2008 market Study on the South and Southern African Zinc Market

International Zinc Association Southern Africa

(Rob White September 2009)

IZASA

INTERNATIONAL ZINC ASSOCIATION - SOUTHERN AFRICA

EXECUTIVE SUMMARY.

The (apparent) local zinc demand for 2008 is estimated as 99 000 tonnes, as zinc tonnes. Current per capita zinc consumption has risen to 2.0 kg/person. In contrast southern Africa's per capita consumption remains low at under 0.5kg for the SADC region and even lower for the rest of sub-Saharan Africa.

2008 proved to be a challenging year for the Industry. The beginning of the year was hit by power shortages which gave way to some normality only to be hit by the global financial crisis from September onwards. However, demand remained strong for the year.

Market demand remains dominated by the galvanizing industry with the general galvanizing industry having had its best year ever. The continuous galvanizing industry grew steadily until the fourth quarter when a near total collapse occurred. Local demand is picking up but future expansion now lies outside of the two main players. Construction (including mining) remained strong during the year with a significant overhang due to the large project schemes underway (soccer stadiums, highway rebuilds and other transport initiatives such as Gautrain). If proposed power pricing strategies persist the impact upon the Industry is unknown at this juncture.

Wire and tube continued to be plagued by the high local steel price and exports were lower than anticipated. Whether increased infrastructure and industrial investment will provide room for GDP+ growth in these industries remains to be seen.

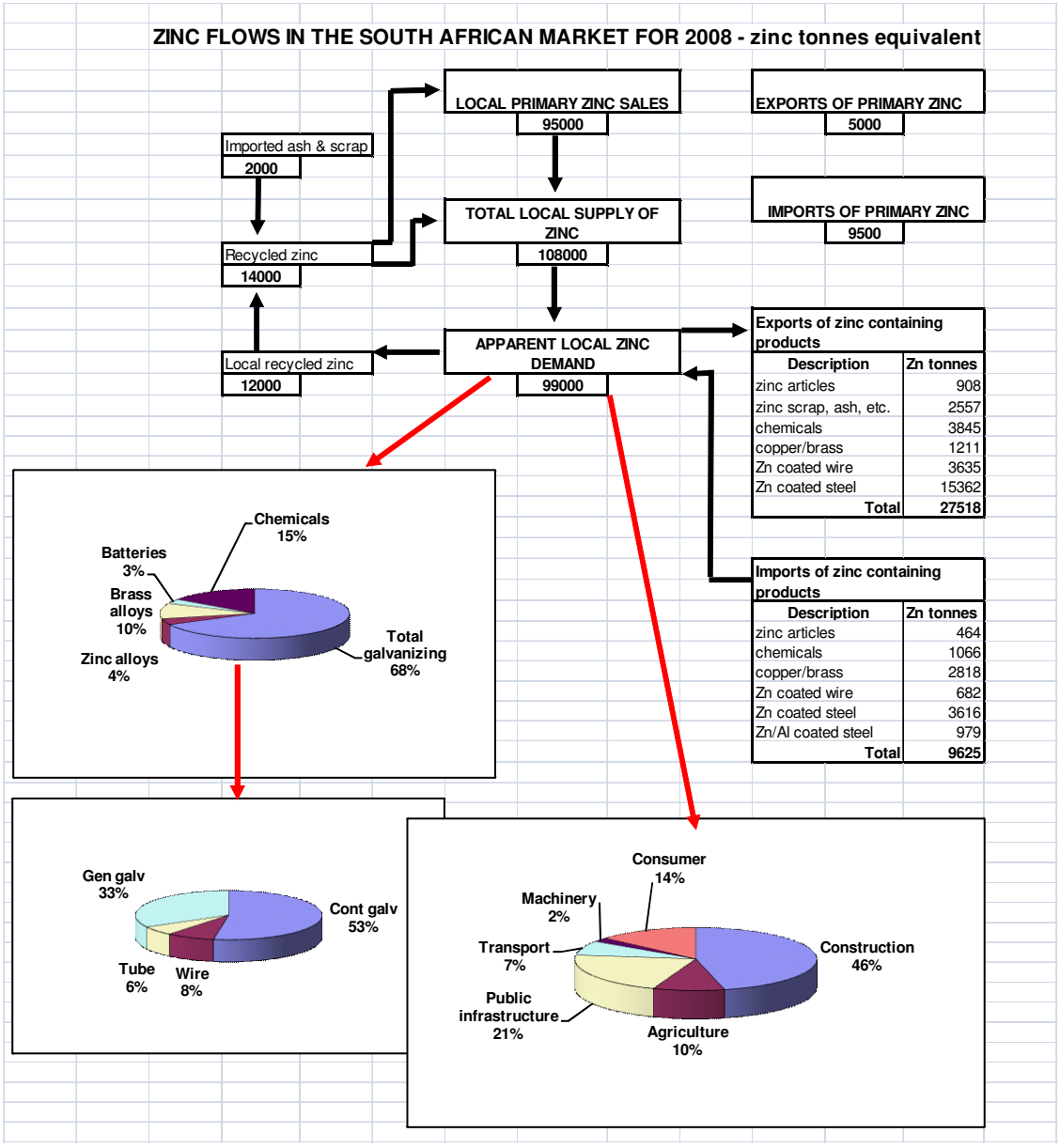
The brass industry has shown excellent growth as local demand has grown with the construction boom and due to the size of this industry, as part of the copper industry, it has managed to secure local secondary arisings. Notwithstanding this, government policy still hinders any revival of the zinc alloys die-casting industry. The National Foundry Technology Network initiative was started by government to develop the competency and competitiveness of the industry. IZASA is an active participant in this initiative in an effort to position the zinc foundry industry (chiefly die-casters) to take advantage of any change in scrap policy that could occur.

The chemicals industry has grown substantially and effort is focusing on the promotion of addition of zinc to fertilizers greater than that currently used in South Africa and promoting its use further into Africa. It is hoped that this market sector will grow into the second single market use regionally.

