Promotion of Small and Medium Enterprises in the South African Chemicals Sector

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NEDLAC

Prepared by

Blueprint Strategy & Policy (Pty) Ltd

EXECUTIVE SUMMARY

Worldwide research shows that SMEs in the chemical industry are a major provider of employment, contribute significantly to the county's GDP, and are the source of most innovation and new products. It is therefore vital to the broader chemical sector that the SME component be supported.

Chemical SMEs in South Africa face a number of challenges, including high costs of capital, onerous regulatory compliance (especially in health/safety and environmental regulations), a shortage of technical skills, difficult access to international markets, an inflexible labour market and increasing competition. The capital intensive, global nature of the chemicals industry makes it difficult for SMEs to be competitive, unless high-value niche products or services are supplied.

The analysis identifies the key success factors for chemical SMEs, and shows that there are a large number of Government programmes to provide support in most of these areas. However, there is very low take-up of support services, for the following reasons:

- Lack of awareness of available support, either in terms of finance or information
- Time-consuming application process
- Frequent changes in conditions of loans
- High hurdles in terms of collateral or equity required by finance providers
- For SMMEs, the first obstacle is the lack of ability to develop an acceptable business plan, followed by lack of capital.

Surprisingly, the few SMEs that manage to successfully apply for support are satisfied with the products. This suggests that the support is adequate, but that access is difficult. It is recommended that Institutional support be rationalised and application procedures be made simpler, certain schemes targeted specifically at chemical SMEs be designed, and that a major communication drive be implemented to make SMEs aware of the resources available to them. Assistance (mentoring) in applying for support and incentives would also be helpful.

Chemical SMEs also require access to technical R&D and innovation, an area where South Africa is comparatively weak. More funding needs to be allocated to research, and the results of research need to be communicated and then made available to the industry. Suitable technology transfer mechanisms and finance schemes are necessary, and the venture capital and corporate venturing markets should be encouraged.

The research indicates that, although there is currently a shortage of experienced engineers and technologists, universities are producing new graduates in increasing numbers. Provided these graduates remain in South Africa, the effects of the brain drain should be ameliorated over the next few years. However, efforts need to be made to attract technical people to the SME sector, and not just to supply the corporate sector. An emphasis on entrepreneurship and business may be a solution.

For SMEs, access to relevant information is a major requirement. There is a therefore an important role for a Web-based industry portal to provide market, trade and product data, information and advice on regulatory issues, and to link Industry participants, including finance providers, business owners and technologists.

Finally, infrastructure is needed to assist chemical SMEs to be globally competitive. Cost-effective broadband communications, roads and rail networks are important. Apart from proximity to certain African markets, South Africa has a locational disadvantage versus its competitors. On top of this, low-cost and integrated logistics are a major source of competitive advantage for certain of our competitors, and South Africa needs to implement more trade hubs in appropriate locations. Logistics solutions to optimise costs and reduce time to market are to be encouraged.

TABLE OF CONTENTS

SECTION 1 – INTRODUCTION & BACKGROUND TO THE ANALYSIS

The Policy Environment

Need for Economic Growth

Accelerating the pace of development is crucial if Africa is to achieve the Millennium Development Goals and reduce poverty, hunger and disease. The recent Africa Economic Summit (June 2004) articulated this clearly and highlighted best practices, proposing practical solutions and provoking concerted action to act as a catalyst for change. Africa needs to accelerate the pace of economic change if the continent is to fulfil its potential (*Source: Africa Competitiveness Report 2004*). The challenge of attracting investment into Africa is highlighted by its very small share of Foreign Direct Investment (FDI), at 2-3%. Africa is significantly behind on progress towards the Millennium Development Goals.

Regional Co-Operation and Integration Arrangements

Globalisation forces the SADC to deal with the issue of how regional integration might strengthen the regional economy and prepare it for global competition.

In the past three decades a great deal of effort has been made by most sub-Saharan African countries to establish regional co-operation and integration arrangements. The sub-Saharan Africa countries are very small in economic terms, and common sense dictates that for countries with such characteristics it is economically justified to integrate their markets. (*Ramsamy, P., SADC Secretariat, 2002)*. According to Ramsamy, in the contemporary world regional integration is one of the main characteristics of the globalisation process and the SADC is committed to establishing an African Economic Community (AEC) as laid down in the Lagos Plan and the Abuja Treaty.

This undertaking is at least in part because of the very poor performance of the SADC economy. There has been a reduction in both foreign direct investment (FDI) and in official development assistance. The low level of domestic savings in the SADC cannot support the investment expenditure needed to give fresh impetus to growth (*Ramsamy, 2002*). SADC exports are only 0.9% of world exports compared to 10.3% in East and South-east Asia, and 5.3% in Latin America. Intra-regional exports in SADC are around 25% of total trade, compared with more than 40% in either the Association of South East Asian Nations (Asean) or *Mercado Commûn del Sur* (Mercosur). A regional growth rate of at least 6.8% is required in order for SADC to make a real dent in poverty, and to create gainful employment opportunities in the region.

The Southern Africa Development Community (SADC) Secretariat is therefore, inter alia, focusing on various development corridors, where the aim is to provide missing transport and communication links to facilitate appropriate trade and development, such as tourism. (*Source: P Ramsamy, SADC Secretariat 2004*). The SADC needs to have a focused approach with targeted priorities for the next 10–15 years. With its limited resources, SADC will be **focussing on sectors catalytic to deeper regional integration and fast economic growth** as fast track movers. Manufacturing has been identified as one of the catalytic

sectors able to create growth aiming at fast alleviation and eradication of poverty, trade and investment expansion, and industrial and technological take-off.

Foreign Direct Investment

Foreign Direct Investment (FDI) is a crucial component of economic growth in the SADC, because it supplements extremely low levels of domestic savings and provides substantial parts of the shortfall in capital needed to finance economic growth and development. The sub-regional integration arrangement of the SADC Trade Protocol, which aims to establish a free trade area (FTA), has played a major role in renewed interest from Foreign Investors. The SADC Finance and Investment Sector Co-ordinating Unit (FISCU), being coordinated by South Africa (established in 1995) is also contributing to renewed interest in the international business community. This unit aims to promote sound investment policies, financial harmonisation, and macroeconomic stability in the sub-region. (*Source: DPRU Industrial Strategy Project, UCT*)

The Role of Small Businesses (SMEs)

South Africa's SME sector is expected to fulfil a number of roles ranging from poverty alleviation and employment creation to international competitiveness. Not only are these very divergent policy objectives, but also the policy instruments introduced to meet these objectives can be equally different, ranging from literacy training to technological advice.

Accordingly, determining clear priority groups is urgent, be it the targeting of more efficient promotion activities towards the more productive SMMEs, or to better assist survivalist, mainly black-run endeavours.

One of the greatest difficulties confronting policy makers is how best to develop an approach to SMEs and SMMEs that achieves a sufficient degree of co-ordination between supply side effort and demand potential. Although there is the risk of investing resources in improving supply potential where demand constraints are high (e.g. low growth in demand because of regional stagnation), a major question is whether supply-side incentives have frequently been ineffective because of such demand problems or whether mis-specified supply policies/deficient service delivery are the true causes of lack of success.

