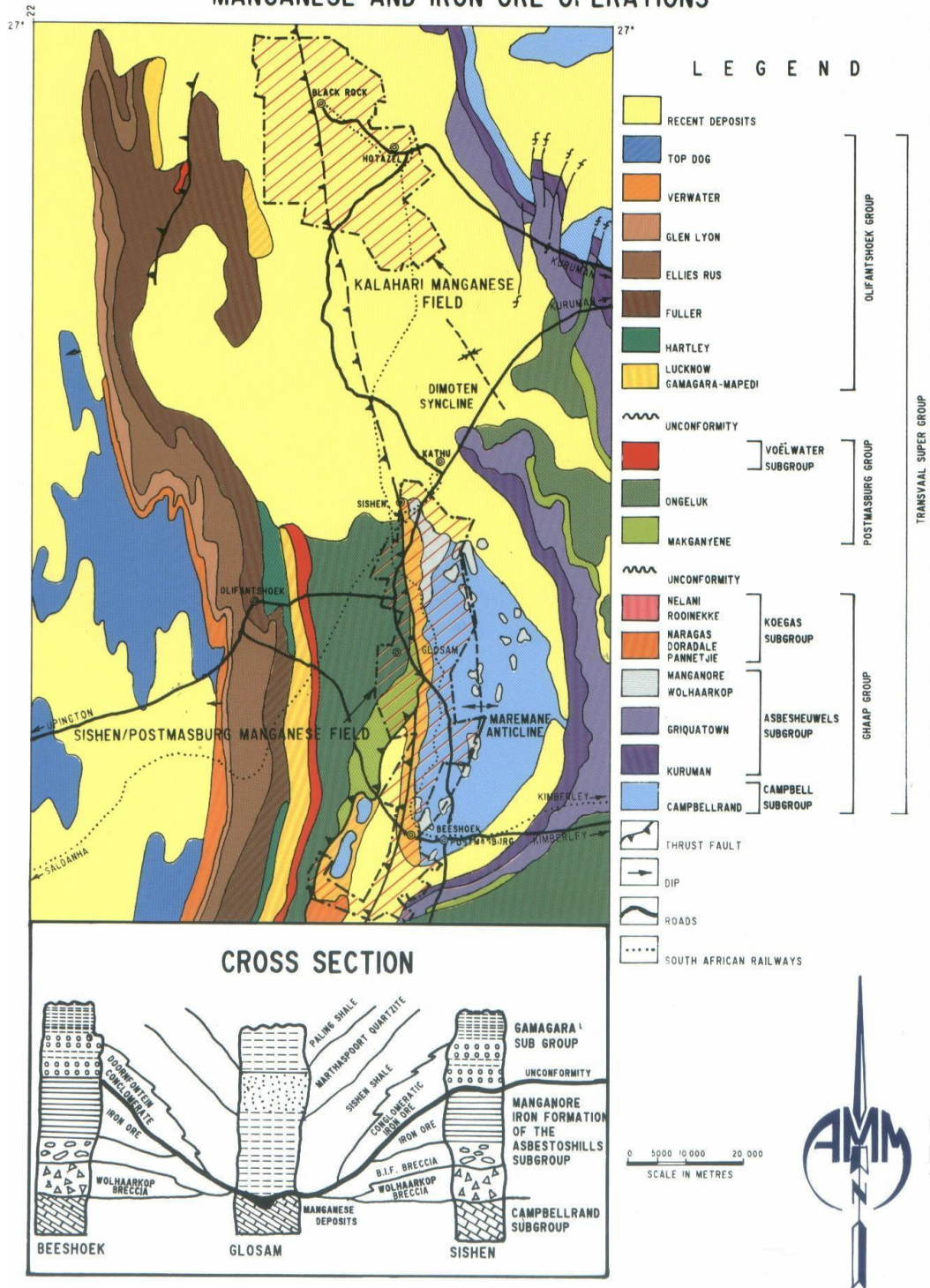


Figure 1: Regional Locality Map: Manganese and Iron Ore Operations
(Information Provided by African Rainbow Minerals)

MINE PROPERTY DISTRIBUTION MAP OF THE SISHEN/POSTMASBURG MANGANESE FIELD

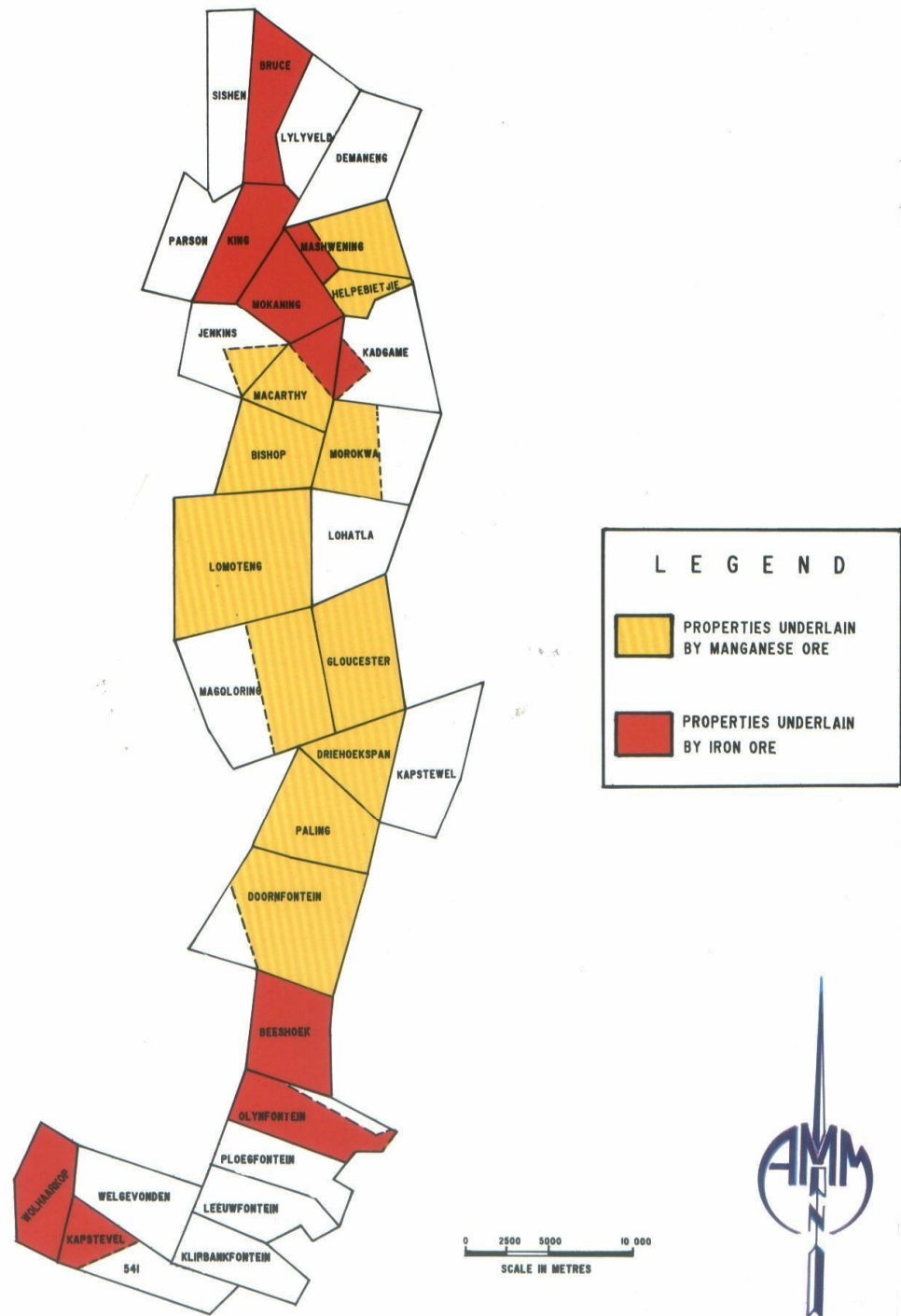
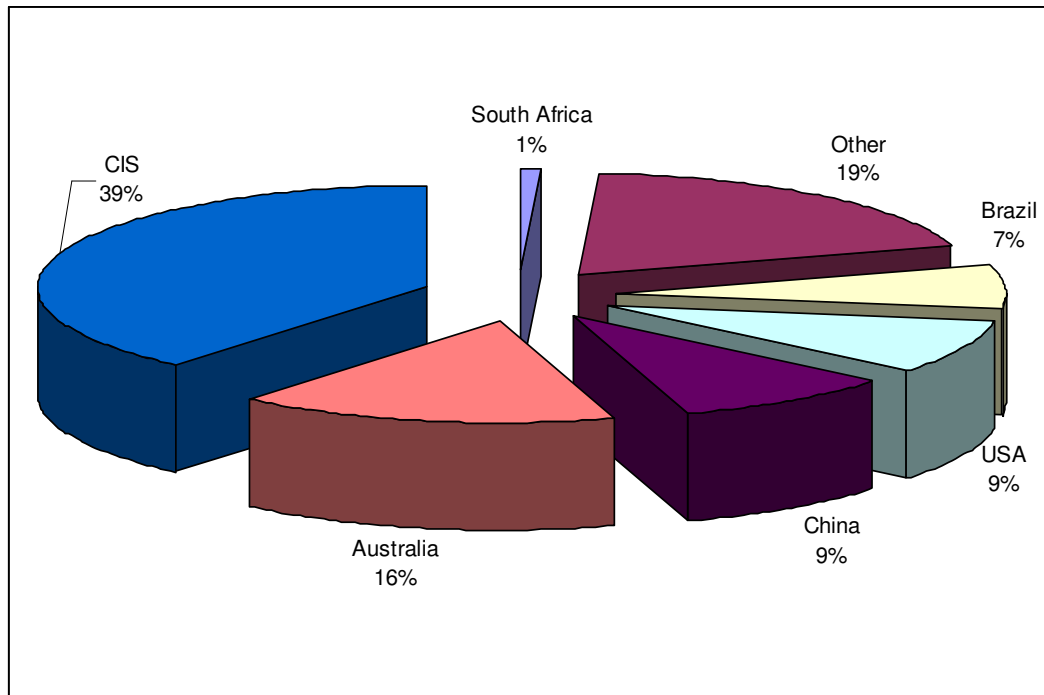


Figure 2: Mine Property Distribution Map: Sishen/Postmasburg Manganese Field
(Information Provided By ARM)

Figure 3.1: World Iron Ore Reserves

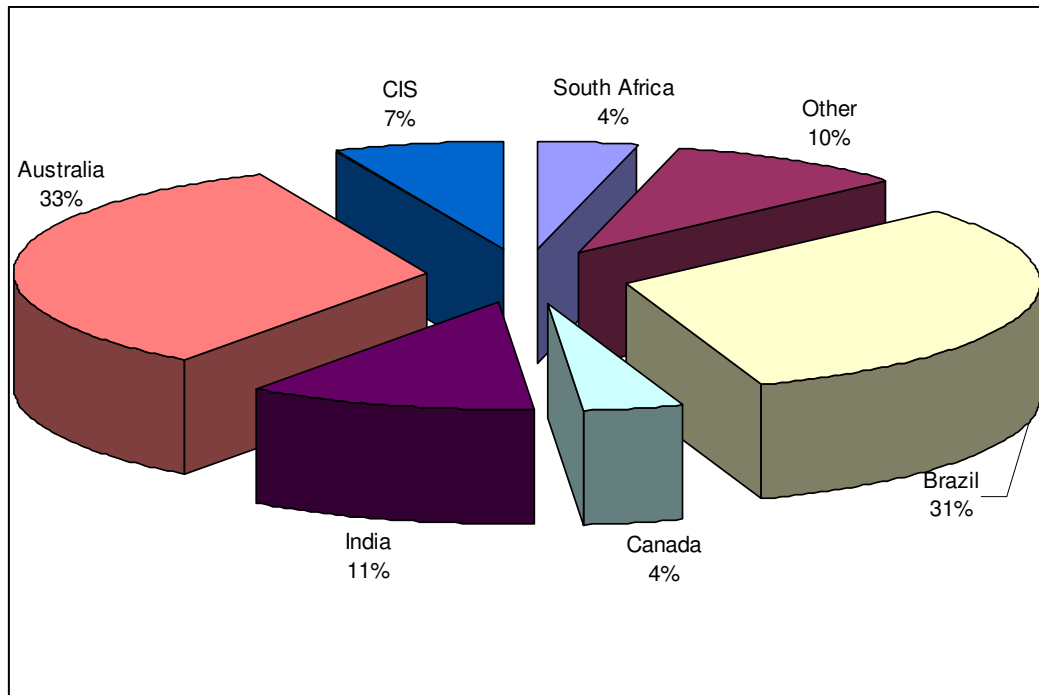


Source: USGS

The Main producers

The four major players in the industry are BHP Billiton, Rio Tinto, CVRD and Kumba Iron Ore (KIO). South African based KIO is said to be the fourth largest after the three aforementioned companies. KIO, which is now a purely iron ore mining company, was established after the split of Kumba resources into KIO and Exxaro, with the latter controlling the coal, zinc and other base metals. Anglo American has retained its 66 percent ownership of KIO, the Industrial Development Corporation (IDC) owns 14 percent and the minorities hold 20 percent. Furthermore, KIO owns 74 percent of Sishen Iron Ore Company (SIOC), 20 percent is held by Exxaro while the community and employees hold the remaining 6 percent. Kumba resources came into being as a result of the separation of the mining and the steel making components of Iscor Ltd in 2001. KIO's main sources of ore are Thabazimbi mine and the Sishen mine and a new project known as the Sishen South Project.