Although GDP growth in South Africa was negative, 2009 is showing positive, albeit small, growth. Sub-Saharan Africa, in comparison, maintained robust growth in 2008 and outside of India and China Africa shows the strongest GDP growth globally. The South African Government expenditure and mining investment indicates that the percentage of GDFI will struggle to grow to around the target 25% of GDP in the short term. Regionally, good growth in zinc consumption is estimated over the short term. Estimates indicate that although current growth rates are low, local demand will rise to around 130 000 tonnes by 2012.

Opportunities exist for the galvanizing industry in the SADC region and beyond into sub-Saharan Africa with Foreign Direct Investment figures growing significantly. With adequate promotional support, the market in sub-Saharan Africa can grow to 300 000 tpy. Growth rates are not uniform but galvanizing growth should be strong in Angola, Botswana, Namibia, Mauritius and the DRC. Zinc in agriculture applications (assuming drought conditions do not persist) is promising in Tanzania, Uganda and Mozambique as well as South Africa.

FIGURES AT A GLANCE.



Zinc Mine Production for 2008 was 11.784m tonnes, metal production 11.649m tonnes and consumption 11.485m tonnes (1.8% greater than 2007). Although demand was falling rapidly in the last quarter of 2008, real measured consumption only dropped substantially at around year-end. Thus, most capacity withdrawal took place only in 2009.

It is generally considered that the percentages allocated to First User markets were substantially similar to previous years. **Figure 1** shows the comparison with the 2008 First User market for South Africa. Galvanizing remains at 68% of the First User apparent consumption figure.

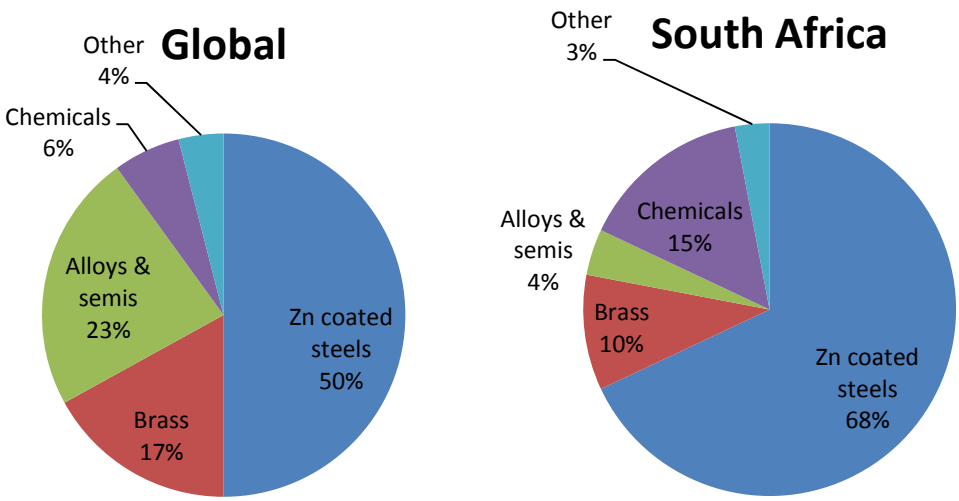


Figure1. First User market demand for zinc (Global 2005 (ILZSG), South Africa 2008)

Per capita consumption (used to indicate remaining market potential) is shown in **Figure 2** with South Africa holding on to its 2kg/capita figure.

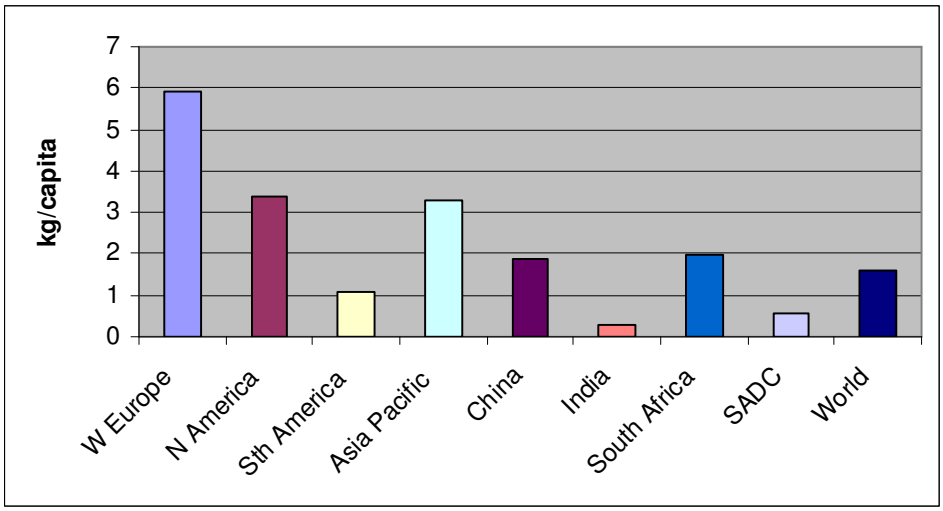


Figure 2. Zinc consumption per capita for selected countries.

The changes in First User sector breakdown since 1995 are shown overall and per use sector in **Figures 3 & 4**.

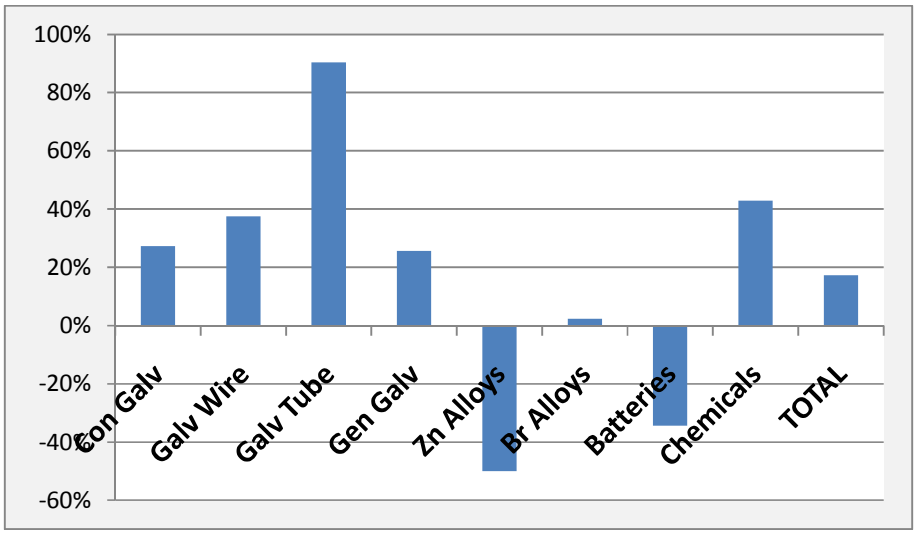


Figure 3. First User (apparent consumption) percentage changes since 1995.