It is now widely accepted that small businesses are the chief contributor to job creation worldwide, and this trend is also true of South Africa[1]. To illustrate this, the Lisbon European Council set the objective of making Europe the most competitive and dynamic knowledge-based economy in the world by 2010. Europe's competitiveness depends strongly on its small businesses, which are a key source of jobs, a breeding ground for business ideas and a main driver for entrepreneurship. For this reason, the Feira European Council endorsed the "think small first" principle as one way to progress towards the Lisbon objectives. In support of smaller businesses, the European Council places particular emphasis on boosting investment, jobs and growth through knowledge, innovation and business dynamism.

To meet this challenge requires a better business environment, including for example the lightest possible administrative and regulatory burdens on businesses and access to finance.

[1] "The Economics of SMMEs in South Africa", TIPS report Dec 2002

It also requires entrepreneurial attitudes that prompt people to transform ideas into businesses and to learn from failure. It also calls for countries to develop more positive attitudes towards entrepreneurial initiatives and risk taking.

SMEs are usually defined in terms of employment or turnover. In the EU, for instance, a SME is defined as a firm with fewer than 250 employees or annual turnover of less than ECU 40 million (approx R 300 million). See the diagram below.

DEFINITION OF A SMALL AND MEDIUM-SIZED ENTERPRISE (SME)			
Criteria	**Micro-enterprise**	**Small**	**Medium**
Number of employees	< 10	< 50	< 250
Annual turnover **Or** Total balance sheet	--- ---	< € 7 m < € 5 m	< € 40 m < € 27 m
Independence	---	No more than 25 % of the capital or voting rights held by one or more enterprises which are not themselves SMEs	

In the South African context, these thresholds are too high, and would lead to over 90% of all firms (including listed companies) being classed as SMEs. It is therefore accepted that SA businesses with annual turnover of less than R 50 million should be classed as SMEs.

Analysis of employment statistics show that large companies are shedding jobs even as their businesses expand – the phenomenon of "jobless growth". This is usually as a result of introduction of technologies that increase productivity, as well as economies of scale.

Outsourcing of non-core functions also leads to companies reducing head-counts; however, this creates numbers of small service companies, which then show a proportionate increase in employment.

Smaller businesses have a number of advantages over large companies, eg:

- They are nimble and can move quickly to seize opportunities
- They are less bureaucratic
- Most time is spent on activities that are directly client-related
- They are more innovative

At the same time, there are also a number of problem areas faced by all smaller enterprises:

- Lack of access to finance (especially start-up capital)
- Registration processes are often bureaucratic and time-consuming
- Legislative and regulatory compliance costs proportionately more
- Lack of ability to access R&D and latest technology
- Disproportionate dependence on labour regulations

SMEs operating in the chemicals sector are a sub-set of the SME universe, and therefore have the same general characteristics as other SMEs. However, in addition to these, there are certain specific areas of differentiation, which are discussed in detail in Section 8 below.

SECTION 2 – BRIEF AND SCOPE OF THE STUDY

In preparation for the 2005 Chemicals Sector Summit, the FRIDGE sub-committee has commissioned research to provide information on existing incentives applicable to the chemical sector and support mechanisms that are applicable to the chemicals sector. The aim is to assess the existing take-up of these incentives and support mechanisms and to identify any areas of weakness, where additional or different support may be required.

This section of the study is focused on measures that will enable the promotion of small, medium and micro enterprises (SMME's) in the chemical sector.

The SMME sector has particular opportunities and problems, and these require analysis in the context of the wider chemicals industry. Specifically, the use of existing support measures requires definition, as well as suggestions of new interventions that would encourage the entry of new SMME firms into the Chemicals sector.

SECTION 3 - RESEARCH METHODOLOGY

Overview of the Approach and results of this Study

It was initially proposed to conduct the study using a combination of desk research and interviews across all sub-sectors of the chemical industry, Government and support institutions. However, the scope was subsequently reduced and it was agreed that only secondary (published) research would be used. However, Blueprint fully understands the need for the study to stand up to rigorous scrutiny and is aware that the review has to be seen as valid and reliable by all stakeholders.

The analysis of support measures available to and used by SMEs in the chemical sector (both in South Africa and internationally) was therefore based primarily on desk research. This was, however, supported by a questionnaire (done jointly with Kaiser Associates) to obtain figures on support extended to the chemical sector by the Institutions tasked with this function. Also, interviews were held with certain institutional players, to obtain direct input as to their services offered to this sector, and their views on uptake of these services.

During the study, very few of the Institutions responded to the questionnaire. Follow-up calls also elicited no response. However, from the responses received, it appears that only very few SMEs in the Chemical sector apply for assistance, and the major form of financial assistance received is loan finance from Business Partners. There is also a certain amount of assistance given by incubators such as Chemin and Manufacturing assistance by Namac.

There are many possible avenues of support for SMEs in the chemical industry, ranging from direct measures such as low-interest loans and subsidies for exporters, to high-level policy interventions such as import protection, or enhancement of skills. At a regional level, improvement of infrastructure may be an imperative.

To provide a logical framework, this report follows three streams:

1. The industry analysis indicates that South African SMEs should follow niche strategies. To support this, an analysis of sub-sectors that hold the most promise and opportunity for SMEs from a technical and economic competitiveness perspective was performed. Policy measures to support these niche areas are necessary.
2. Policy required to create an enabling environment for all SMEs, and with specific focus on chemical SMEs. This includes an analysis of support measures available, both locally and internationally, and identifies gaps or enhancements that would prove useful.
3. Sector/Business level initiatives required to support SME firms in the sector.

SECTION 4 – THE CHEMICALS INDUSTRY: DEFINITION & SECTOR CONTEXT

To allow analysis of the opportunities, strengths and constraints for firms in the chemical sector, it is first necessary to clearly define the industry, its trends and the competitive environment. The review below provides the background that is used in the strategic analysis that follows.

Definition of the Chemicals Sector

The Chemicals Industry can be segmented in terms of SIC classifications as follows:

- 33100 Coke Oven Products
- 33200 Petroleum & Nuclear Fuels
- 33400 Basic Chemicals
- 33500 Other Chemicals
- 33700 Rubber Products
- 33800 Plastic Products

Of particular interest for this section of the study is the Other Chemicals segment, including the following sub-sectors:

- 33510 Pesticides and agrochemicals
- 33520 Paints, varnishes, printing inks and mastics
- 33530 Pharmaceuticals and medicines
- 33540 Soaps, detergents, polishes & waxes
- 33599 Other chemicals

However, owing to the widely different and changing uses of chemicals, they do not always fall logically into one of the SIC classifications, and it is often considered more useful to segment them in other ways. To explain these classifications and a workable grasp of the Chemicals Industry, a detailed overview of chemicals manufacturing and definitions is provided in Appendix 1.

The report that follows uses the SIC classification shown above for data gathering and trending. However, please note that many individual products may fall into multiple classifications, as explained.

Focus on Small and Medium Enterprises

Any list of chemical products and services that can be manufactured or provided is long. However, with a specific focus on SMMEs, many of these possibilities are unrealistic, eg it is unlikely that SMME firms will have the resources to enter sub-sectors such as Petroleum, Basic Chemicals and other commodities, which are driven by high volumes and heavy capital requirements.