Figure 3.2: World Iron Ore Exports, 2006



Source: UNCTAD

Market Share

KIO accounts for 80 percent of SA iron ore exports and Assmang accounts for the bulk of the remaining 20 percent. KIO is one of the world's premier suppliers of high quality lump-iron ore to the international steel industry and owns a large proportion of the known lump-ore reserves in the world. KIO also sells 4.5 Mt per annum to Arcelor Mittal South Africa (AMSA). The group annually produces 29.9 Mt of iron ore from Sishen and some 2.5 Mt from Thabazimbi. Eighty percent of ore from Sishen is exported and the remainder sold locally.

Exports

South Africa's iron ore is exported via Transnet's Orex railway line through the port of Saldanha.

The length of the Sishen to Saldanha railway line is 861 km – 2 to 3 times longer than the rail lines of CVRD (Brazil) and BHP Billiton (Australia) rail lines – both these lines (and associated ports) are controlled, paid for and maintained by the respective companies. The lower transport and freight cost gives the companies a competitive edge over South African companies

There is a limit to the amount of ore that can be transported to and stored at the Saldanha Bay harbour and hence the possibility of using Ngqura (Coega Development Zone), near Port Elizabeth as an additional iron ore export point is under consideration. This will involve a new line, 380 km longer than the Orex line, as upgrading of the existing non-dedicated line does not appear to be viable.

In view of the current cost of transporting manganese ore from the Northern Cape to Port Elizabeth it seems unlikely that this scheme will prove acceptable.

Africa: Nigeria is the largest African consumer of South African iron ore in Africa but the combined African consumption of iron ore is negligible and averages 0.047 percent over the period under study.

European Union: The greatest consumer of south African iron ore in the EU is the United Kingdom accounting for about 50 percent of the total consumption in that region. The region consumed about 37 percent of ore exported over the period under study

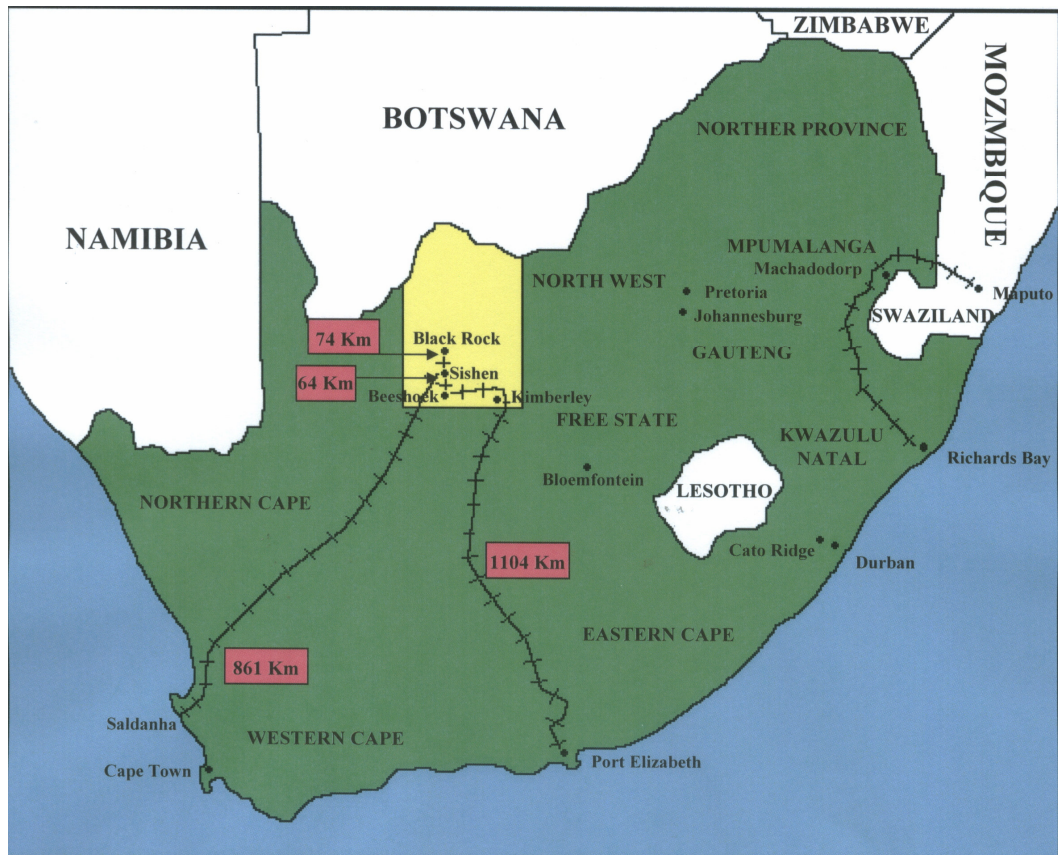
South and North America's consumption of South African ore was very small considering the regions size, at about 0.11 percent and 0.26 percent respectively. This might have been due to the fact that the region satisfies its own iron ore needs as there are big producers in the region such as CVRD and Rio Tinto.

Commonwealth of Independent States accounted for 5.7 percent of the total consumption over this period and the **Middle East** consumed 2.7 percent while other countries consumed 1.43 percent.

China started as net exporter of iron ore when its steel industry was at its infancy, but as the industry matured and as its demand eclipsed supply, it became a net importer. During the period under review China has consumed 23 percent of total SA iron ore exports.

Japan emerged as the second biggest consumer of SA iron ore outside of EU as it consumed 28 percent of the total exported during the period under study due to its long matured steel industry. In recent years China has overtaken Japan as the number one importer of SA iron ore outside of EU since 1994. (Fig 3.11a)

Figure 3.3 South African Export Facilities

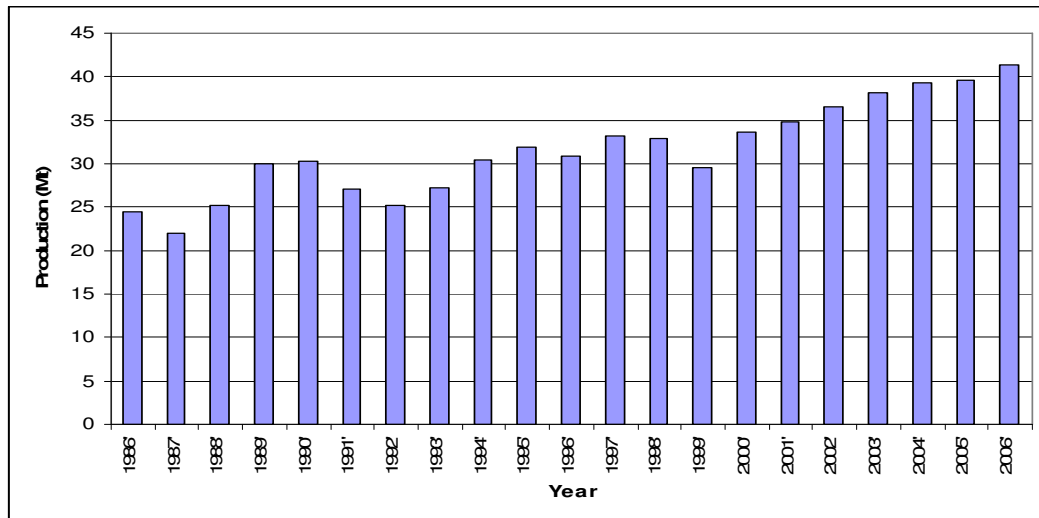


Source: ARM

Iron Ore Production, 1986-2006

At the beginning of the period under study, a far larger proportion of the ore produced was consumed locally (Fig 3.6). This is a period during which sanctions were still in force and as the sanctions eased towards the end of the 1980s, export sales overtook local consumption. The low export figures can also be attributed to the severe recession of the 1980s during which US steel industry permanently closed mills with a combined annual capacity of 40 million tons. The situation elsewhere in the world was no better. South African mines produced a total of 663.6 million tons of iron ore over this period.

Figure 3.4: South African Production of Iron Ore, 1986-2006

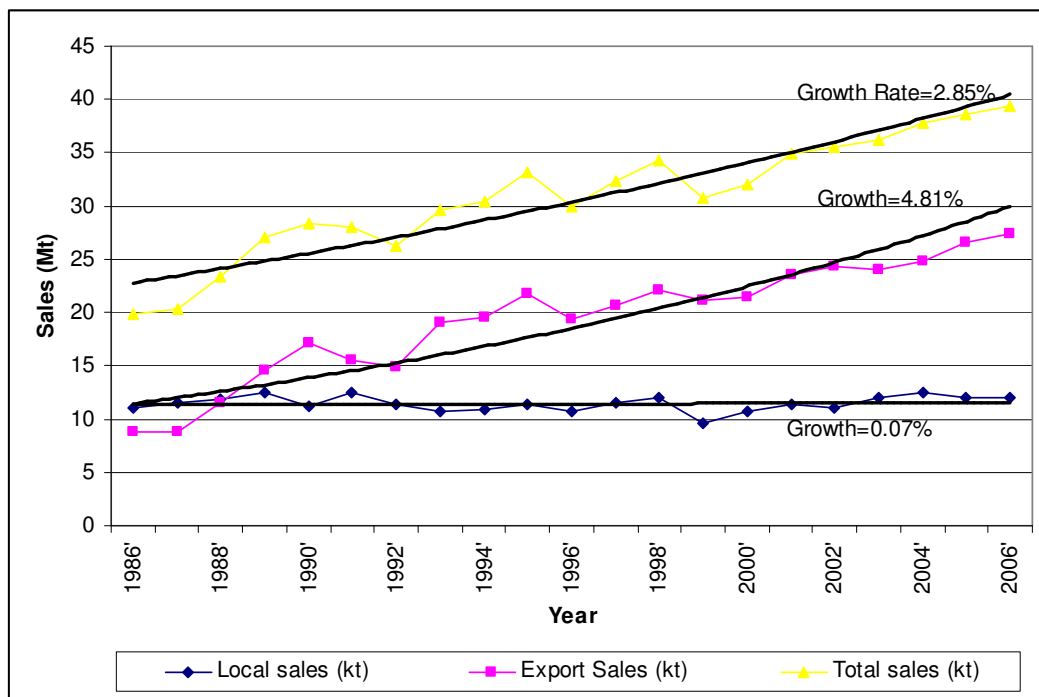


Source :DME, Directorate Mineral Economics

Iron Ore Production Growth Rates

Over this time period the total tons sold grew by 2.85 percent per annum while export sales grew by 4.81 percent per annum and the local sales were flat at 0,07 percent per annum (Fig 3.5).