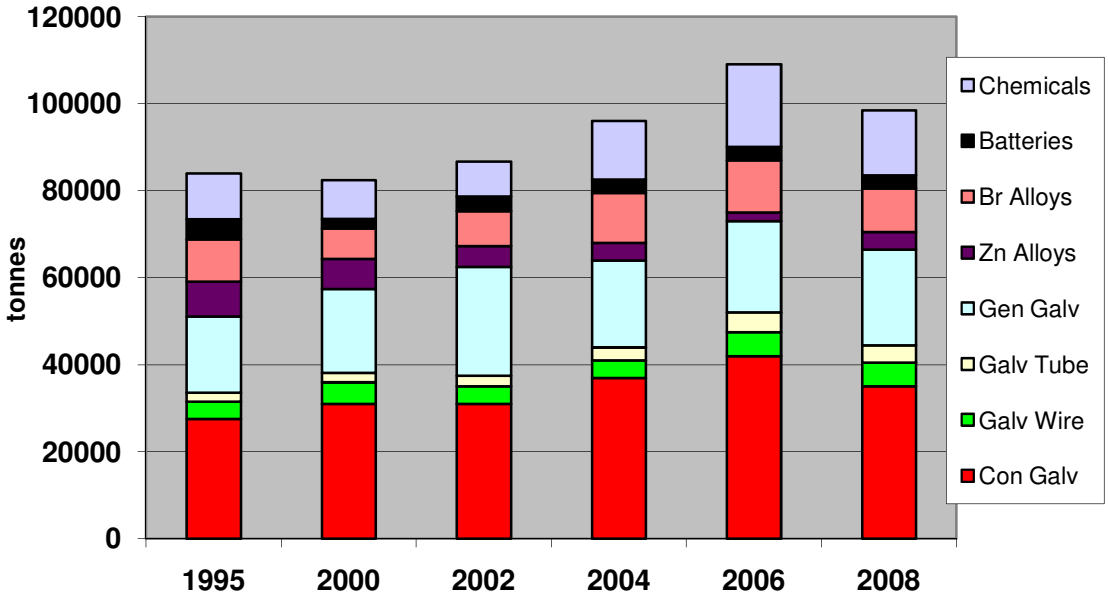


Figure 4. Estimated Final market Demand percentages since 1995

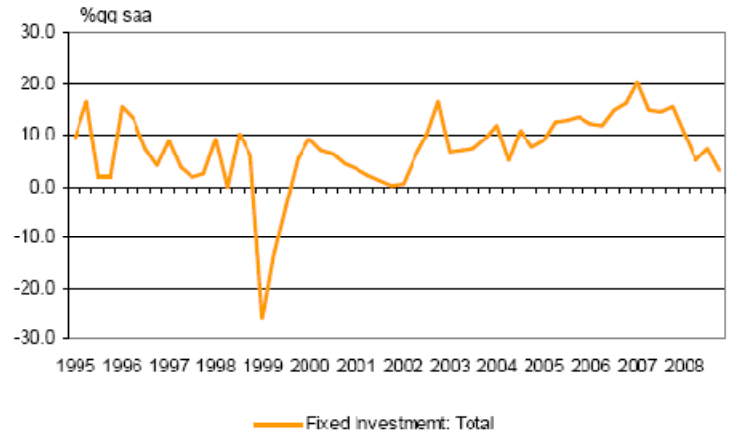
South Africa is the number 21st steel producer in the world ahead of Australia. In 2008, crude steel production was 8.2m tonnes down 10% on 2007. Local sales of finished steel were 5.415m tonnes.

Economic growth in South Africa showed a marked decline during the end of 2008. The speed of decline is clearly shown in **Table 1.**

Table 1 Monitoring the progress of the recession in SA (source FNB)

	Apr-08	Dec-08	Mar-09
Year-on-Year % change			
Passenger car sales	-7.0	-24.7	-23.4
Total vehicle sales	-2.8	-25.8	-30.1
Residential bldg plans	5.2	-23.9	
Retail sales (real)	1.9	-0.1	-5.3
Wholesale (real)	19.1	7.0	-5.9
Manufacturing output	10.5	-7.0	-11.7
Mining output	-4.7	-7.6	-4.7
Cement sales (tons/pd)	-5.3	-9.3	-10.2
Electricity prod	1.1	-10.5	-6.0
Steel output	0.6	-73.3	
Credit growth (private)	19.6	13.6	8.5
SARB leading indicator	-3.2	-13.9	
Investec PMI	54.0	40.1	36.0
RMB/BER Business confidence	48	33	27
FNB Building Confidence	66	40	28
JSE All Share average	31022	20987	20364
CPI inflation % y/y	11.1	9.5	8.5
PPI inflation % y/y	12.4	11.0	5.3
Oil price ($/b) average	109	44	45
Rand/$ average	7.75	9.94	9.93
Prime interest rate %	15.0	15.0	13.0
Employment Quarterly change '000			
(non-farm formal)			
Quarterly Labour Force Survey		98	-88.0
Quarterly Employment Survey			
- Mining	2	-11	
- Manufacturing	-3	-20	
- Construction	2	4	
- All trades	-35	34	
- financial/business	11	-8	
- other	7	0	
Private sector	-16	-3	
Public service/sector	23	26	
Total	7	23	
Quarterly % Annualised			
Hhold consumption	3.0	-2.7	
Fixed investment	10.4	3.0	
Total domestic demand	12.1	-3.9	
GDP excl agriculture	1.1	-2.2	
Total GDP	1.7	-1.8	
Formal Employment QC '000		98	
Recession?	no	yes	yes

Gross Domestic Fixed Investment underwent what was called a slow puncture. By quarter 4 2008 significant declines were occurring across the board with the exception of the overhangs in certain areas of government investment (expenditure on projects ranging from highways upgrading to stadium construction to some transport investment such as Gautrain). The latter has enabled the general galvanizing industry to weather the storm better than other sectors of the industry.