In terms of manufacture, the Other Chemicals sector (SIC 3350) is considered most appropriate for SMMEs, ie

- 33510 Pesticides and Agrochemicals
- 33520 Paints, varnishes, coatings, printing ink and mastics
- 33530 Pharmaceuticals, medicinal chemicals and botanical products
- 33541 Soap and other cleaning chemicals
- 33542 Perfumes, cosmetics and other toilet preparations
- 33549 Other – polishes, waxes and dressings
- 33590 Not elsewhere classified (explosives being the major component)

The Other Chemicals sub-sector includes the broader definition of fine chemicals (see Appendix). In Europe, the majority of fine chemicals producers are small and medium-sized enterprises and the sector has annual sales of about €30 billion (5% of the total chemicals industry).

In addition to this sub-sector, activities such as Plastics and Rubber Conversion, and certain bulk formulated products may be opportunities, eg niche fertilisers.

Not included in the Manufacturing category, but of high significance to the chemicals industry, the Services sector is an area of major opportunity for SMMEs. Capital requirements are relatively low, and employment potential is high. Success depends on technical competence and market access. Services would include activities such as

- Import of chemicals, warehousing and distribution
- Provision of technical services, eg consulting, analytical services, engineering
- Application of chemicals, eg painting & coatings, concrete rehabilitation, water treatment
- Waste disposal
- Packaging

SECTION 5 – TRENDS IN THE CHEMICAL INDUSTRY

In order to develop strategies for chemical SMEs in South Africa, it is necessary to understand the trends driving shifts in the global industry. A discussion of the history and predicted trends is given below.

The chemical industry has been and is being transformed by major shifts in the nature of product orientation and production capability, as well as the relocation of production plant and opening of new consumer markets. Many of the existing chemical manufacturing plants are coming to the end of their economically viable life but are, nonetheless, often used when conditions are appropriate. New investment is, however, not taking place to the same extent as before in the developed world, and China, Malaysia, India and Eastern Europe are being seen as alternative and often desirable locations for plant. While demand for the Chemical producers' products is stable in the developed world, China and India are experiencing a massive expansion, resulting in substantially increased demand for consumer products, most of which require chemicals in manufacture. As a result, many new plants are being erected in the regions along the Chinese coast. With certain chemical commodities, the cost of transport exceeds the cost of manufacture, and proximity to sources of input materials and the market is the over-riding competitive advantage.

Prior to 1850, chemical manufacturing was small-scale, fragmented, and largely focused on local and regional markets. A first wave of chemical process and product innovations began around 1850 and lasted some 60 years. This period witnessed the rapid application of chemistry to industrial endeavours and the expansion of chemical knowledge. Older industries such as textiles and paper were transformed by chemistry and after the turn of the century, emerging industries such as aluminium and oil refining were also revolutionized by new developments in chemicals.

A second wave of chemical process and product innovations began in 1930 and ended in the 1960s. Its foundations lay in innovations in organic chemistry, but can be summarized in one word – petrochemicals. This wave was aided in the 1940s as the war effort led to the development of synthetic rubber, thermoplastic resins, man-made fibres and a myriad of other petrochemicals. Plastics and synthetic materials supplanted wood, paper, metal and glass in thousands of applications.

Two oil price shocks occurring in the wake of a period of economic difficulties running from 1974 to 1982 caused the chemical industry to cut costs, shed old capacity, and re-position businesses to a more high-tech, value-added specialty focus. The results of the industry's makeover have led to a reduction in costs and overhead. Although capacity coming on-stream led to a fall in overall capacity utilization during 1997-1999, industry profits were high.

Scientific discoveries in the 1960s are leading to a third wave of chemical process and product innovations. During the next several decades, the growing importance of life- or bio-sciences will engender a slow but increasing shift toward biological raw materials and processes. As a technology platform, biotechnology has already captured nearly 15 percent of life sciences and bio-science innovations are now beginning to diffuse into basic chemicals.

This can only grow in the future and growth will be aided further as life sciences, the primary focus of these innovations, will be the fastest growing market. With advantages in raw materials costs and other process economics, as well as new product features that can be branded, biotechnology will play an increasing role during the next decade.

The First Wave 1850 - 1910	The Second Wave 1935 - 1965	The Third Wave 1990 - 2020?
Electrolysis, Synthesis, Solvay process, etc.	Ziegler Catalyst, High Pressure Reactions, etc.	Biotechnology, Membrane, Separations, Green Chemistry, nanotechnology.
Inorganics, Fertilizers, Dyes	Petrochemicals & Specialties	Life Sciences and Specialties
Coal & Mineral-based resources	Hydrocarbons (Oil and Natural Gas	Microbes?
Soda Ash, Sulfuric Acid, Ammonium Nitrate, Rayon, Celluloid, Aspirin, Dyes, etc.	Polyethylene, PVC, Polypropylene, Nylon, Polyester, Other Polymers, SBR, Catalysts, Penicillin/ Other Antibiotics, Pesticides, etc.	New Functional Materials, Bio-Pharmaceuticals, Nutritional Supplements, Genetically-Modified Seeds, Biocatalysts, etc

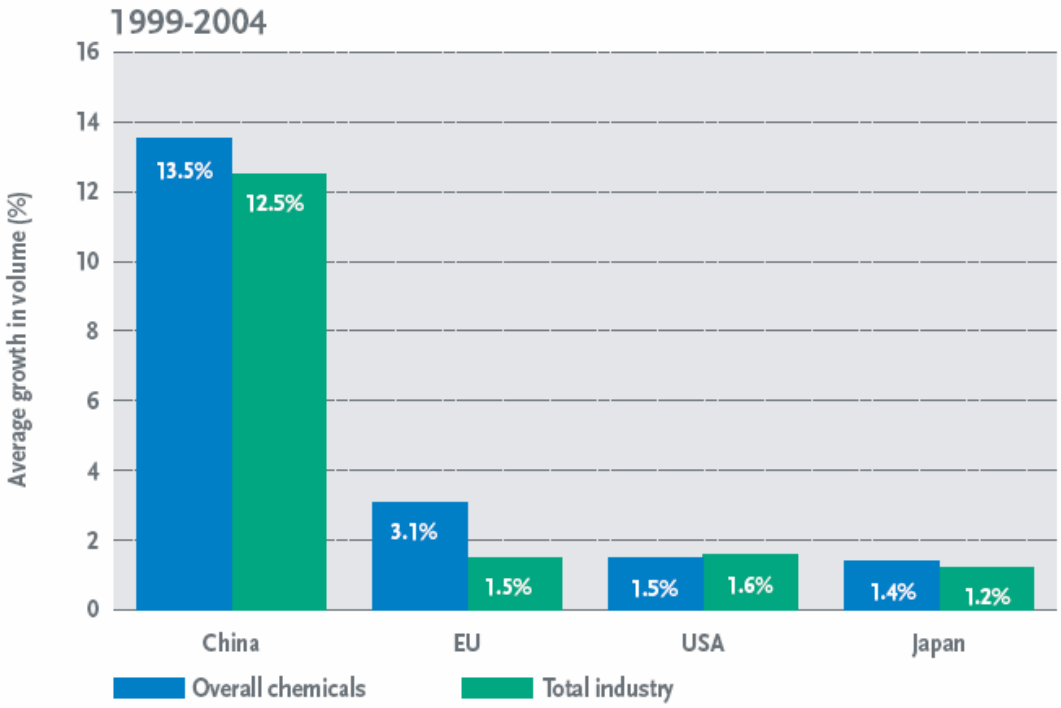
The business of chemicals is becoming increasingly specialised. If the foreseen trends in the migration of manufacturing (for commodities and many specialities) to Asia actually come to pass[2], this will substantially change chemical trade flows from the current picture.