Figure 3.5: Iron Ore Sales Growth Rates, 1986-2006



Source: DME, Directorate Mineral Economics

Consumption of Iron Ore

Demand for Iron ore has been increasing and is expected to remain attractive in the next two decades. Demand for seaborne ore tends to grow at a faster rate than total ore demand, due to quality and availability issues of local ores, particularly in China

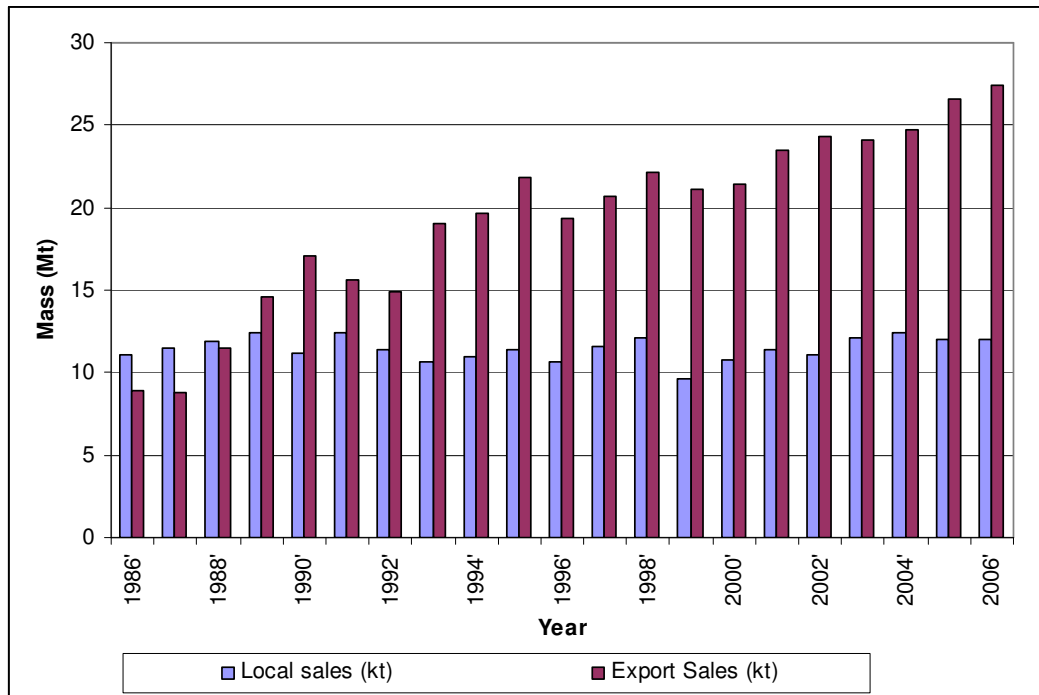
Only 36.2 percent of the total Iron ore produced during this time was consumed locally and 63.8 percent went to satisfy the global demand.

Growth in the steel industry has resulted in a rise in demand for iron ore units locally and globally. Since the end of the 1990s most of this demand has stemmed from the developing world, especially China. China's steel industry has been growing at an alarming rate to the extent that its government recently attempted to limit growth to avoid overheating of the economy. In 2004 the Chinese government ordered that no approvals of any new steel, aluminium and cement projects be made in a bid to halt haphazard and redundant investments. Experts are of the view that a rapid slowdown poses a major threat to the west as they believe that since China has little experience in dealing with boom-and-bust cycles, the country's economy is due for a hard landing. The Chinese authorities, however, stress that action has been taken to ensure a soft landing. Despite the fact that China's government feared in 2004 the economy could suffer a hard landing due to the fact that the economy was growing at very fast rate, the economy continues to grow at 10 percent every year and there is not a sign of a problem that will arise that can affect the economy.

Greater demand for fine Sishen Ore from Chinese mills contributed to increased iron ore production. Demand has increased from 2003 and is still increasing to date (2008).

Only 37.3 percent of the total tonnage exported during the past 20 years was sold in the first decade of the period under study. This was partly due to the fact that during most of the 1980s, South African iron ore exports were hampered by international trade sanctions because of the racial policies of the then government in power. Furthermore, a severe recession in the late 1980's led to a major consolidation in the steel industry, the biggest consumer of iron ore. The fact that 62.7 percent was exported from 1996 to 2006 was a consequence of the lifting of sanctions and the surging demand for SA's high grade hematite ore from international consumers particularly Asia, on the back of an upturn in the global economy and improvement in steel demand.

Figure 3.6 South African Iron ore consumption and exports, 1986-2006



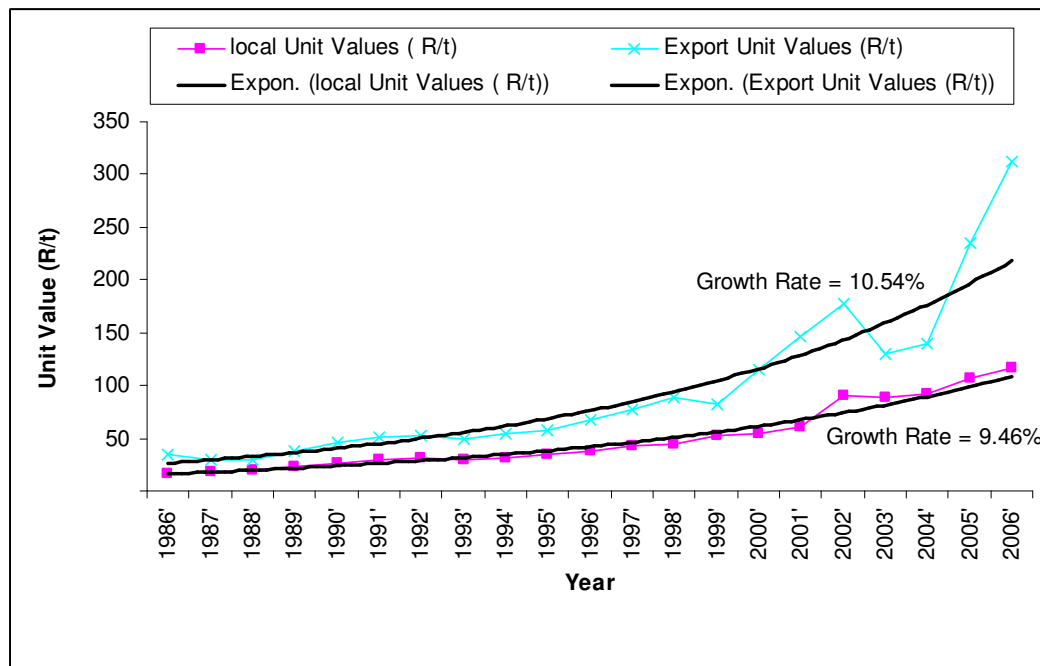
Source: DME, Directorate Mineral Economics

Iron Ore Prices

Most iron ore prices are negotiated between buyer and seller. About 20 percent of ore for domestic consumption is produced by captive mines (mines that produce for their own use). Price movements tend to be a function of market conditions in the steel sector in the period preceding the price negotiations and hence, if market conditions weaken, then there is unlikely to be any movement in iron ore prices. As no record of actual negotiated prices is kept by the directorate, unit values (total value of sale divided by the total sale tonnage) are used as an indication of the average price fluctuations over the course of the last 20 years.

Iron ore prices have risen within the last 20 years, driven by higher domestic consumption and the progressive weakening of the rand. Export unit values decreased in 2003 due the stronger rand, however, export unit values have increased ever since the decrease in 2003 and this is due to higher annual international iron ore prices, which increased by 69,1 percent in 2006.

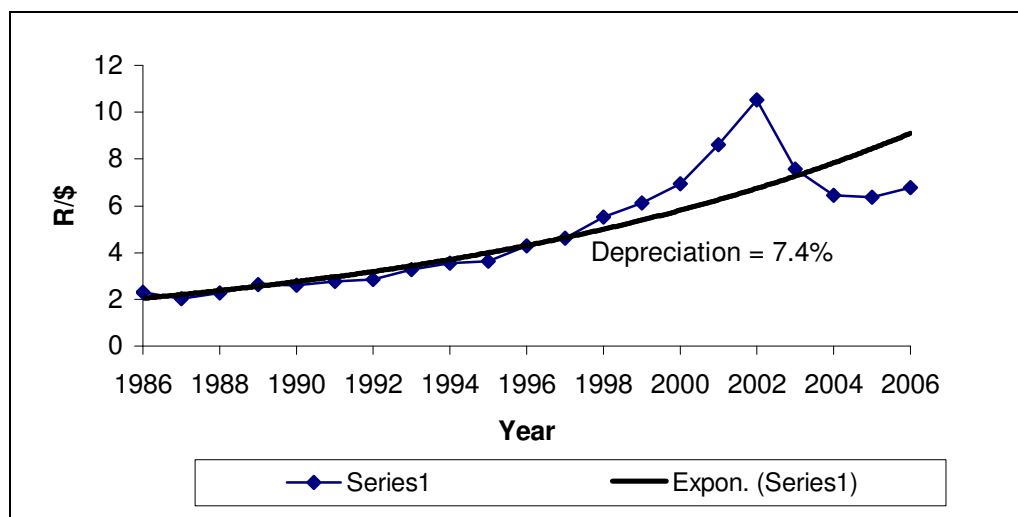
Figure 3.7 Iron Ore Unit Value Growth Rates, 1986-2006



Source: DME, Directorate Mineral Economics

Local unit values, which at the beginning of the study period were R16/t, increased at a rate of 9, 5 percent per annum while export unit values increased at the rate 10.5 percent per annum because of the higher prices globally and the weakening rand.

Figure 3.8: Rand –Dollar Exchange Rates, 1986-2006

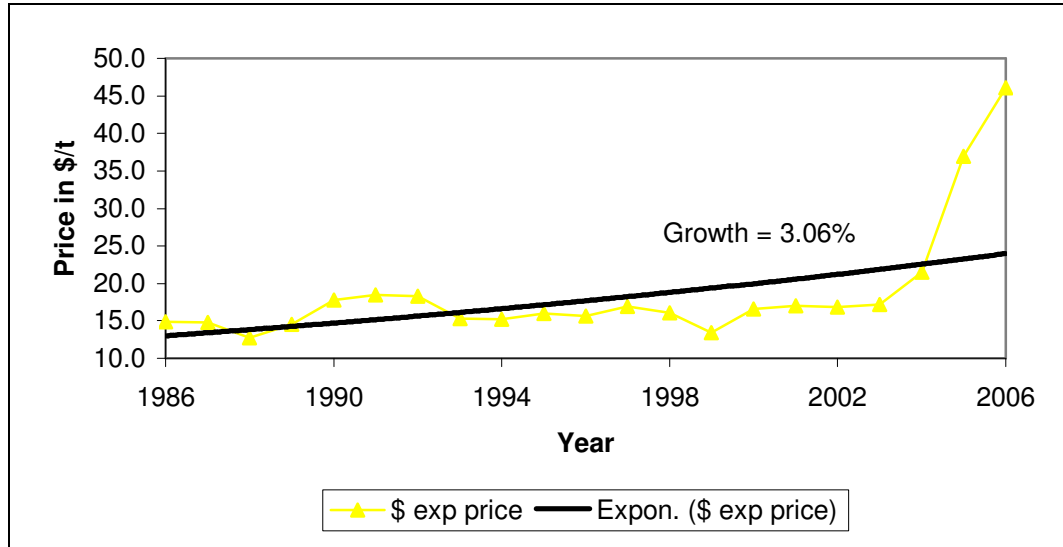


Source: DME, Directorate Mineral Economics

From Figure 3.8 it appears that the rand has systematically weakened at a rate of 7.4 percent per annum from 1986-2006. This weakening has had the effect of

inflating exports earnings. The detail of this effect is beyond the scope of this report.