Source: SARB

Figure 5 Fixed Investment to 2008

SUPPLY, DEMAND AND PRICING

South Africa ranks 8th in the world in terms of mine reserves. These are located in Northern Cape Province (Black Mountain, Broken Hill and the Gamsberg). Regional (SADCC) sold zinc concentrate from mine production in 2008 was 125 000 tonnes. Refined primary metal output came in at around 240 000 tonnes with almost 90 000 tonnes being produced in South Africa.

During 2008, it is estimated that Africa produced just over 270 000 tonnes of refined zinc.

The Gamsberg project is still under consideration (300kt per year). Other South African projects include Letaba (4kt per year) and reopening of the Minéro Zinc's Pering mine (85kt per year of concentrate). In the rest of Africa mining activity is centered on the Tala Hamza deposit in Algeria (likely output to be 115kt in 2011) and with new developments in Burkina Faso (the Perkoa Project) and possibly Botswana (the Kihabe Project) Africa still has the potential to become a major zinc producer over the medium term.

As with other commodities, the zinc price rose significantly during the period 2006 to 2008 and suffered a significant fall following the financial crisis. At the timer of writing, prices are in the range $1850/tonne to $1900/tonne. **Figure 6** shows the Rand Dollar exchange rate and the local (base) zinc price from January 2003 until April 2009.

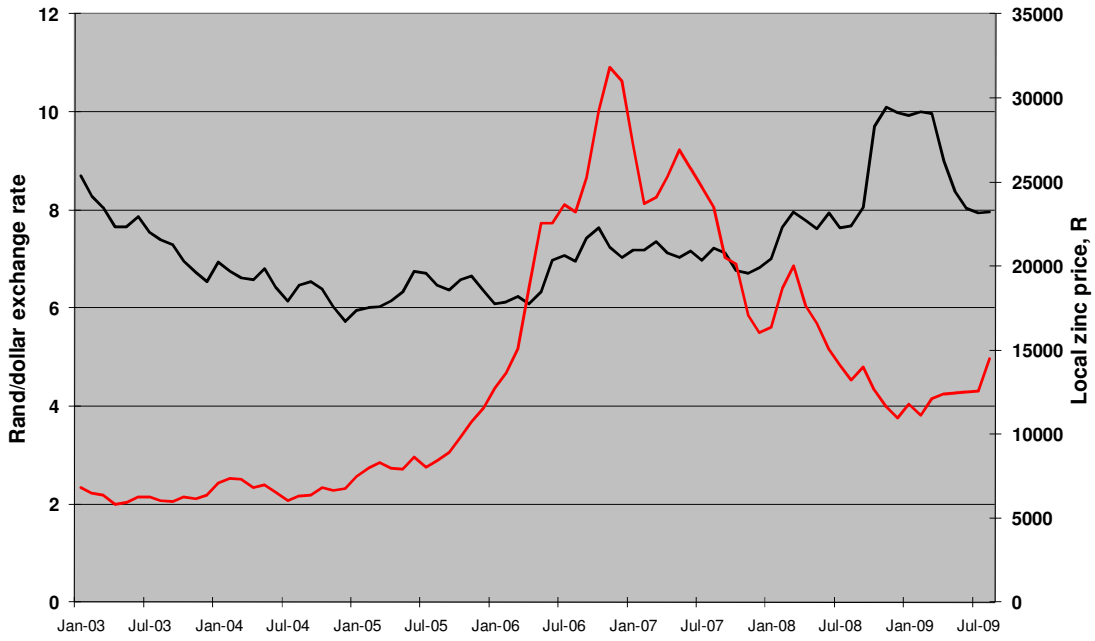


Figure 6. Rand exchange rate and local zinc price since 2003.

Capacity has been taken out globally and this may well lessen price softening. However, it is extremely difficult to predict where the price of zinc is headed.

In 2008, global zinc mine production was 5.6% up on 2007 with metal supply estimated to be 11.683m tonnes. Demand for zinc cooled significantly during the closing months of 2008. Significant increase in supply came from India and China where demand was estimated to be some 11.6% up on 2007. The Chinese zinc position reversed from 2007 with China being a net importer of over 100kt of metal.

Zinc prices have shown a significant rise during 2009 although stock situations could reverse this. Demand continues to be flat overall in North America and Europe. All told, demand rose by a meagre 1.6% in 2008 compared to 2007. However, the US market contracted by 2.6%, Japan by 3.6% and Europe by a significant 8.1%. All growth was centred in the Far East (mainly China and India). All governments are trying to restore economic growth through infrastructure spending and this should provide good long term prospects for the galvanizing industry.

MARKET OBSERVATIONS

Overall, the South African zinc industry continues to be driven by:

- Business Cycle
- Exchange rate affecting capital projects relating to mining
- Exchange rate affecting export competitiveness
- Interest rates
- Scrap exports
- Government GDFI (transport and construction)
- Building and Construction activity
- Agricultural commodity cycles

Widespread power outages, which began in the second week of January 2008, caused major disruptions throughout the economy in 1Q08 but affected output in the mining and manufacturing sectors particularly severely. The subsequent return to more stable electricity supply gave rise to the surge in output in both these sectors in 2Q08, but this was not sustained as the global financial crisis kicked in during 3Q08. Year-on-year GDP growth for 2008 was reported as -1.8%. With the galvanizing market representing over two thirds of zinc demand, infrastructure projects have somewhat shielded the zinc industry locally. Imports of finished goods continue to be of concern with the value adding sector in South Africa continuing to decline. The unfettered exporting of scrap arisings may well kill off the local die-casting and certain brass industries. The lack of government direction in terms of restrictions on scrap exports will continue to impact upon the industry (and employment).