Over the last decade, growth in chemicals sales has generally followed national GDP.

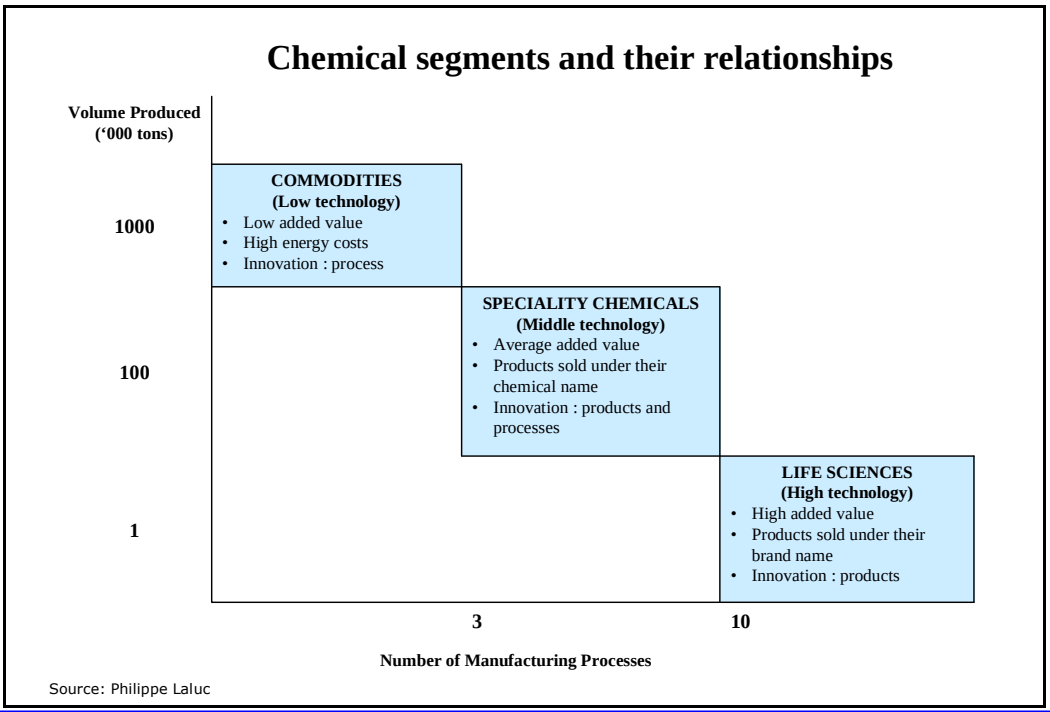
However, average growth in production shows a shift to developing countries (see graph below). This trend is mostly as a result of lower cost factors in developing countries, as well as less stringent regulatory controls and moves to environmental improvement in the developed countries. In general, many First Wave or smokestack industries have moved to developing countries, while more high-tech, cleaner production has taken its place in developed economies.

(However, certain previously developing countries (eg Singapore and Korea) are rapidly moving into high-tech production, and will be challenging the old order in years to come. This trend has been recognised by both the EU and USA, with strategies being developed to strengthen their innovation capacity and counter loss of industries).

2 At this time, major investment is being made in North East and South East Asia. In South East Asia, it is centred in Malaysia and Singapore. In China, it is focused upon Dalien in the North, Shanghai, and in the South, the Pearl River delta and ShenZhen.



Developed countries with deep resources of skilled people (researchers, managers, engineers, financiers etc) have moved into development and production of second and third wave chemicals. These products are extremely high value, performance driven materials.

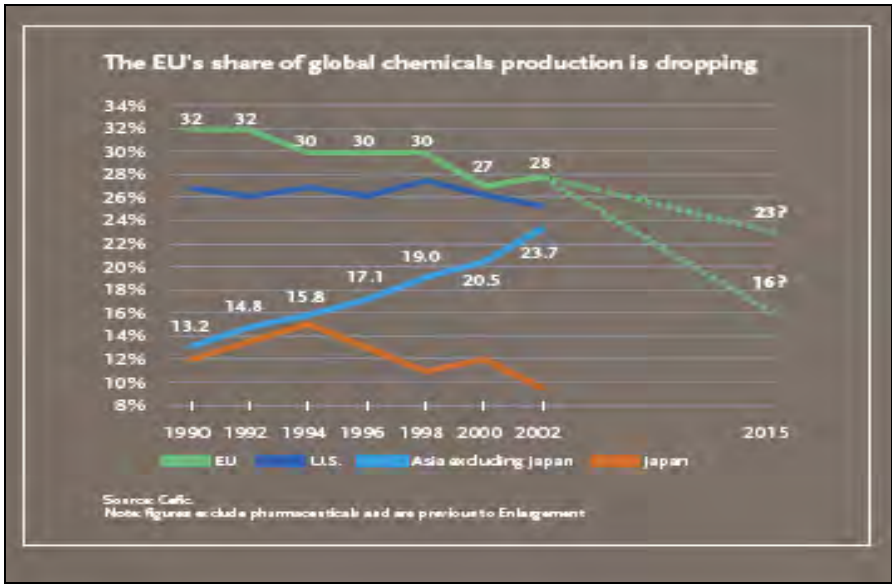


Value added in the chemical life-cycle

	Commodities	Specialities	Life Sciences
Typical product price / kg	< $ 1.00	> $ 2.00	> $ 20.00
Long term growth prospects	0.5 - 0.7 x GDP	0.8 - 3.0 x GDP	1.5 - 6.0 x GDP
Long term trend in real prices (% per year)	- 1.3%	0%	+1.3%
Economic return on capital	3.0%	4.5%	12.5%

The table shows that moving along the chemical life cycle from commodities to 3rd wave products adds very large value. Also, growth rates for these products are outperforming commodities and return on investment is expected to be far superior. Provided a country or region can access the necessary human resources and development facilities, these products are highly attractive.

Supporting the trend analysis above, the European Chemical Industry has issued a report which outlines the challenges, threats and actions required[3]. In short, certain of the key trends have severe impact on the industry in the EU – for an example, see the graph below. Many of the results of the EU analysis have relevance to South Africa.



[3] The full report can be found on www.cefic.org/horizon2015

SECTION 6 - GLOBAL, NATIONAL & REGIONAL CONTEXT

The Chemicals sector is a truly global industry, and the analysis of the Chemicals sector must of necessity include a review of the global chemical industry. Almost all chemical manufacturing activity in South Africa is affected by global strategies, players, trends, economics and politics.

The Global Context

The global chemicals industry is one of the most significant industries, producing a multitude of products satisfying a vast range of needs in widely varying markets. The industry generates a healthy proportion of GDP in most countries and is usually one of the biggest providers of employment.