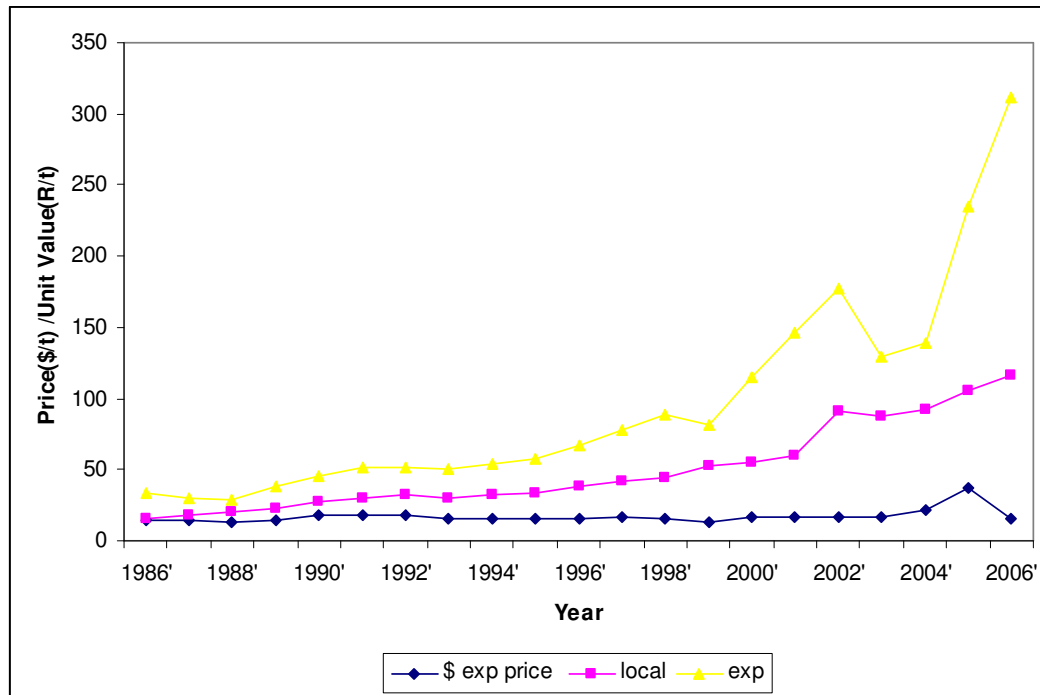
Figure 3.9: Iron Ore US Dollar unit price Growth Rate (1986-2006)



Source: DME, Directorate Mineral Economics

Figure 3.9 shows that the increase in the dollar prices of iron ore was not spectacular. In fact, the dollar iron ore price looks stagnant on average, but if inflation is taken into account it seems that generally the price may have been coming down over the years. The effect of inflation will not be investigated further here but suffice to say that iron ore producers may have been taking cuts in prices in dollar terms. Figure 3.10 below indicates the stagnant dollar price when compared to the same price, which seems to be rising in rand terms. The apparent rise in rand prices appears not to have been due to the *systematic weakening* of the rand throughout the period under study, rather than price increases.

Figure 3.10: Iron ore unit prices, 1986-2006



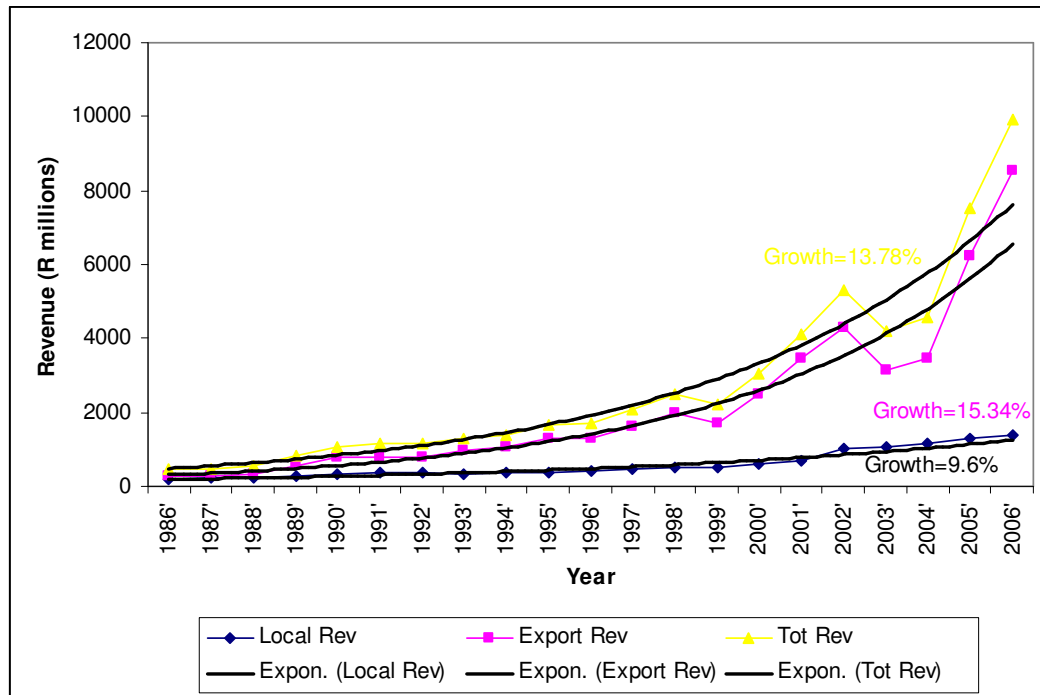
Source: DME, Directorate Mineral Economics

Revenue

Total revenue of R12.1 billion has been generated from local sales over the period while export sales generated R45.3 billion. In total, an overall revenue of R57,4 billion was generated. Of this, R5.88 billion and R25.65 billion were generated from local and export sales respectively during the past five years. Despite this excellent performance, South African iron ore producers have not benefited optimally from the surge in demand as may have been expected. This might have been due to production constraints as well as transportation problems, which will be discussed later.

Over this period, growth rates for total revenue were 13.8 percent per annum, export sales rose by 15.4 percent while revenue generated from local sales grew at 9.6 percent per annum. (Fig 3.11)

Figure 3.11: Local, export and total sales of iron ore, 1986-2006



Source: DME, Directorate Mineral Economics

Manganese

Occurrence

South Africa's largest and economically most important deposits of manganese are located in the Northern Cape Province. These deposits occur in a zone extending northwards over a distance of 150 km, from just south of Postmasburg to as far as the Wessels and Black Rock Mines north of Hotazel. The northern part or the Kalahari Manganese Field (KMF) is the most extensive and contains South Africa's major deposits of metallurgical grade ore. In the North-West province, deposits formed through the weathering of dolomite are found scattered across an area extending from west of Krugersdorp to the Botswana border.

The Producers

Two players, Assmang and Samancor, dominate the production of manganese in South Africa. Smaller producers are Metmin and National Manganese Mines. However, the introduction of new players into the local manganese mining industry has increased the pace of exploration activity in the Northern Cape Province, particularly by Kalagadi Resources which is expected to open a mine and a smelter by 2010.

Market Share

Approximately 95 percent of the manganese produced is consumed in steel manufacturing, mostly in the form of manganese alloys. South Africa accounted for 15,9 percent of global production and 21,3 percent of its world exports during 2006. Four companies control 45 percent of the sea trade, namely: Samancor, Assmang, CVRD and Eramet. Of the total products exported, ore makes up 55 percent by mass, while alloys account for the balance.

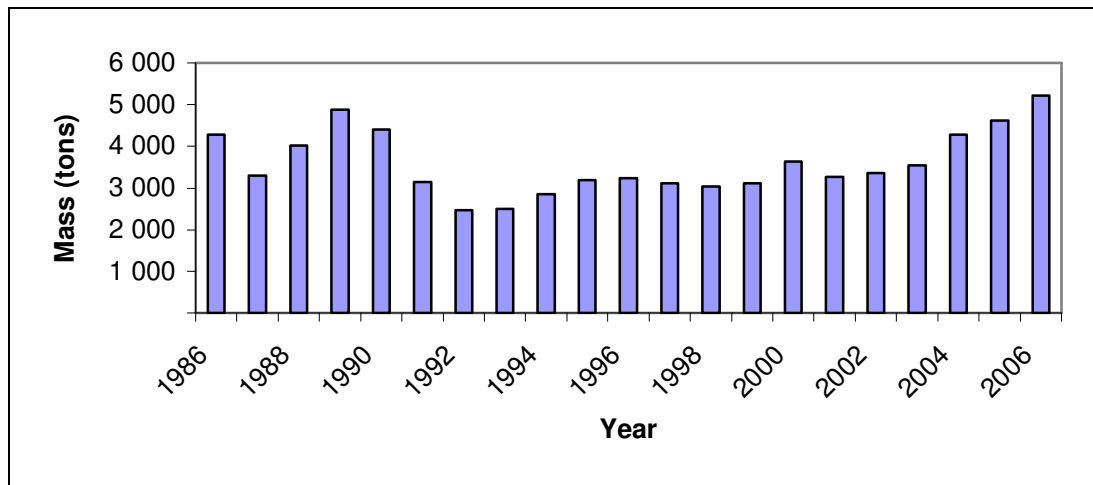
There are 600 individual mines producing manganese ore in China of which only 25 mines have a collective output of 100kt per annum. The world excluding China has 250 manganese producing mines. Although it is a dominant beneficiary of manganese, China possesses negligible ore resources, less than 5 percent of the world resources. China has low grade carbonate ore, carrying less than 30 percent manganese as compared to South Africa that has higher grade carbonate ore containing 48-52% Mn with low phosphorus.

Manganese Ore Production

South Africa at 4000 Mt, holds more than 80 percent of world manganese resources, followed by Russia at 560 Mt and Gabon at 150 Mt. Despite dominating the world resource, South Africa has lost its position of being the world top producer to China, which is now the world top producer. The top three exporters of manganese ore are Australia, South Africa and Gabon.

Many alloy plants exist in the world. China, with many small producers poses a commercial threat to global alloy market due to uneconomic overproduction of manganese alloys as well as the production of electrolytic manganese (ElMn) and electrolytic manganese dioxide (EMD), but represents an opportunity for long-term South African ore sales growth.

Figure 3.12 SA's production of manganese ore, 1986-2006

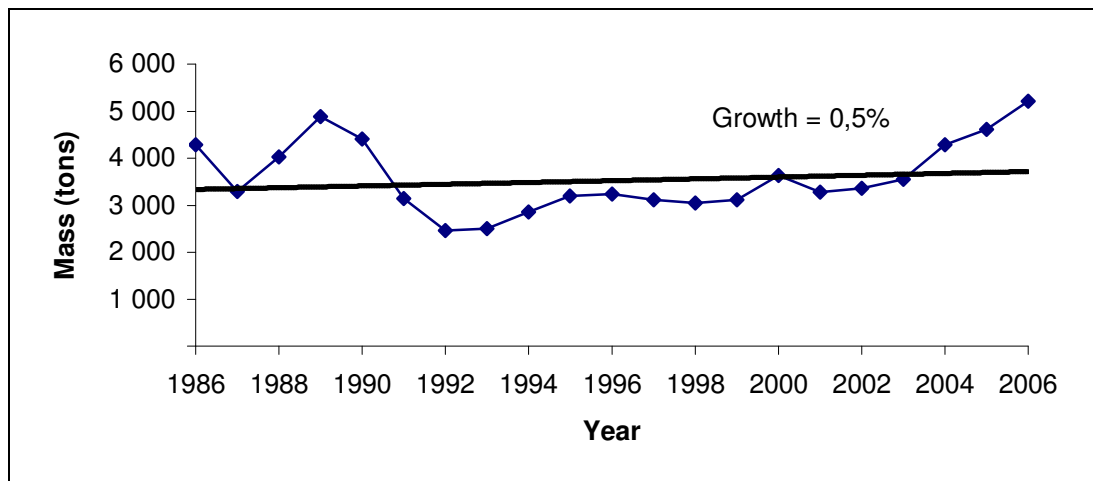


Source: DME, Directorate Mineral Economics

Production Growth Rates

Figure 3.13 below shows the manganese production growth rate over the last two decades. Production increased at a rate of 0.54 percent per annum despite the initial decline in the first few years of the period under study. This can be explained by the sensitivity of the industry to any production increases that tend to be also reflected in the prices.