Government spending continued apace in 2008, and represents a significant percentage of GDP although the target Fixed Investment of 25% looks unlikely now (compared with India and China). Unfortunately, performance of the auto, mining and agriculture sectors showed significant declines during 2008.

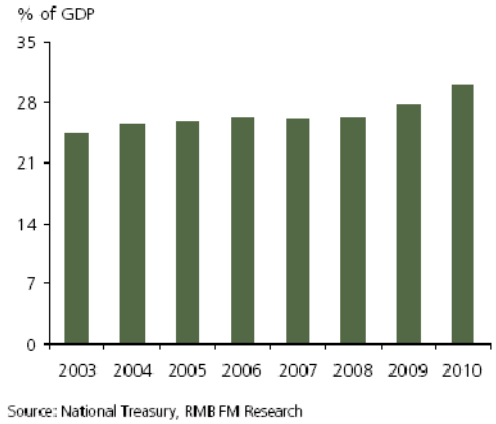


Figure 7 Total Government Spending

Continuous galvanizing.

Exports of zinc coated steel were 307 250 tonnes during 2008 with imports being 72 320.

Production of galvanized coil at Arcelor Mittal was cut considerably in the latter half of 2008 and did not improve until the second quarter of 2009. During 2008, galvanized coil production was cut to around 520 000 using three lines. As expected, new capital announcements were thin on the ground and the development of an auto-galv line to meet the expanding needs of the auto industry has been shelved.

The Duferco Steel Processing operation in Saldhana is a JV between the IDC and the Duferco Group. Its primary focus is exports and in 2008 it produced 650 000 tonnes of steel products with over 200 000 tonnes being galvanized.

The Safal Al55%/Zn line at Cato Ridge is still progressing with likely commissioning next year (2010). Installed plant capacity is: pickling: 300,000 tons/year; cold rolling: 150,000 tons/year; CGL: 150,000 tons/year (Al55%/Zn which would represent a zinc consumption of 4 000 tonnes per year.); colour coating line: 100,000 tons/year. The target market will be the roofing market. Steel will be supplied via Nippon Steel in Japan. Nippon Steel and Marubeni-Itochu Steel Inc. have around 7% each share in the company.

Major con-galv markets continue to be auto, roofing and white goods. A key market growth area is that of steel framed residential housing. With the adoption of light galvanized steel a market has developed where the goal is to have a 10% penetration of the market within the next 5 years. In 2008, some 18 000 tonnes of framing was sold with an estimate of 1 million square metres going into roofs and the equivalent of 750 000 square metres of floor space going into complete homes. This compares to a total figure of 7 000 tonnes in 2007. Thus, for 2008, despite the looming recession sales were up by over 250%!

General galvanizing

The theoretical capacity of the general galvanizing industry is estimated at 510 000 tonnes with 2008 production being around 410 000 tonnes, which is the highest figure on record for the industry. It is likely that, although 2009 saw a sharp decline at the beginning of the year, the galvanizing plants are being operated close to their considered maximum.

Although regional differences exist, the sector demand is shown in **Figure 8**. Mining industry consumption is included in the construction sector for reporting purposes but can be said to represent around 60% of this demand. As a percentage, this is significantly up on previous years. 2008 was the best year ever for the general galvanizing industry.

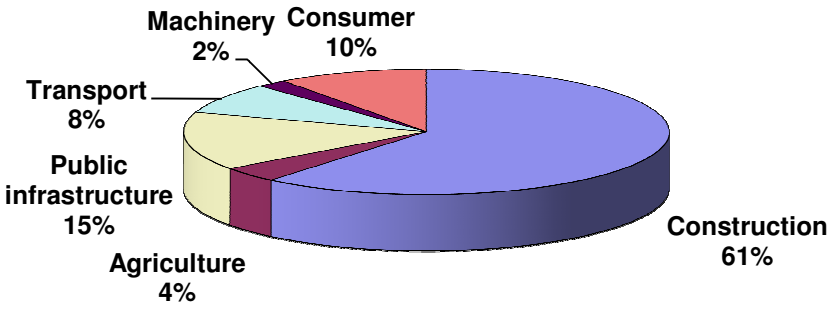


Figure 8. Market sector demand for the General Hot Dip galvanizing industry (excl wire)

Per capita consumption is often used as a benchmark. However, figures produced can be misleading as they do not take into account the wealth distribution or size (and thus infrastructure requirements) of the country. Based upon a population of 49 million the per capita consumption of general galvanizing in South Africa for 2008 was 8.1 kg/person. A comparison with other countries (for 2008) is shown in **Figure 9**.

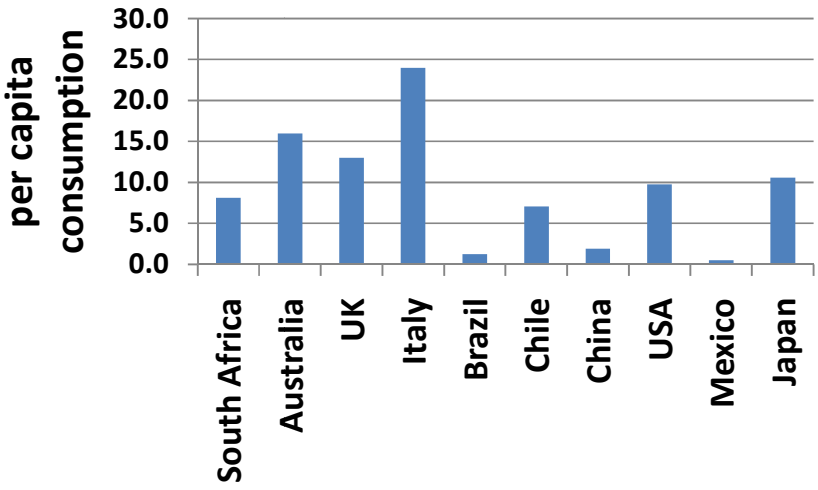


Figure 9. 2008 per capita consumption of General Galvanizing industry for selected countries

Wire galvanizing

The galvanized wire industry continues to be dominated by three major players: Consolidated Wire Industries (CWI), Cape Gate (Sharon Wire works) and the Allensmescho Group. There are 24 wire plants in total in South Africa with 29 production lines and an estimated capacity in excess of 900 000 tonnes per year. In 2008, some 73 000 tonnes of zinc coated wire was exported, some 13 500 tonnes imported. Local production is estimated to have been around 210 000 tonnes. This represents an apparent local consumption figure of 115 000 tonnes (or 5 500 tonnes zinc). Since the last reporting period, largely driven through IZASA and SAWA, the new wire standards have been adopted and local supply of Galfan wire is in place although market take-off is in the early stages.