Globally, chemical production is linked with the consumption level of the economic middle class. Chemical products are, inter alia, the basic input for apparel, electrical appliances, and the automotive industries. The main industries using products from chemical industry are:

- wood and furniture
- electronics, house appliances
- transport equipment,
- rubber and plastics
- building
- textiles
- pharmacy
- food processing
- fertilizers
- printing and paper
- final consumption

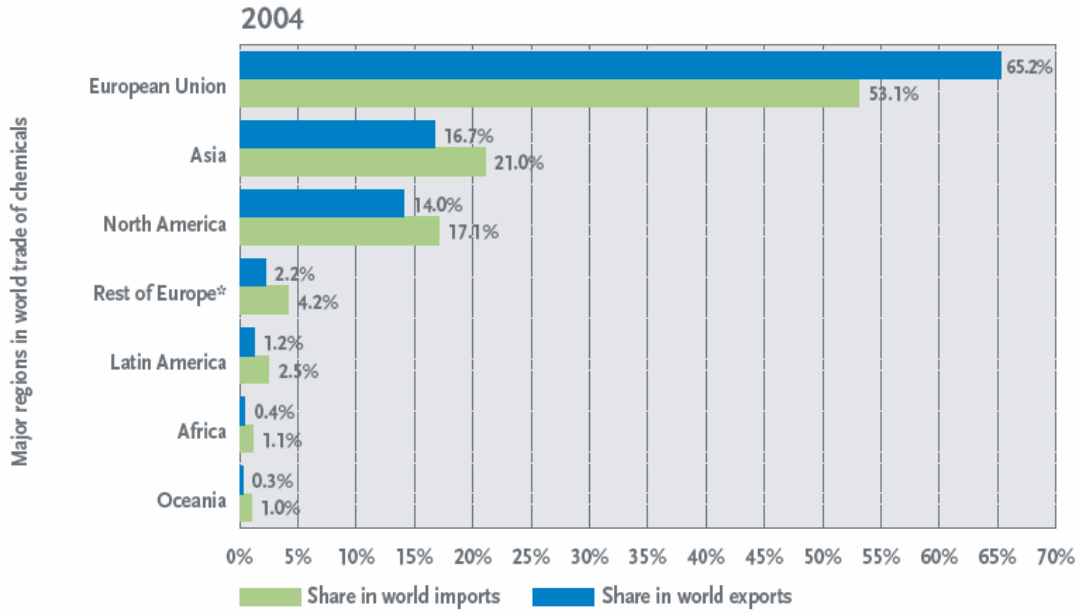
There is virtually no consumer product which is not dependent on the chemical industry for raw material input.

Trade in Global Chemicals

Chemicals are widely traded, as shown below

Region	Share of world imports	Share of world exports
European Union	44,6	53,9
Asia	20,1	16,0
North America	15,4	16,3
Rest of Europe	7,7	7,8
Latin America	6,7	2,8
Africa	2,3	0,9
Oceania	1,6	0,8

Source: WTO ITS (International trade statistics) Report 2002

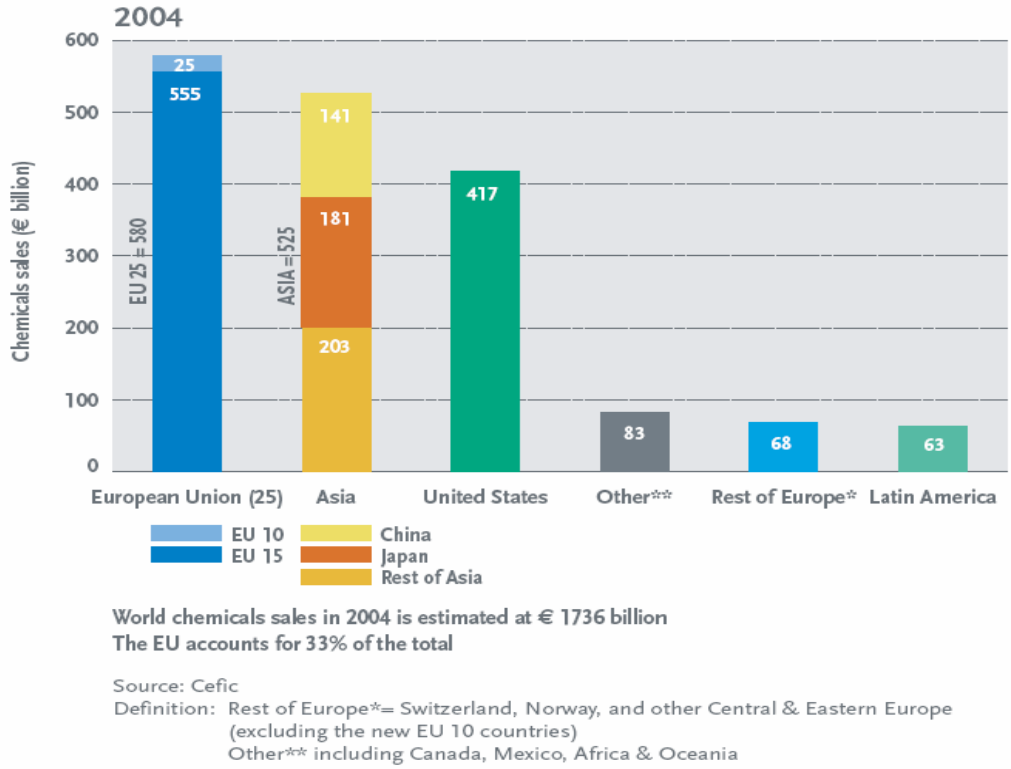


Value of the Global Chemical Industry

Global chemicals production in 2004 was € 1736 billion.

Region	Sales (€ billion)	% of World
European Union	580	33,4
Asia	525	30,2
North America	417	24,0
Rest of Europe	68	3,9
Latin America	63	3,6
Others (Includes Africa)	83	4,8

Source: Cefic, National Chemicals Federations, United Nations, ACC



Global Firms

The chemical industry consists of hundreds of thousands of firms operating in almost every country of the World. However, many sectors of the industry are dominated by a few global players. There is continual consolidation to attain global competitiveness, and a number of very large organisations have resulted from this activity. See table below.

Rank	Company	Sector	Base	2003 Sales (US$ millions)
1	BASF	All sectors	European Union	37500
2	Dow Chemical	Chemicals	USA	32500
3	Bayer	Pharmaceuticals	European Union	32400
4	Du Pont	Chemicals	USA	27400
5	Shell	Petrochem	European Union	21500
6	ExxonMobil	Petrochem	USA	20000
7	Atofina	Petrochem	European Union	20000
8	Mitsubishi	Chemicals	Japan	16700

9	BP	Petrochem	European Union	16000
10	Akzo Nobel	Chemicals	European Union	14800
11	Degussa	Pharmaceuticals	European Union	13000
12	Sabic		Other	12500
13	Asahi Kesai	Chemicals	Japan	11100
14	Sumitomo Chemical	Chemicals	Japan	10000
15	Sinopec	Chemicals	Other	9900
16	ICI	Chemicals	European Union	9000
17	Air Liquide	Chemicals/Gases	European Union	9000
18	Huntsman	Chemicals		8800
19	Mitsui Chemical	Chemicals	Japan	8700
20	Solvay	Chemicals	European Union	7800
21	DIC	Chemicals	Japan	7700

Source: Cefic review 2004

It should be noted that this ranking changes rapidly with time, owing to mergers and market factors, such as the recent rapid increase in the oil price.