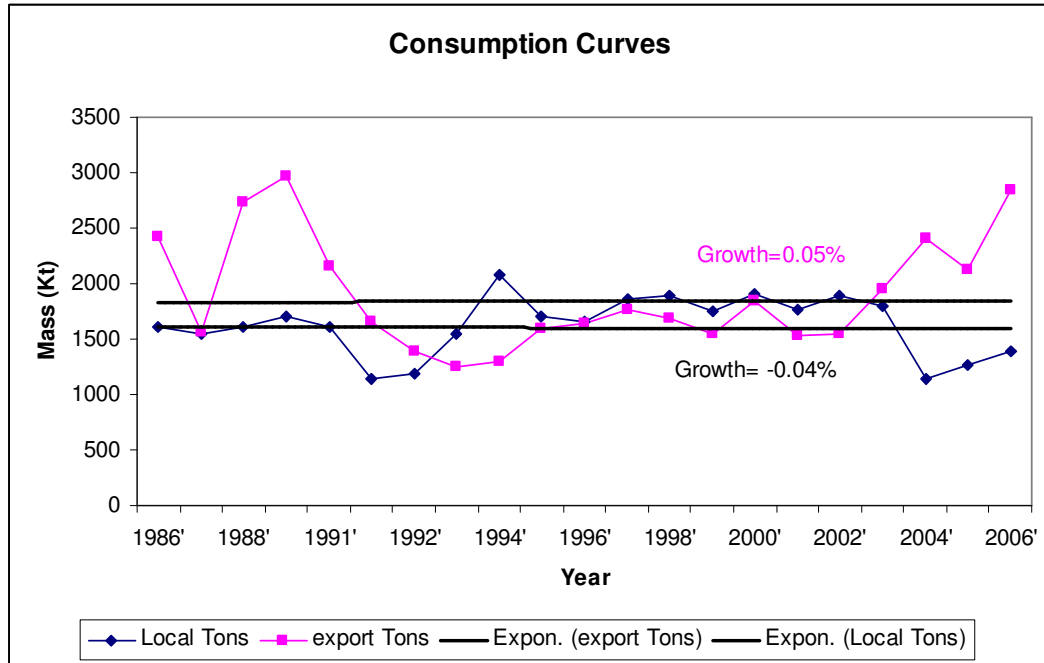
Figure 3.13: Manganese ore production growth rates, 1986-2006



Source: DME, Directorate Mineral Economics

Consumption Growth Rates

Figure 3.14 South Africa's Manganese Consumption Curves and Growth Rates 1986-2006

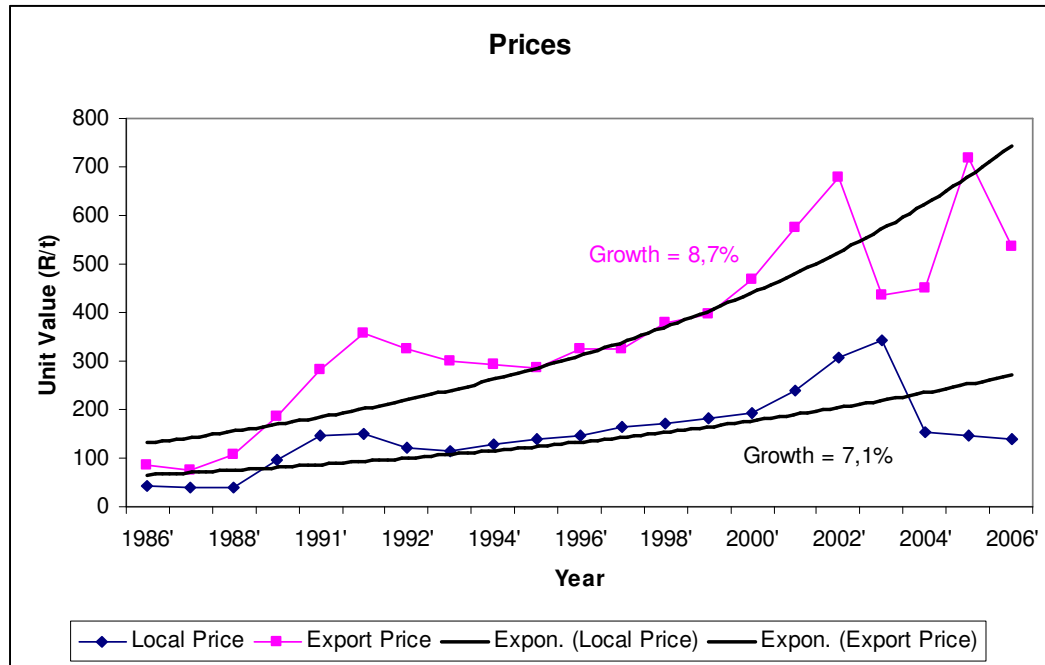


Source: DME, Directorate Mineral Economics

Figure 3.14 shows domestic consumption (local sales tonnage) and export tonnage growth over the period 1986-2006. The consumption curves show that the local market for manganese ore has been diminishing at an average rate of 0.04 percent per annum during the last 20 years while the export market has been steadily growing at an average rate of 0.5 percent per annum. This is mainly due, to higher export demand and prices.

Price Growth Rates

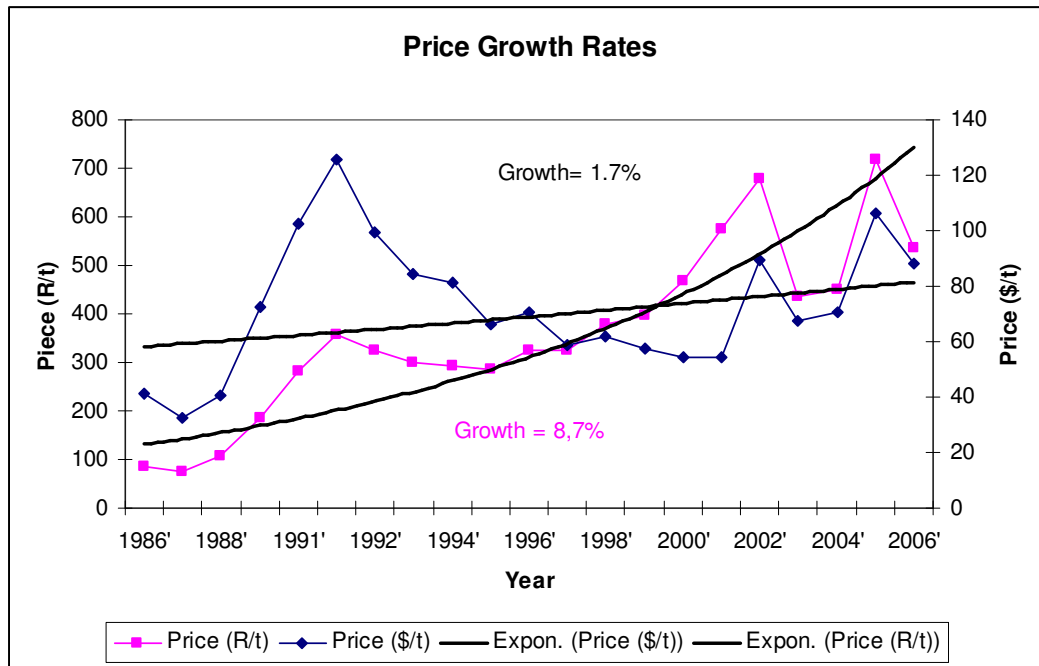
Figure 3.15: Manganese ore unit value growth rates, 1986-2006



Source: DME, Directorate Mineral Economics

Average manganese ore prices rose significantly in rand terms from 1986-2006 (Fig 3.15). The average export price increased at a rate of 8,74 percent per annum throughout this period while the local unit value prices climbed some 7,1 percent per annum. In contrast, dollar unit prices moved up by only 1,7 percent per annum. If however, dollar prices were discounted to reflect the effects of inflation, the net effect would have been a negative growth for the period.

Figure 3.16: Comparison of Local and Export price growth rates, 1986-2006



Source: DME, Directorate Mineral Economics

Revenue

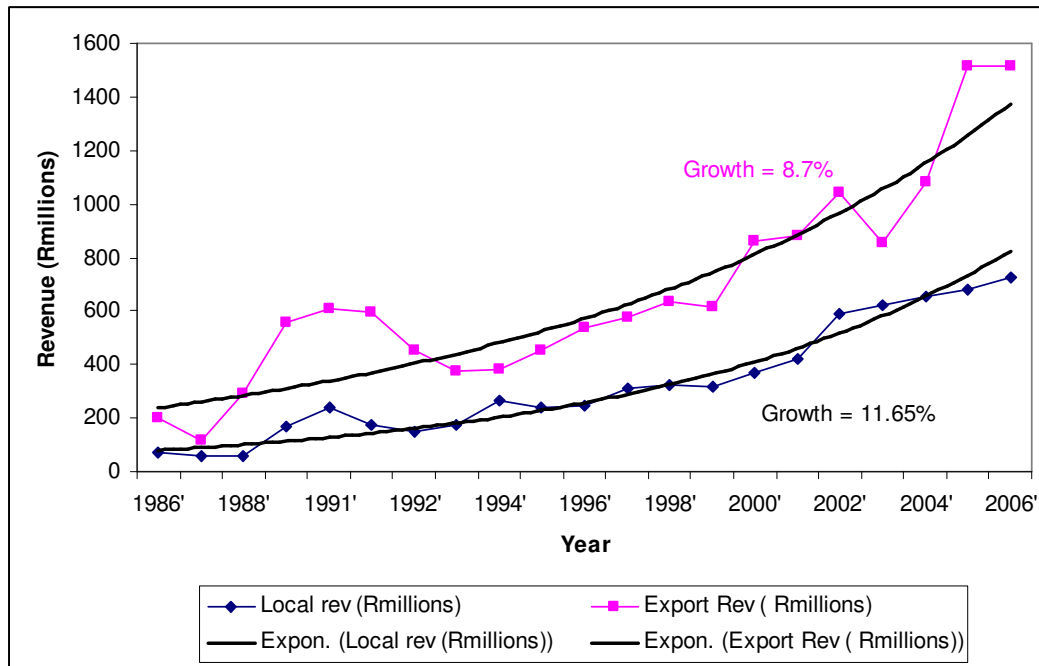
A total revenue of R21,1 billion was generated from local and export sales of manganese for the period under study. Of this, 32.6 percent was contributed by local sales while export sales accounted for 67.4 percent. Export sales dominated earnings from the beginning of this period to the end.

Revenue Growth Rates Discussion

Figure 3.16 illustrates the growth rates in revenue generated from export and local sales of manganese ore from 1986 to 2006. Local sales revenue was low in 1986 while the earnings value of exports was higher. This discrepancy was due to the fact that export prices were, for most of the time, higher than the local prices. Moreover, a progressive weakening of the rand, which continued on a downward spiral until it was reversed in 2001, boosted export revenues.

Local sales revenue grew at 11.65 percent per annum, which was almost 3 percent higher than the export sales revenue (8.7 percent per annum on average, Fig 3.16). Rapid growth appears to have begun around 1995 and continued unabated as a result of a combination of higher prices and a weaker currency. As indicated in Fig 3.15, with dollar prices and production being constant, and a change in R/\$ exchange rate, the revenue remains constant in dollar terms but changes up or down in rand terms. Hence it seems it was more the effect of the volatility of the currency that caused a drop in the revenue graph in 2003 (Fig 3.16) than it was the change in the demand of the product itself.