Galvanized Tube

Pipe production in South Africa is handled chiefly by Macsteel Tube, Robor and Trident Tube. Galvanizing facilities are present on-site at Macsteel and Robor. From zinc supply, the estimated local production of galvanized tube and pipe is of the order of 72 000 tonnes. This would include significant production of irrigation and galvanized mining/industrial pipe. The local market sector was depressed during the latter half of 2008 and export opportunities were constrained by the local steel price. However, thin walled piping products designed specifically to compete with plastic pipes have shown excellent market acceptance with the 2008 figures being of the order of 800 tonnes This is some 4 x the 2007 figure. IZASA has been active in supporting the development and has produced a computer program to assist decision makers in determining the suitability of galvanized piping for a particular application.

Zinc Alloys

Although the basic market (anodes, etc.) remains stable, the market for die-casting shows continued decline. The government has established the National Foundry Technology Network (NFTN) – www.nftn.co.za to address technical and commercial issues relating to this market. The die-casting industry is part of the development process and support will be provided in the hope that the export of un-beneficiated scrap is finally addressed by government.

Brass Alloys

The brass industry has grown over the past few years despite suffering from the poor enabling environment constraining the zinc alloy business. However, imports of finished goods continue to be an issue.

Battery Industry

This industry is dominated by a single local independent producer Ever Ready based in Port Elizabeth. The company provides the majority of zinc chloride cells regionally and exports zinc callots globally.

Chemicals Industry

Zinc is used in a wide variety of chemical applications ranging from pharmaceutical applications such as ointments and creams, to nutrition supplements, to paint additives to fertilizer products. The latter are generally derived from secondary arisings, namely galvanizing wastes. IZASA has been active in supporting the need for a better regulatory framework to support the fertilizer industry. In addition, recently published data shows that the need to increase zinc usage by the South African fertilizer industry may well propel this market into the second most important market sector. In 2008, some 630 000 of NKP was sold into the South African agricultural market. Almost all the fertilizer sold contained 0.5% Zn (= 10 000 tonnes per year). An increase to 1% would require an additional 10 000 tonnes per year Zn unit consumption.

Other

For the past few years rolled zinc products have been available in South Africa. These are used primarily in architectural applications. Current demand is less than 1000tonnes per year and consumption has been primarily project focused.

MARKET PROSPECTS

Some 85% of the local zinc market is influenced either directly or indirectly by Gross Domestic Fixed Investment (GDFI). Government had wished to increase this to 25% of GDP from the current 12-14% over the next few years. Whether this will be achievable after the current crisis remains to be seen with government debt rising to 9% of GDP. Nedbank predicts the GDFI figure changes to be positive for 2009 but to decline in 2010. Notwithstanding a possible lower GDFI figure, it is clear that opportunities exist, specifically in the hot dip galvanizing industries to increase output by at best 100% but realistically double the GDP growth for the foreseeable future. Similarly, agricultural and consumer prospects are good and are also likely to at least match GDP growth figures.

Electricity supply constraints impacted severely on mining and manufacturing during 2008 and as economic recovery progresses, electricity constraints and higher prices will impact upon investments. The real impact on growth is clearly shown in **Figure 9** which also shows that the volatility in GDP has returned which, combined with swings in currency values, continues to make making business decisions extremely difficult.

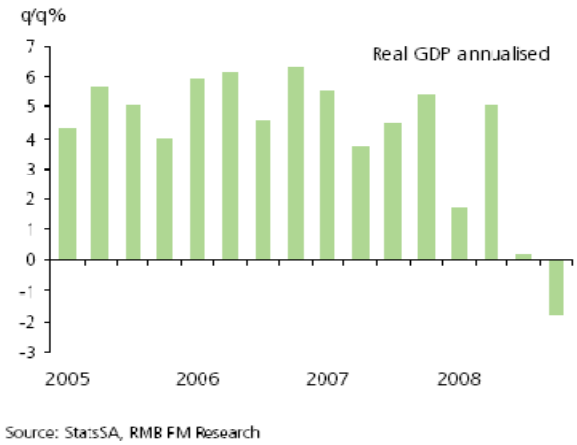


Figure 9. Real GDP growth in South Africa

One particular interesting shift in the possibilities for sustainable improvements in the SA economy relate to Foreign Direct Investment. Although lagging behind other African countries, notably Nigeria, Chinese FDI is increasing into South Africa (as shown in **Figure 10**). Whilst much of this can be attributed to the 20% stake in Standard Bank taken by the Chinese Industrial and Commercial Bank, China is establishing operations in South Africa to manage its interests in other parts of the continent (such as Angola). This will provide for opportunities for galvanizing in particular.

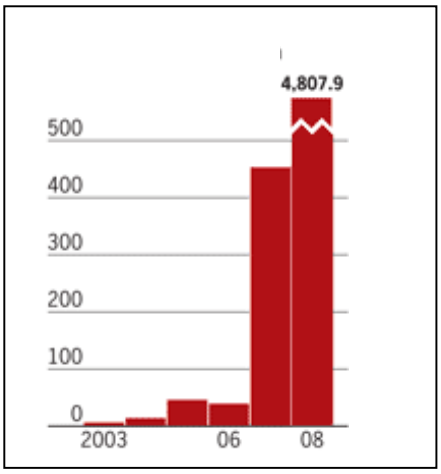


Figure 10. Chinese FDI into South Africa ($m)

Factoring in a lower GDFI number and assuming the recovery begins early 2010, an apparent demand forecast is given in **Table 2**.