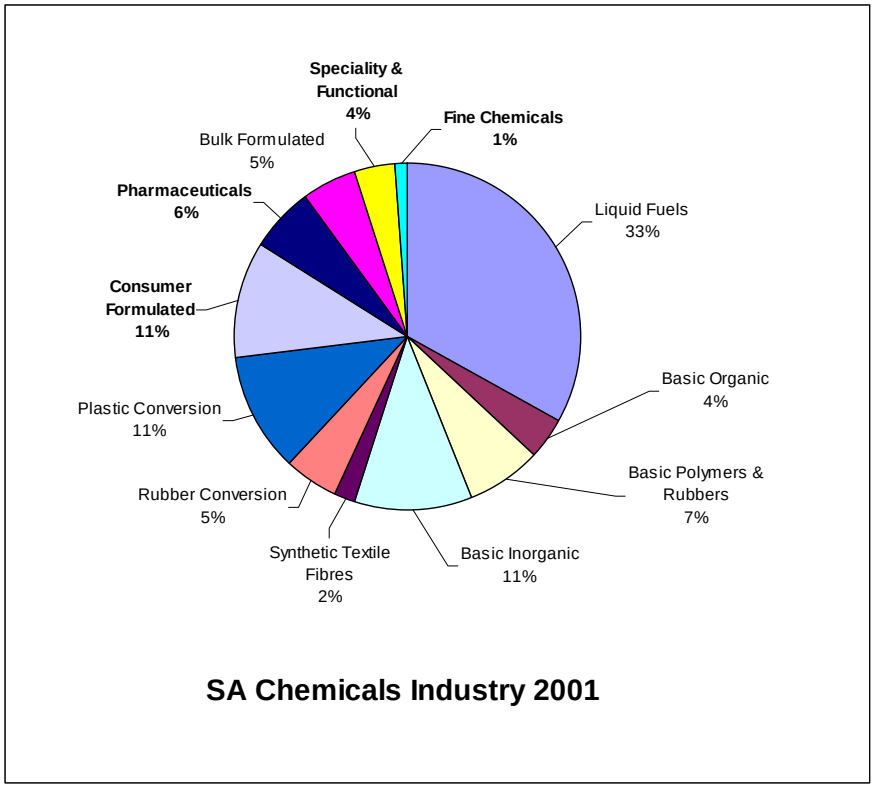
To put South Africa into perspective as a global chemical supplier, below are SA's largest domestic chemical producers:

Rank	Company	Sector	2001 Sales (US$ million)
Approx 200	SASOL	Petrochem	5900
??	Chemserve	Speciality	300
???	African Explosives	Explosives	114

THE SOUTH AFRICAN CHEMICALS INDUSTRY

Value of the industry

The South African Chemicals industry produced chemicals to the value of R160,7 billion in 2004, up from R138 billion in 2001[4]. This was 5,5 % of South Africa's GDP and made up approximately 25 % of its manufactured exports. The industry employed 200,000 people in 2003.



Sectoral breakdown of the Chemicals Industry
Source: TISA/DTI

South African Import/Export Performance

The competitiveness of the South African chemical industry has been steadily improving, as evidenced by the narrowing trade deficit. This is due to closure of uneconomic operations, consolidation of firms, relocation and focus on areas of global competitive advantage (eg poly-olefins and polypropylene). The sharp depreciation of the Rand also contributed to competitiveness of exports – but this trend has stabilised with the current currency strength.

[4] StatsSA

Product Group	Exports (R millions)	Imports (R millions)	Trade Balance
Inorganic chemicals	5,026,640	3,825,900	1,200,740
Organic chemicals	3,067,964	5,218,497	(2,150,533)
Fertilisers	1,075,910	808,105	267,805
Pharmaceuticals	527,660	5,381,124	(4,853,464)
Dyes, pigments, tanning	763,805	1,649,314	(895,509)
Essential oils, toiletries & perfumes	664,784	1,1142,126	(447,342)
Soap & washing powders	586,501	648,107	(61,606)
Explosives & pyrotechnics	256,979	135,099	121,698
Photographic materials	84,352	651,630	(567,278)
Miscellaneous chemical products	2,202,140	3,410,149	(1,208,009)
Enzymes & starches	107,194	537,292	(430,098)
Plastics & articles thereof	2,541,988	4,759,200	(2,217,212)
Rubber & articles thereof	1,314,104	2,500,237	(1,186,133)
Zinc & articles thereof	214,871	47,253	167,618

(Source: TISA, SA Trade Statistics 2001)

It can be seen from the above that South Africa has a negative trade balance in all sub-sectors making up the Other Chemicals sector, with the exception of Explosives. However, plastics exports have increased with the commissioning of Sasol's polypropylene plants, so the trade balance has shifted in the country's favour. On balance, South Africa imports most of its chemical inputs.

R&D Spending

A key element of any country's (or region's) attempted move into second and third wave chemicals is research and development. The world chemicals industry consistently spends between 4% and 5% of revenue on R&D activities:

Year	EU	USA	Japan	SA
1994	4,5	5,4	5,3	
1995	4,3	5,4	5,3	
1996	4,6	5,8	5,2	
1997	4,8	6,1	5,4	
1998	5,0	6,5	5,7	
1999	4,9	6,8	5,8	2,5
2000	4,8	6,8	5,7	2,8
2001	4,9	6,9	5,8	3,0

Source: National Chemical Federations, Cefic, ITC, FRD
(includes pharmaceuticals)

However, although there are individual exceptions, surveys have shown that South African firms consistently spend a lower fraction of revenue on R&D – this is of concern in the longer term, and has been recognised by the Department of Science & Technology (DST).

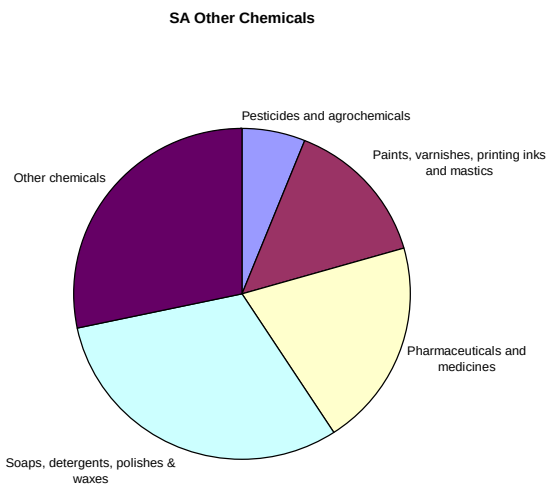
However, the Pharmaceutical sector review indicates that South African companies spend a larger proportion of Sales on research (approximately R 500 million, or 7%). This is only slightly lower than International norms in this industry.