Figure 3.17: Manganese ore revenue growth curves and growth rates, 1986-2006



Source: DME, Directorate Mineral Economics

Transportation

Manganese ore mined in the Hotazel area of the Northern Cape is transported by rail to a bulk minerals handling terminal at Port Elizabeth, a distance of more than 700 kilometres. The mechanical plant has been in operation for over 40 years and is now considered to be antiquated. Discussions are currently being held on relocating the bulk minerals terminal from Port Elizabeth to the new Port of Ngqura by about 2008. A decision could also be made on adding an export facility for iron ore exports, which would improve the economic feasibility of the project and allow exporters an alternative route to the Orex-Saldanha line.

Steel Manufacturing in South Africa

Introduction

The South African steel industry accounts for 48 percent of crude steel production in Africa and 1 percent of world production. South Africa, with an output of 9.6 Mt in 2006, is ranked as the 21st largest steel producer in the world, and seventh in terms of steel exports. Total South African crude steel production as reported by the members of the South African Iron and Steel Institute (SAISI) amounted to 8,986 million tonnes in 2007, a decrease of 6,4 percent, compared with 9,603 million tonnes during 2006.

Steel consumption in South Africa continued to increase up to the late seventies but due to structural imbalances in the economy and international sanctions, the economic growth rate declined during the eighties and consumption of steel products is still declining. Growth in consumption is slowing down as a result of

higher stock and material price levels and nickel price volatility. While growth has slowed in 2007, South Africa's apparent consumption growth of 8,1% between 1991 and 2007 still comfortably outperforms average world growth.

There are six primary steel producers in South Africa: Cape Gate, Cisco, Columbus Stainless, Highveld Steel and Vanadium, Scaw Metals and Ispat-Iscor. Ispat -Iscor has since been renamed Arcelor Mittal South Africa (AMSA). AMSA is by far the largest, producing 7.1 million tons a year with a 79% market share. The remaining 21% is shared among the five smaller players. There are two distinct products: carbon steel, which accounts for 97 percent of the sectors output, and stainless steel. Columbus is the principal stainless steel producer. South Africa manufactures a wide range of steel and semi finished steel products.

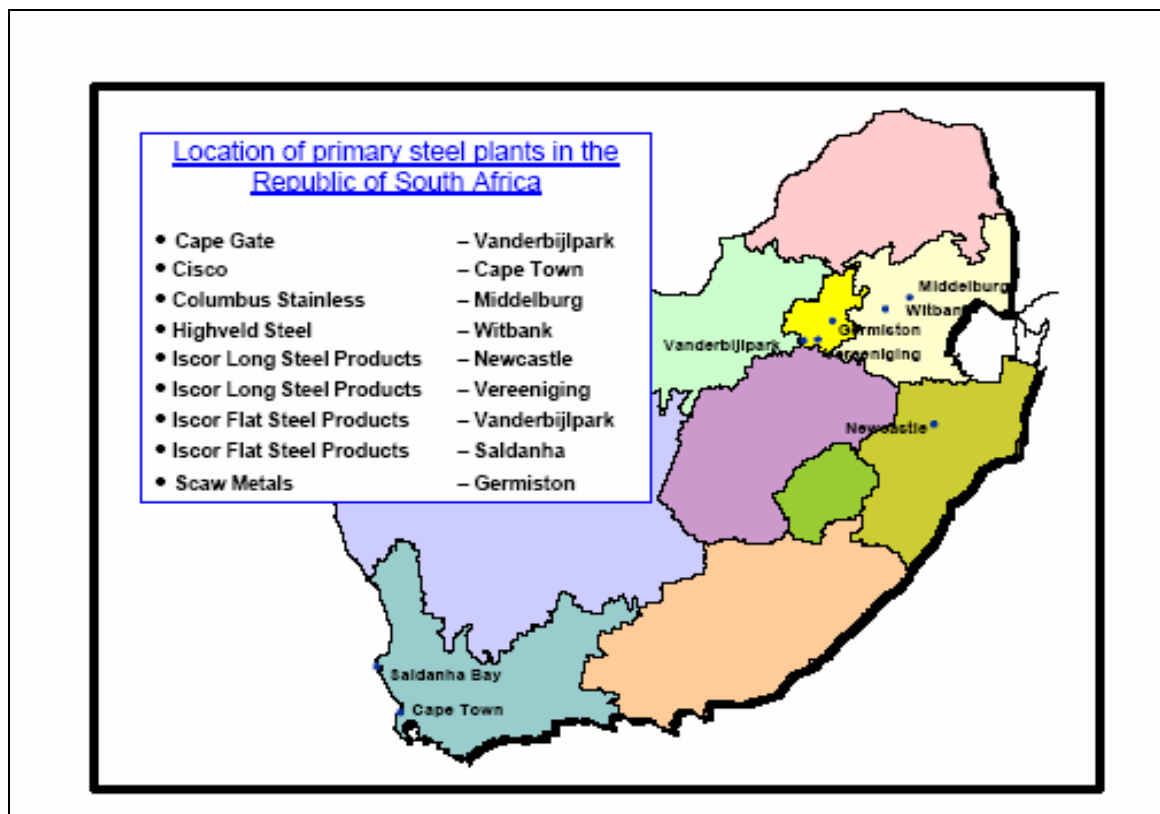
The largest consumer of steel in South Africa is the building and construction industry but the automotive industry is reportedly the biggest consumer of stainless steel, accounting for 23 percent of total consumption. Manufacturers of cables, wire products and gates consume 17 percent. Tube and pipe manufacture consumes 11 percent while plate and sheet metal works account for 10 percent. Packaging takes 7 percent, automotive sector 6 percent and hardware, furniture and railway sectors consume 4 percent; mining takes 3 percent and agriculture, electrical appliances, fasteners and roofing and cold forming account for one percent each. The remaining 15 percent is not allocated as per information from SAISI.

The effect of the shrinking manufacturing base

The drastic decline in South African steel consumption was due to the demise of the broad manufacturing base in South Africa. As a result, the contribution of the value added by the manufacturing sector to the South African GDP has declined from 24 percent in 1981 to 16 percent in 2006.

Despatches of primary steel products to the different industrial sectors have been negatively affected by the demise of the manufacturing industry in particular, and also the decline of industries such as mining, building and construction and the transport sector of Railways and Harbours until late 2003. However, the upsurge in commodity demand and therefore their prices, from 2001 onwards has rejuvenated the sector. A number of construction projects around the country, in an attempt to expand and improve infrastructure and service delivery ahead of the 2010 Fifa world cup, has raised the level of demand for steel products. Also, the planned infrastructural development projects in which Eskom plans to spend R300 billion, Telkom R36 billion and the government is expected to spend R400 billion in 5 years are likely to further increase the level of local consumption of steel products..

Figure 4.1: Location of Steel Plants



Sources: SAISI

Comparison of SA and World Crude Steel Production

A comparison of South African and World crude production growth rates compiled from data collected for the past 20 years shows marked differences in the trend of performance. Steel output in South Africa has grown at a miserly 0.1 percent per annum (Fig 4.5) whereas global production has increased at a relatively higher but mundane growth rate of 2.1 percent per annum (Fig 4.2).

For purposes of looking deeper into the causes of the discrepancy between the two growth rates, it would be fitting to divide the data into two groups: *pre-liberation (1986-1995) and post-liberation (1996-2006)*

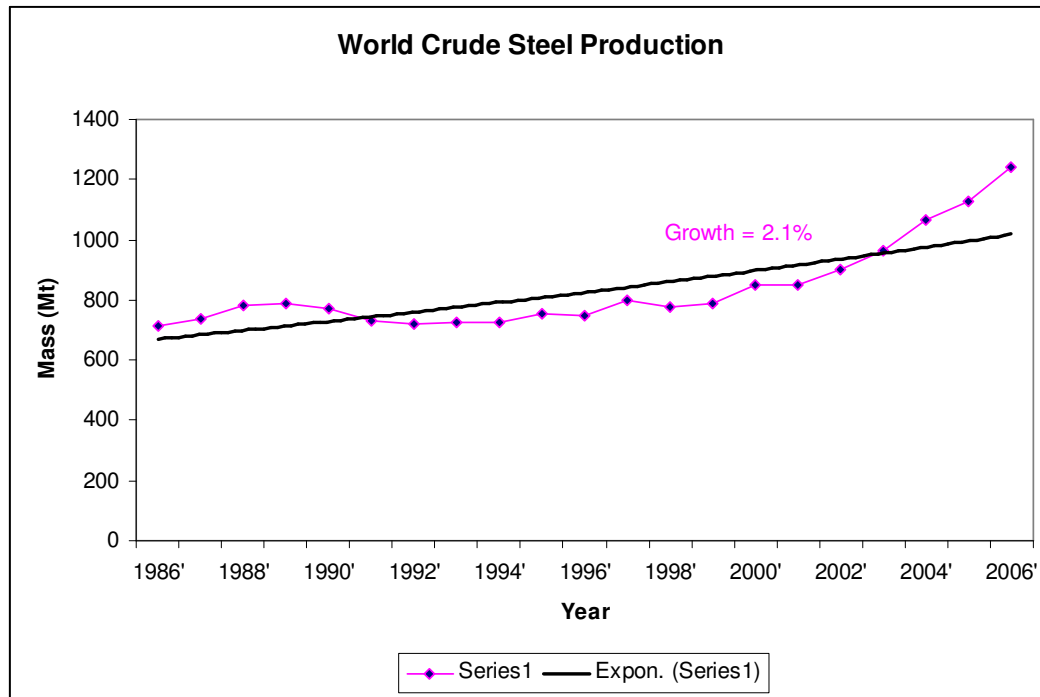
Pre-liberation and Post-liberation Periods

The pre-liberation growth rate for SA is -0.36 percent per annum (Fig 4.6) while that of the world stood at 0.18 percent per annum (Fig 4.4). However, the post election period shows a global steel production growth rate of 4.83 percent per annum (Fig 4.3) compared with the 2.22 per annum in South Africa (Fig 4.7). This can be traced back to the time when economic sanctions were imposed on SA. As a result of that the growth rate was driven more by domestic demand.

South Africa's more robust pre-liberation growth rate relative to that of the world can be explained as a result of economic sanctions restricting exports, which

meant that the growth rate was driven largely by sustained growth in domestic demand whereas world growth was rather sluggish in the Western democracies in the run-up to the end of cold war during the early 1990s.