Table 2. Apparent demand forecast to 2012 (zinc tonnes).

	Forecasts (low)				Forecasts (high)			
	Apparent Local Demand							
	2008	**2009**	**2010**	**2011**	**2012**	**2009**	**2010**	**2011**	**2012**
GDP growth, yoy	-1.80%	-2.20%	2.00%	3.00%	4.00%	0.50%	3.00%	4.00%	4.20%
GDFI growth, yoy	10.20%	4.30%	-1.40%	2.70%	3.90%	4.30%	-1.40%	2.70%	3.90%
Wire[1]	5500	5555	5666	5723	5780	5610	5800	5900	6000
Tube & Pipe[2]	4000	3912	3990	4110	4274	4020	4141	4306	4487
HDG[3]	25000	24450	24939	25687	26715	26075	27640	29851	32358
Congalv[4]	35000	34230	36515	44010	45770	35175	45653	51131	53279
Alloys[5]	14000	14000	14200	14506	14926	14000	14420	14997	15627
Battery[6]	3000	2934	2993	3082	3206	3015	3590	4194	4807
Chemicals[7]	15000	14670	14963	15412	16029	16800	21000	26250	28875
TOTAL	**101500**	**99751**	**103266**	**112531**	**116700**	**104695**	**122244**	**136629**	**145433**
growth yoy		**-2%**	**4%**	**9%**	**4%**	**3%**	**17%**	**12%**	**6%**
SADCC GDP growth yoy	**5.17**	**2%**	**4%**	**4%**	**4%**	**2%**	**4%**	**5%**	**5%**
Zinc Use[8]	10000	10196	10604	11028	11469	10200	10604	11134	11579
Africa GDP growth yoy	**5.17**	**2%**	**4%**	**5%**	**5%**	**2%**	**5%**	**6%**	**7%**
Zinc Use[8]	140000	142744	148268	156037	164261	142800	149881	157164	166960
TOTALS AFRICA ZINC	**251500**	**252691**	**262138**	**279596**	**292430**	**257695**	**282729**	**304927**	**323972**

Assumptions		
1	Wire industry export, exchange rate dependant	Wire could track below GDP
2	T&P exports exchange rate & steel price dep.	T&P to follow GDP
3	Expect growth to track at GDP growth	Expect growth to track GDFI growth
4	Growth limited to GDP with 2 year Safal take up	One year Safal take up and recovery to 2007 figures within 2 years
5	Zn alloys stagnant, brass grows at 50% GDP	Zn and brass grows at GDP
6	Battery growth depends upon GDP	Growth increases with GDP
7	Chemicals continues to grow at GDP+	Fertilizer use to increase
8	Assumes 90% to galvanizing (economywatch GDP figures taken as low growth scenario)	

REGIONAL OPPORTUNITIES

The 2006 report estimated that Southern African zinc consumption is of the order of 150 000 tonnes. The majority of demand remains largely driven by GDP growth and, as with South Africa, GDFI (or Government Capital Formation which is easier to measure in these countries) will largely dictate where opportunities exist. **Table 2** shows the economic indicators for the SADCC countries.

Table 2. Some selected economic data on the SADC countries

Country	**Pop. m (2005)**	**Size, square km**	**GDP (2000$m) 2005**	**Annual change in GDP (00-04)**	**Change in GDP, 2005**	**Change in GDP, 2008**	**Per capita GDP, $, 2008[4]**	**Gini Index**
Angola[1]	15.941	1,246,700	14,305	7	15.6	15.1	5054	-
Botswana[1]	1.765	582,000	6,727	6.1	3.9	2.9	7554	63
DRCongo	57.549	2,345,095	5,222	1.4	6.2	10.2	185	-
Kenya						2	838	
Lesotho	1.795	30,355	983	2.9	0.8	3.5	660	63.2
Madagascar	18.606	587,041	4,331	2.6	4.4	5	468	47.5
Malawi	12.885	118,484	1,889	1.4	1.9	10.7	313	50.3
Mauritius[1]	1.245	2,040	1,221	5.2	5.4	6.6	6872	37[2]
Mozambique[1]	19.792	799,380	5,667	7.7	7.7	6.2	477	39.6[2]
Namibia[1]	2.031	823,114	4,235	4.4	3.6	2.9	4278	70.7
South Africa[1]	47.432	1,123,26	159,738	3.6	4.9	-1.8	5685	77[3]
Swaziland	1.032	17,364	1,547	2.2	2			-
Tanzania	38.329	945,087	12,650	6.5	6.9	7.5	520	38.2
Uganda						9.5	455	
Zambia[1]	11.668	752,614	4,060	4.4	4.5	6	1248	52.6
Zimbabwe	13.010	390,759	5,959	-6.0	-7.1		268	56.8

1. countries with some industrial base
2. index dated (1990s)
3. index dated 2001
4. World Bank, 2008

It has been shown that real metals consumption growth is only achieved once GDP per capita figures of $5000 are exceeded. From **Table 2**, it is clear that only 4 SADC countries reach this figure, although Namibia comes close. The disproportionate distribution of wealth (as represented by the Gini Index) requires some circumspect interpretation of the real growth opportunities. However, this measure should be viewed with care as South Africa is now considered to have one of the worst Gini values globally but still provides opportunities for the industry. Recent visits into Africa have indicated that growth continues as the impact of the global financial crisis has had little impact upon largely cash societies in Africa. Recent investments into Africa (primarily by China to ensure energy supply in Nigeria and Angola and food from Kenya) have been shown to provide opportunities for the industry in further supporting infrastructure growth. The continued high GDP growth in Angola is worth noting.

As a whole thirty three countries in Africa have GDP growth rates that exceed 4.5% with ten countries coming close to 7% GDP growth in 2008 significantly higher than the United States, Canada, Japan, the European Union, and Latin America. Only China, India and Russia have higher growth rates.