The South African Other Chemicals Sector

Value

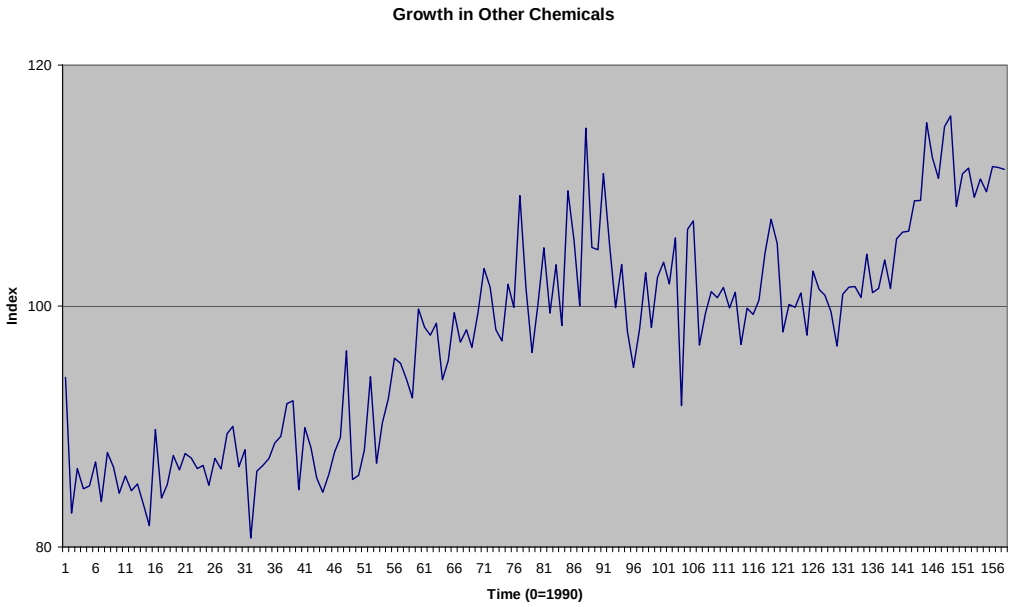
Of particular interest for the SME sector are the size and trends in the Other Chemicals sub-sector. In 2001, the SA Other Chemicals sector was worth R 35,43 billion, made up of

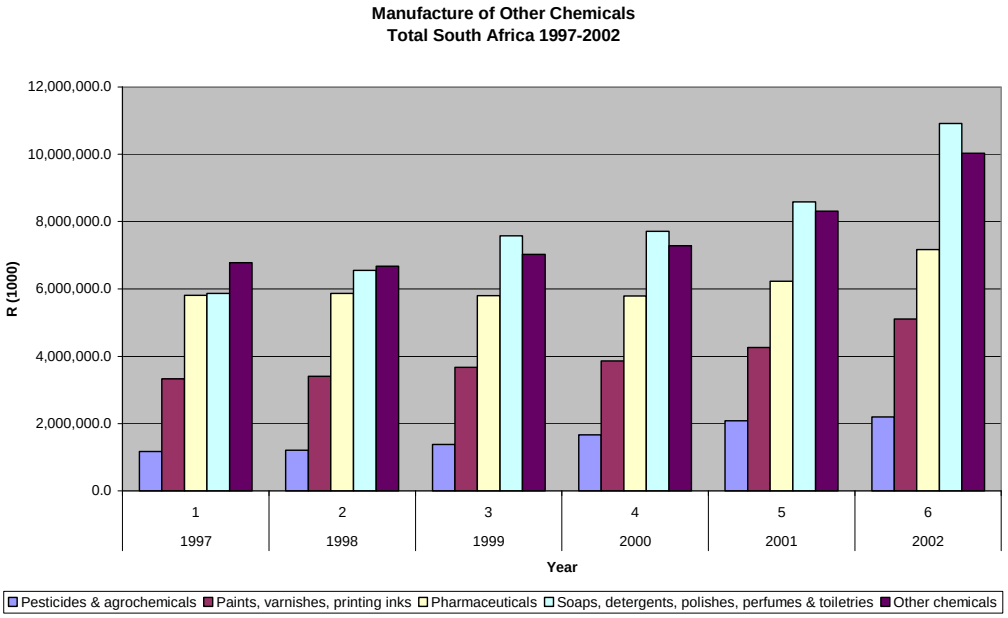
SIC code	Description	Output
33510	Pesticides and agrochemicals	R 2,199 bn
33520	Paints, varnishes, printing inks & mastics	R 5,112 bn
33530	Pharmaceuticals and medicines	R 7,171 bn
33540	Soaps, detergents, polishes & waxes	R 10,914 bn
33599	Other chemicals	R 10,030 bn
33500	Total	R 35,43 bn



Growth

The graph below shows the strong growth experienced in the Other Chemicals sector, especially over the last 2-3 years. 5-year nominal growth from 1997 to 2002 for the sector was 9,8%, but this has accelerated to over 20% since 2000.





Source: Stats SA

All the sub-sectors are growing strongly, with Agrochemicals showing a particularly high rate of 14,9 % since 1997. Sectors showing strong growth in 2001/2002 are Paints, pigments and inks at 20,1% and Soaps, detergents & cosmetics at 27,2%.

Overview of key sub-sectors

As the Other Chemicals sub-sectors have widely varying characteristics, each of the major sub-sectors of the Other Chemicals sector is discussed below.

Pesticides & agrochemicals

This sector covers a very wide range of products, ranging from animal and plant pesticides, herbicides and fumigants, insecticides, fungicides, growth regulators, adjuvants (eg wetting agents), animal health care, trace elements and specialised fertilisers.

The output of this sector in 2001 was R 2,119 billion.

Most of these products are designed for very focused application, and a large degree of technical know-how is required in companies producing and selling these products. Most of these products are developed by multinational chemical companies and are imported into South Africa. However, there is a fair degree of local R&D activity in this field, concentrating on local agricultural products and conditions. Research is conducted by the University of Pretoria, Wits and Onderstepoort, amongst others. Also, local companies have acquired the applications know-how and are able to add value by assessing needs and designing applications.

Paints, varnishes , printing inks & Mastics

The value of this sector was R 5,112 billion in 2001. Of this total, about R 4 billion was paint (300 million litres), with the remainder being printing inks, sealants and adhesives.

There are about 150 paint producers in South Africa, of which 90 are in Gauteng. This can be compared with continental Europe, which has a total of 90 producers in all countries, and Australia with 20 producers. The disproportionately large number of manufacturers is caused by factors such as

- Simple technology
- Low skills requirement
- Cheap equipment
- Availability of labour
- Price-sensitivity of consumers, especially contractors
- Lack of quality consciousness
- Lack of regulatory enforcement

This oversupply of manufacturers causes cut-throat competition, single-shift operation and ultimately low profitability in the industry. Also, smaller manufacturers have little buying

power, and are therefore uncompetitive compared with the larger players. The larger players such as Plascon, Dulux and Prominent are much more profitable due to lower input costs, better retail prices as a result of strong branding and more efficient production and distribution. Smaller manufacturers can only exist by avoiding regulatory costs, producing lower quality and paying lower wages.

The paint industry employs 11,000 people, of which the top 40 manufacturers employ 8,000. This means that the remaining 110 producers only employ 3,000 people.

Soaps, perfumes, cosmetics, detergents, polishes & waxes

Valued At R 10,94 billion p.a., this is the largest and most important sector. The sector can be divided into 2 major segments:

1. Consumer formulated products

These are the well-known FMCG products like soaps, shampoos, toothpastes, cosmetics, household cleaners, but excluding medicines. The output of this segment is R 7,7 billion p.a. At least 90% of this production is performed by large multi-nationals, such as

- Pfizer
- Unilever
- Johnson & Johnson
- Procter & Gamble
- Colgate Palmolive

As input materials are mostly imported, production is based at the coast (mainly Durban, Cape Town and East London).