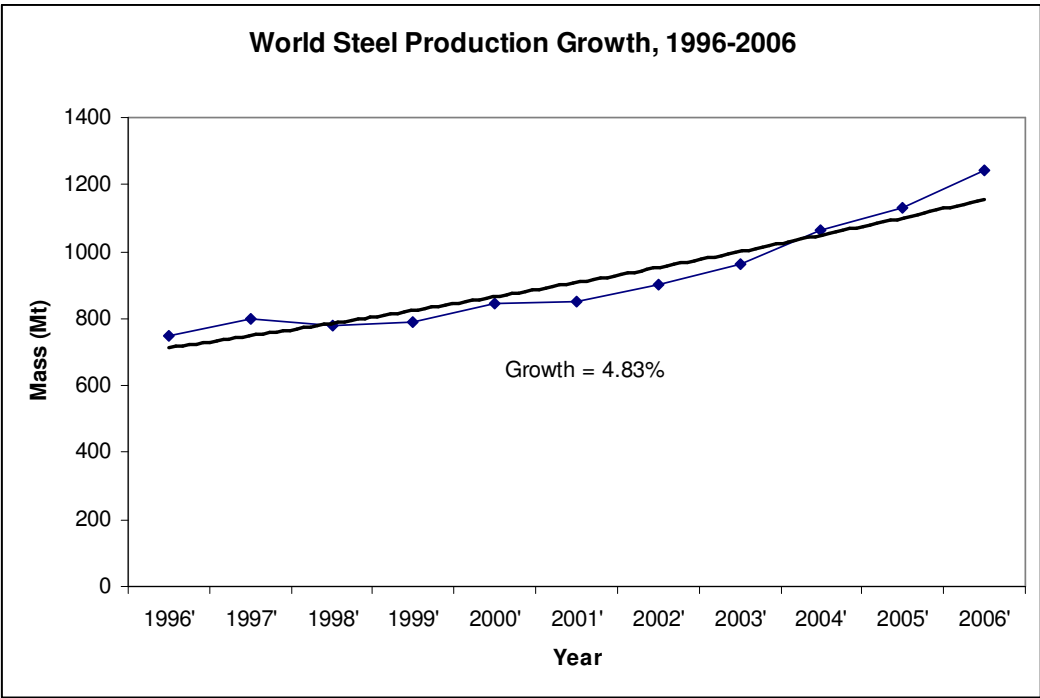
Figure 4.2 World crude steel production growth rate, 1986-2006



Source: IISI

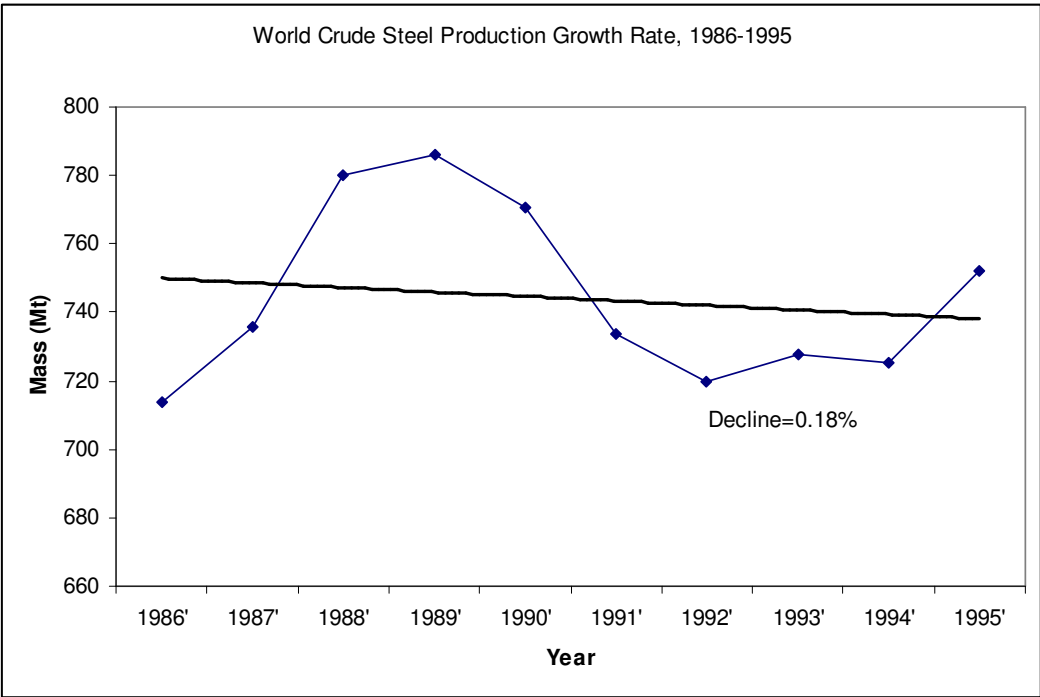
In contrast, during the post liberation period, South Africa growth in crude steel production, which slightly slumped in the first few years of democracy but picked up a gear later on could not match worldwide growth in steel output buoyed by rampant growth in rapidly industrializing countries such as China and India.