Seventeen countries carry a budget surplus forward annually, with very few carrying an enormous debt burden – of the 25 countries providing data in only half of the countries did debt exceed 30% of GDP. Africa does not have a great debt burden currently, with the whole continent carrying approximately $300 billion in debt. Only five countries have debt in excess of $3 billion (Egypt, Morocco, South Africa, Sudan, DRC, Cote d' Ivoire and Angola), carrying in excess of 50% of the debt of the whole continent. It is because of this that the 2008 financial meltdown left Africa largely unaffected. Only in Nigeria (and for a combination of unrelated issues) has banking stress been noted. Public spending continues in line with the growth in GDP.

Galvanized products

The heavy dominance of galvanizing as a percentage of zinc demand in South Africa is reflected in the region as a whole. Infrastructure development will continue and with foreign investment in the region increasing this will continue to be a good market opportunity. FDI into Africa had a record year in 2008, with the region showing the strongest growth of all world regions. It achieved above-average growth in terms of project numbers (114%), capital investment (136%) and jobs created (101%). The 820 FDI projects that were established in Africa during 2008 represented a doubling of 2007 figures. Although Nigeria led the league table (growing by a staggering 743% on 2007 figures and accounting for 16% of total investment into Africa) regionally other countries that had notably high growth rates in capital investment were Mozambique (459%) and South Africa (173%). Likely opportunities will continue to be in the areas of:

- Electricity transmission and distribution. Access to power is a significant problem throughout Africa. However, cooperative schemes are being developed requiring massive infrastructure spend.
- Telecommunications (towers). Most African countries have 10 times the number of cells phone users than fixed line users. Growth is exploding and providing exceptional opportunities for galvanized towers.
- Water reticulation. There is enough water in Africa it is just in the wrong place. As development proceeds new reticulation systems will be established.
- General construction (and roads and rail). Huge possibilities exist. In total, Africa has approximately 80 000 kilometres of railway lines, 20 000 kilometres of which are in South Africa with 35 other African countries having 1 000 kilometres or less. Likewise Africa has 560 000 kilometres of paved roadways, 73 000 of which is in South Africa, with only 12 other African countries having more than 10 000 kilometres of paved roads and 13 having less than 1 000 kilometres. China has just signed a multi-billion dollar agreement with the Kenyan government (September 2009) to develop a port and transport corridor for access to Sudanese

oil. In addition, China is funding oil exploration in the northern region of Kenya. Similar developments are underway in Nigeria with discussions underway in Angola.

Outside of South Africa, in the SADC region only Mauritius, Mozambique, Zambia and Zimbabwe are known to have galvanizing plants. Wider afield, there are plants in Kenya, Uganda and Tanzania. Economic development in Namibia and Angola may well provide opportunities for future plant expansion. It is unlikely that a growth rate of less than 7% in galvanized steel uptake will be experienced for the foreseeable future.

The use of light gauge galvanized steel framed buildings is gaining acceptance throughout the region. This is not just good for real zinc demand but offers the advantage that a wider awareness of galvanizing regionally should spin off into greater general galvanizing demand.

Other zinc containing products

The largest opportunity for increasing zinc demand in the region lies with the adoption of zinc in fertilizers to assist with better crop yield and better crop nutrition properties.

The WHO has stated that some 800 000 deaths per year are attributable to zinc deficiency and this can be avoided. In 2008, a group of the 8 leading economists, including Nobel Laureates stated that in terms of cost-effective solutions to the world's most pressing problems (including global warming), providing zinc and vitamin A should be the first priority. Known as the Copenhagen Consensus, it showed that provision of vitamin A and zinc to 80% of the estimated 140 million undernourished children for $60m annually, provided for benefits (in terms of better health fewer deaths and increased future earnings) of over $1bn – a return of $17 per dollar spent. However, food security requires more than this. Despite a population of 850m, only 2m tpy of fertilizers (or 1.2% of the global total) is consumed in Sub-Saharan Africa (excluding South Africa). As a result depletion of all soil nutrients is at crisis level. Farmers are mining nutrients rather than enhancing food productivity. Key are the Millennium Development Goals as supported at the Abuja Conference to increase fertilizer usage from an average of 8 kg/ha to 50kg/ha. However, of real importance is the need for nutritional security rather than the Green Revolution experienced in Asia. Food quality is the prerequisite for sustainable agriculture freeing Africa from the yoke of poverty. The World Bank estimates that, given present growth trends, Africa will have a food shortage of at least 250 million tonnes of grain equivalent by 2020; moreover, the region will not have the necessary foreign exchange to import such large amounts of food or the required infrastructure of ports, roads, grain stores, distribution networks etc to overcome the food shortage.

Clearly, the focus on nutrition security will become a major force in the coming years. The need for zinc (either as a supplement or to provide sustainable food security through agriculture) will grow regionally over the short term. IZASA is now active through its trade outreach programs. To date, Zambia and Kenya have been visited and significant development opportunities identified.

The lack of access to power is a major contributor to poverty. In Malawi, it is estimated that in urban areas only 7% of the population have grid power and in the rural areas this falls to less than 1%. Even in South Africa, it is stated that there are 1.6m households that will not get electric power in the foreseeable future. Zinc Air projects which provide for a light-weight battery system with sufficient power for a month for rural households have been established in various neighbouring countries as well as South Africa.

It is anticipated that the two projects above can be tied together with the spent (pure) zinc oxide from the batteries being available for use as input material into community fertilizer use. Used as demonstration projects widespread adoption is possible through direct example and experience.

Potential zinc demand

Consumption figures for zinc in Africa are impossible to gather. However if a per capita consumption of 2kg per head was reached this would represent 350 000 tonnes of annual zinc consumption taking only those countries which show a significant industrial base. Of interest, is that this figure can be extended further since the 2006 report as agricultural use could add an additional 100 000 tonnes direct zinc use. It is clear that market potential of around 500 000 tonnes should be achievable over the long term. Growth will at least track double digits as infrastructure development continues. The wild card of fertilizer use offers a real opportunity to permit more rapid consumption growth. Assuming drought conditions do not impede agricultural productivity, the key countries would be Kenya, Tanzania and Uganda.