Figure 4.3 World steel production growth rate 1996-2006



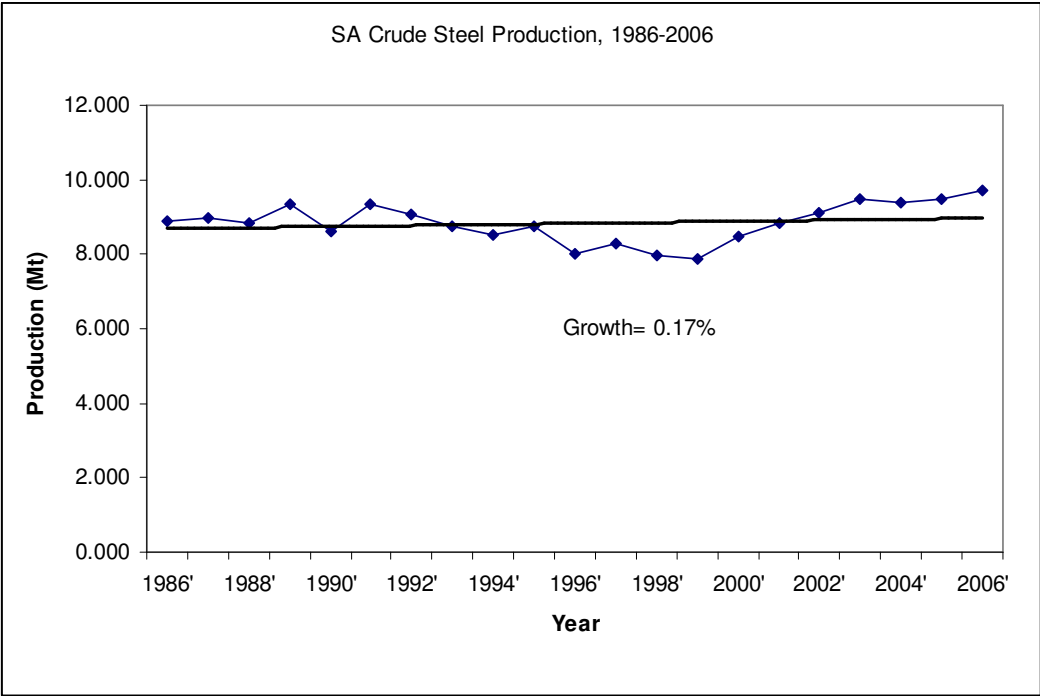
Source: IISI

Figure 4.4 World crude steel production growth rate, 1986-1995



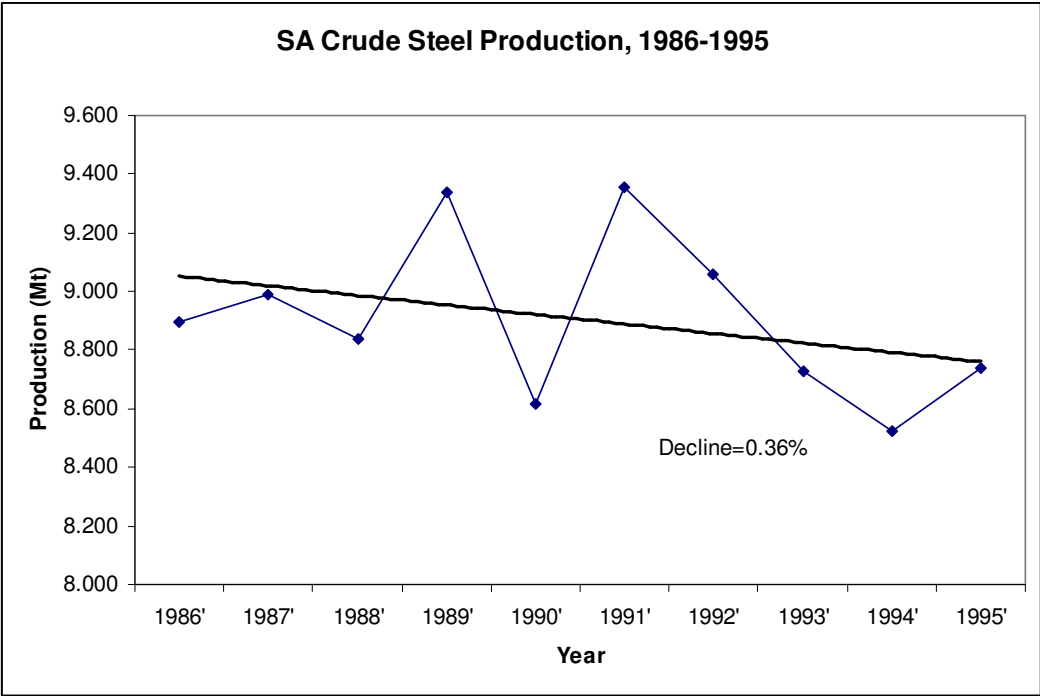
Source: IISI

Figure 4.5 South Africa's crude steel production growth rate, 1986-2006



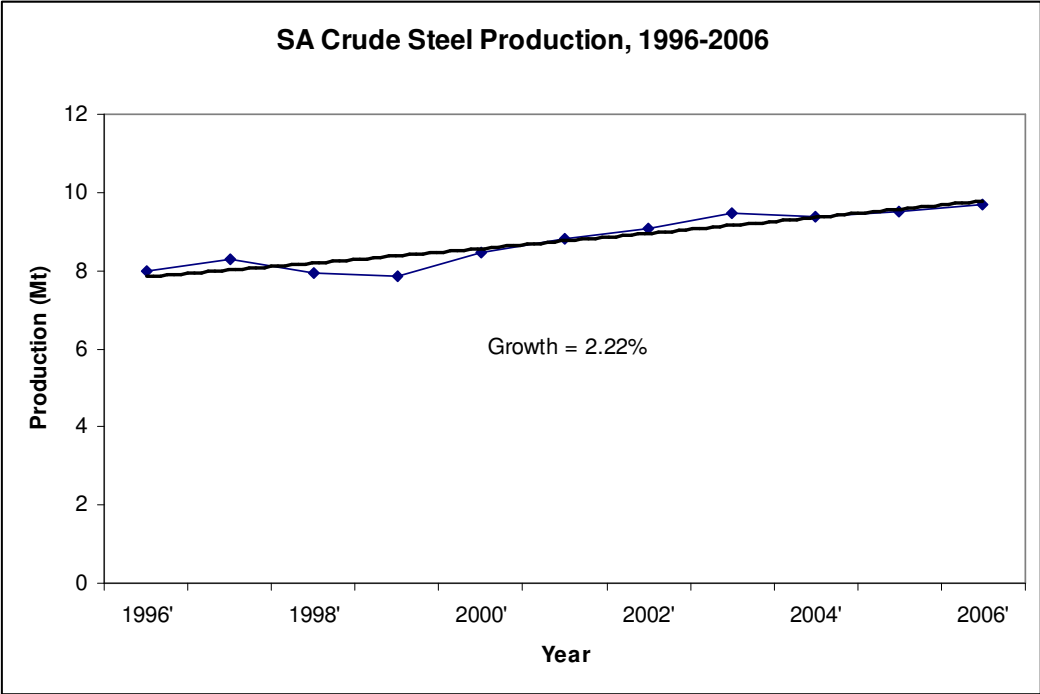
Source: SAISI

Figure 4.6: South Africa's Crude Steel Production Growth Rate, 1986-1995



Source: SAISI

Figure 4.7 South Africa's crude steel production growth rate, 1996-2006

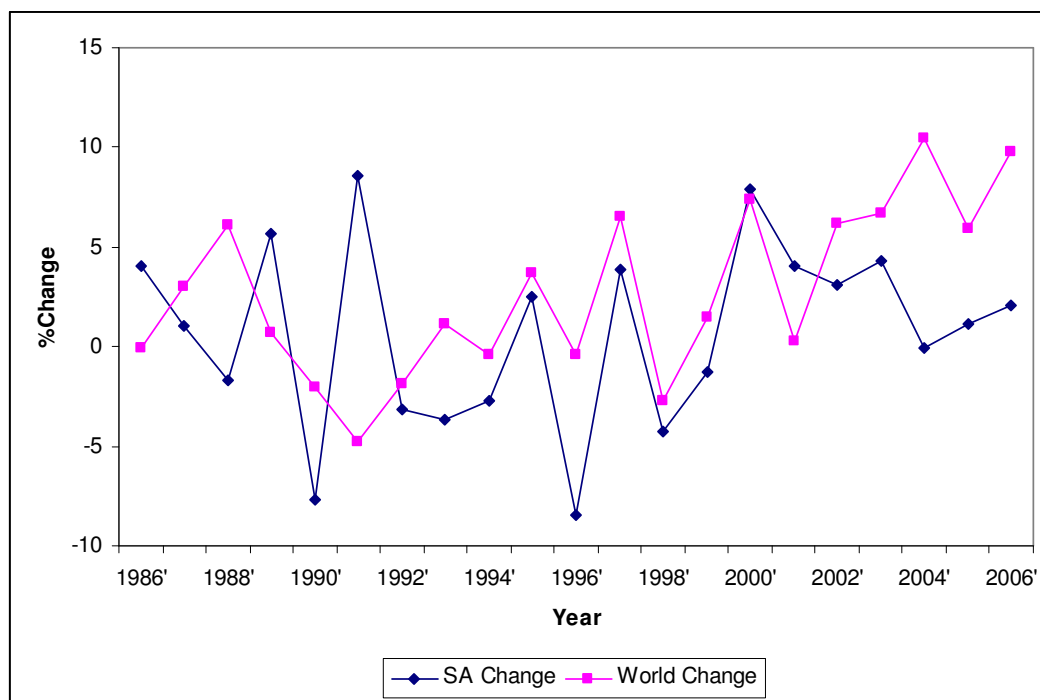


Source: SAISI

Crude Steel Production Cycles

The contrast between profiles of crude steel output in SA during the pre-liberation and post-liberation periods is sharply outlined in the graphical representation of the steel production cycle over the previous 20 years (Fig 4.8). From 1986 to 1995 SA's steel production was completely out of step with that of the world. Since 1994, however the two cycles have become far more synchronous. However, despite the synchrony alluded to above, the two curves started diverging again in 2003 as a result of the decline in local production caused mainly by the continuous restructuring of the local steel industry and the accelerated growth in World production driven mainly by Asia, particularly China and India. South Africa seems not to have taken full advantage of the upturn in world steel demand as evidenced by the lower growth rates in its production.

Figure 4.8: Comparison of South African and World Steel Production Cycles

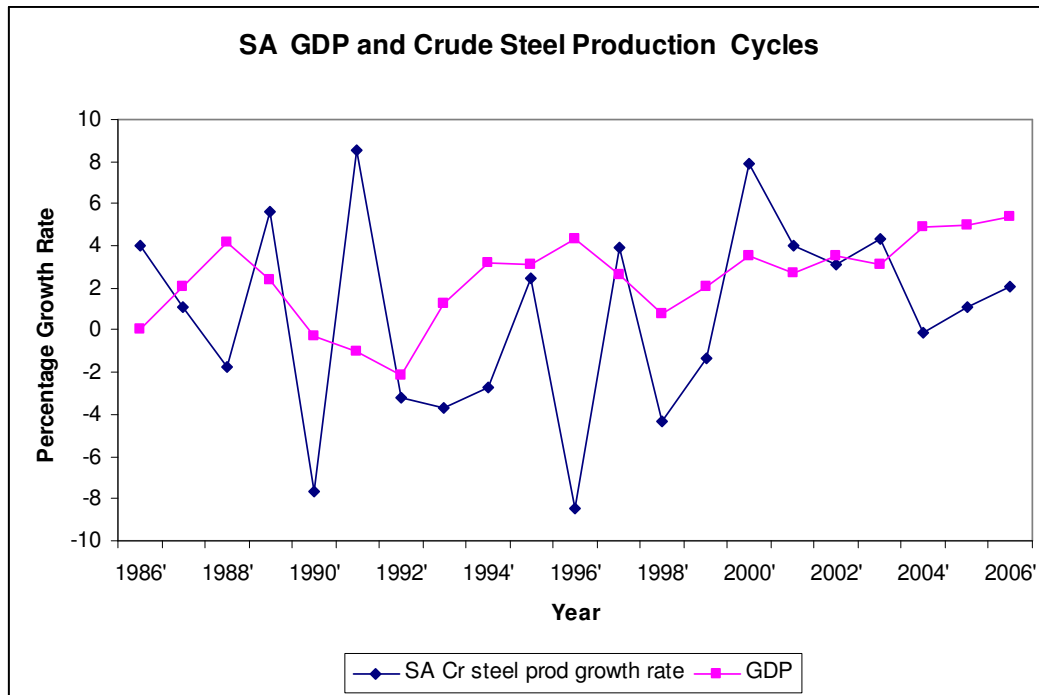


Source: SAISI & IISI

Link between Steel Production and the SA Economy

From Figure 4.9 there appears to be some discernable relationship between the production of steel and the performance of the SA economy. Although the link may not seem to be very strong, the two curves seem vaguely correlatable. An upturn in economy has a delayed effect on steel production, which is understandable, as the effect will take some time to filter through. On the other hand a down turn in steel production seems to precede a downturn in the economy. This cooling off is picked up immediately as the volume of orders drop so that production is revised downwards even before the economy registers a downturn.

Figure 4.9 South Africa's GDP and Crude Steel Production, 1986-2006



Source: SARB & SAISI

Conclusion and Recommendations

Summary

Steel

The South African steel industry has undergone changes through the years. The major player, **Arcelor Mittal South Africa**, started as a state owned corporation, which evolved through the years into the formidable private steel producer it is today. Due to its unfair advantage, of being owned by, and special treatment it received from the previous government, it has grown to dwarf the other local steel makers which were neither state owned nor subsidised. The separation of the iron ore and steel making assets into Kumba Resources and Iscor, respectively, has had positive results as each could then focus on its core business. Today **Arcelor Mittal South Africa** is by far the largest steel maker in Africa. The South African steel industry accounts for 48 percent of steel production in Africa and 1 percent of world production.

The restructuring of AMSA seems to be going ahead successfully, fashioning itself as the most viable and strongest steel producer in the region. The company's pricing policy of Import Parity Pricing seems to have had both negative impacts on its consumers and gave it negative publicity. This is evidenced by the official complaints of excessive pricing and abuse of dominance lodged against Arcelor Mittal South Africa by DRDgold, Harmony and Cadac with the Competition Tribunal and the subsequent negative outcome and hefty penalty imposed by the

Tribunal on the company. Although the shrinking manufacturing base also appears to have had a negative impact on growth prospects of the industry during the first half of the period under study, this changed as the local manufacturing industry recovered and pulled itself out of recession.

The production growth rate achieved by the local steel industry over the past 20 years is quite small at 0.02 percent per annum compared to the global growth rate of 1.1 percent over the same period, given the fact that South Africa has all the raw material required for steel production. The fact that this has happened despite the higher growth rates achieved by industries like iron which is a major raw material used, signifies that SA has not seized the opportunity of an upturn in global steel demand as its competitors have elsewhere. The industry has been shedding jobs throughout this period in a country which needs job creation. This is in sharp contrast to what other developing countries like China have been doing: creating jobs at a rate of 10 million per year by exploiting the higher local and global demand for their products

Although there appears to be a link between steel industry and the economy within which it operates, in other words, what happens in one influences what happens in the other. But the conservative nature of the South African industry captains has meant that instead of an expansionary economy, we had one that sheds jobs and limits the scope for growth. The other effects will be dealt with in the concluding remarks for the whole industry.

Iron

Total iron ore production grew at a rate of 2.6 percent per annum over the period under study. Export sales grew at 4.8 percent per annum while local sales recorded a 0.07 percent growth. Local prices rose by 9.5 percent per annum while export prices went up 10.6 percent per annum. The value of the local currency dropped at a rate of 7.4 percent per annum over this period and thus, negated any price increases in dollar terms. The total revenue generated from iron ore sales rose by 13.78 percent. Local sales revenue rose by 9.68 percent per annum while export sales revenue grew at 15.34 percent per annum over this 20-year period. More than 90 percent of exported ore went to European Union, Japan and China.

The local transportation of iron ore is done by rail. The local industry has not been able to increase its exports due to rail and harbour constraints; however, Transnet is upgrading both these to ensure higher exports of iron ore. The industry has however indicated that the planned expansion will not be enough and has suggested that some extra capacity for iron export be created at the new port of Ngqura to exploit the rising global demand for iron ore particularly from China. The local iron ore industry has failed to exploit the increased demand for its product due mainly to infrastructure constraints.

Manganese

Production of ore increased by 0.5 percent per annum over the 20-year period. The local consumption of manganese ore declined by 0.04 percent per annum while exports grew at 0.05 percent per annum. From 1993 local consumption exceeded exports until 2003 when the two graphs intersected and started diverging, with exports trending up, driven by strong demand from Asia, particularly China. While the dollar prices rose by 1.7 percent per annum, rand prices rose at a rate of 8.7 percent per annum over the period of 20 years. The meteoric rise in rand prices was due to the systematic weakening of the rand over this period. Revenue generated from local sales grew at 11.65 percent per annum while that from export sales went up by 8.7 percent per annum.

The transportation of ore is done by rail and no problems in this regard were experienced. The export facility in Port Elizabeth is seen as very old and needs some upgrading, but stakeholders have suggested that instead of that, a new facility be constructed in Ngqura. Reservations were expressed about the economic viability of such a move but some players suggested that those hurdles would be overcome by creating a new facility for iron ore export there as well.

RECOMMENDATIONS

Steel

Since South Africa has all the raw material necessary for steel production, the local industry must be encouraged to exploit this to increase its steel production so as to increase its share of the global steel market.

The benefit of cheaper iron ore that AMSA gets from KIO can be extended to the steel giant's local clients by way of AMSA adopting a more benign developmental pricing model as opposed to its current Import Parity Pricing model which seems to have caused great pain and dissatisfaction, not only to its clients but also to the government, intent on promoting local downstream beneficiation industry.

Iron

Production

The production of iron ore can be increased to meet the rising global demand for iron ore. This must also be matched by a corresponding increase in steel production so as to optimise the economic benefit for South Africa.

Consumption

Local consumption of local iron ore produced can be increased by promoting downstream beneficiation of ores in order to effect sustainability. By so doing, the quality of exported material would also be improved.

Prices

The local iron ore industry is not so big as to influence prices all on its own. However, this can be done by joining other bigger global players. By adopting a unified approach to the annual price negotiation with iron ore consumers, the industry can fetch better prices for its product. However, this approach may fall foul of World Trade Organization (WTO) rules.

Revenue

Since revenue is a function of prices and quantity produced, the industry will improve its revenue position by getting these two variables right.

Transportation

Since the transportation of ore is beyond the industry's control, the current dialogue between the industry and the authorities to negotiate an effective public-private partnership that will help resolve the industry's transport problems should be encouraged.

The efficiency of both the rail and harbour infrastructure must be continually assessed to ensure that the needs of exporters are not only known but also satisfied.

Manganese

Production

The manganese industry is very sensitive to production variations and therefore any change in production must be well thought as it could have both negative and positive consequences. If an increase in production can be absorbed by local beneficiation activities, this would be advisable. The recent downward trend of local consumption and the upward trend of exports is a cause for concern as the ideal would have been an upward movement of both variables.

Consumption

Increasing of local consumption of manganese ore is definitely advised in pursuit of the dream to beneficiate almost all or all manganese produced locally. This would help ease the burden of transporting the bulky ores, from both the rail and port infrastructure.

Prices

Prices of manganese ore are a function of the balance between supply and demand prevalent in the markets. Since South Africa owns more than 80 percent of the world known resources the local industry can do a lot to influence price movements.

Revenue

Revenue will only be improved if the industry succeeds in improving the revenue input factors like production and prices.

Transportation

The mooted move of the export facility from Port Elizabeth to Ngqura must be seriously considered especially if it will accommodate iron ore export as well. This would relieve the Saldanha Bay Harbour of some of the excessive demand put on it by the current high demand for iron ore.

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