Cosmetics and hair care

The South African cosmetics industry is a fast-developing sector. Estimated turnover in 2001 was R 2,6 billion, with most of this arising in the downstream services sector (eg salons, hairdressers, therapists). Product categories are

- Hair care
- Facial and body skin care
- Perfumes and fragrances
- Colour cosmetics
- Bath and shower products
- Deodorants
- Oral hygiene products (mainly toothpaste)
- Men's shaving products

There are about 120 members of associations and a further 100 non-registered participants, ranging from importers, distributors, manufacturers, packers, and direct sales organisations. The industry directly employs 65,000 people, with another 60,000 in supporting industries.

The retail sector consists of about 33,000 outlets, including 2,000 urban Black hair salons and 10,000 to 12,000 informal salons.

The ethnic markets account for approximately 60% of all spending in this sector. There are a number of products specifically designed for this market, some of which have been developed and are produced in South Africa. However, most cosmetics are fully imported, with only about 5% locally manufactured[5].

Although this is a fast-growing sector, most products sold are international brand names. The key success factor in this sector is a large marketing and distribution budget, required to develop a well-known brand. Most opportunities exist in development of downstream services and supply of ancillary products to exiting manufacturers. However, growth of exports is being reported in this sector, showing that there is an opportunity for niche manufacturers.

2. Industrial products

Worth approximately R 3,2 billion, these products are mainly for cleaning, de-greasing, sterilizing and disinfecting in industrial applications. There is also a range of specialised cleaners, polishes and lubricants.

A number of SA-based companies manufacture products for the industrial market.

Other Chemicals

The Other Chemicals (or Not Elsewhere Classified) sector consists of a vast number of diverse products. Valued at R 10,03 billion, the major player is Explosives and Pyrotechnic products at R 2 billion.

Because of the varied nature of the products in this sector, it is not possible to examine individual trends, constraints or opportunities. A number of product segments can be identified, eg

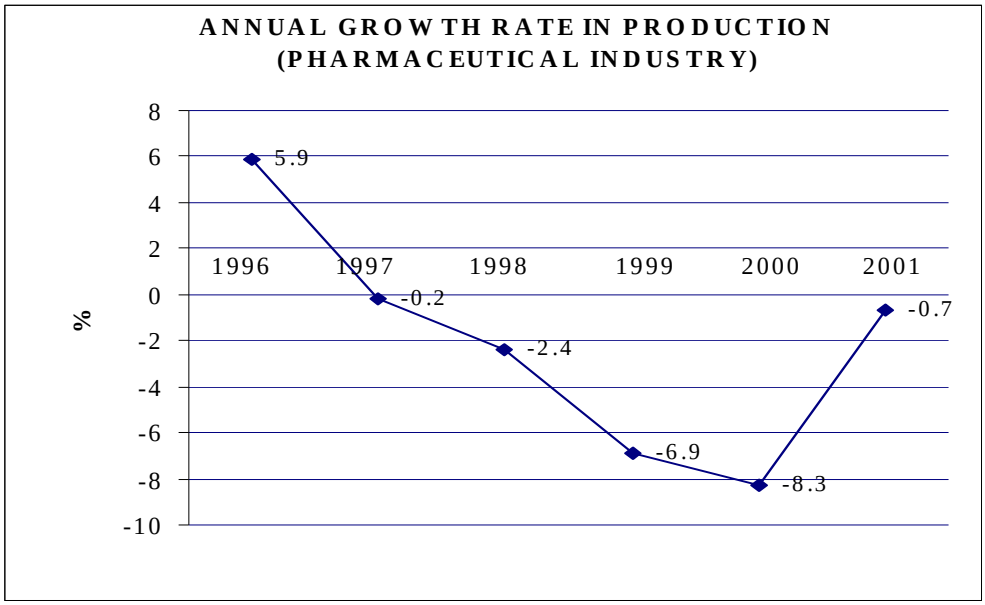
- Explosives
- Mining chemicals
- Water treatment chemicals
- Polymer and plastics additives
- Paper chemicals
- Fuel and engine additives

Each product segment has to be examined independently. Statistics are not available at this level (and products often appear in different categories or segments, depending on use). However, the total value of this sector is high, and export potential is excellent.

[5] Source: US State Department Country Commercial Guide

Pharmaceuticals

The Pharmaceutical industry is one of the highest-growth sectors in the world economy[6], and is a significant factor in South Africa. In 2001 the SA pharmaceutical industry's gross output was R6.23 billion. Declines in the industry's average annual output rate have been persisting since 1997 (fig. 6). This is expected and is in synchrony with the closure and divestment of the manufacturing facilities of multinational subsidiaries and other domestic operators.



Sources: (a) Bulletin of Statistics (Statistics South Africa) 1994-2001.
(b) *South African Statistics 2002* (Statistics South Africa).

Nevertheless, the pharmaceutical industry is an important contributor to the economy as a whole. In 2001 the industry accounted for 6.8% of the chemical sector's gross output, and for 1.2% of the economy's manufacturing gross output. Overall, in the same year, the pharmaceutical industry's share of South Africa's GDP was 0.6%.

NOTE: There is disagreement between the growth figures as stated by the PMA and the figures provided in the IDC Sectoral Prospects report. The IDC gives a CAGR (1995-01) of 4,8%. The PMA figures show negative growth.

In addition the IDC reports that the industry's 16% share (amounting to 19,000 workers at the end of 1996) of the chemical sector's labour force makes it an important contributor to overall employment (table 9). The employment rate in the pharmaceutical industry has been rising since 1998 bringing the total number of employed to an expected 19,791 workers in 2001.

[6] Cefic

PHARMACEUTICAL INDUSTRY EMPLOYMENT - FORECASTS

YEAR	1998	1999	2000	2001
Average Annual Percentage Change	2.3%	2.3%	0.3%	2.3%
Employment Number	18854	19288	19346	19791

Source: IDC *Sectoral Prospects* 1998.

For the period 1990-1997, the pharmaceutical industry performed better on most industrial indicators considered in table 10 in comparison to the chemical sector to which it belongs.

INDICES OF INDUSTRIAL PERFORMANCE FOR THE CHEMICAL AND PHARMACEUTICAL INDUSTRIES (1990=100)

SECTOR	INDICATORS	1990	1997
Chemicals	Production	100.0	137.6
	Exports	100.0	194.9
	Imports	100.0	180.5
	Employment	100.0	86.4
	Salaries and Wages	100.0	164.4
	Labour Productivity	100.0	91.2
Pharmaceuticals	Production	100.0	217.1
	Exports	100.0	254.3
	Imports	100.0	376.6
	Employment	100.0	110.8
	Salaries and Wages	100.0	197.1
	Labour Productivity	100.0	112.2

Sources:*South African Statistics 2001* (Statistics South Africa)
Bulletin of Statistics 1994-2000 & Statistical Release P0242.1 1993-1997 (Statistics South Africa)

In the period considered, production for the pharmaceutical industry grew by 117.1% and that for the chemical sector grew by 37.6%. For the same period pharmaceutical industry exports grew by 154.3% whilst the corresponding figure for the chemical sector was 94.9%. Over the same period employment in the chemical industry declined by 13.6% whereas it increased by 10.8% in the pharmaceutical industry. This rise in employment in the pharmaceutical industry was accompanied by an increase of 12.2% in labour productivity versus a decline of 8.8% of the same measure for the chemical sector, and a growth in salaries and wages of 97.1% relative to the 64.4% of the chemical sector.

For the period 1992-1999 the South African pharmaceutical industry and that of the EU, and the USA shared an upward trend for all industrial indicators considered in table 11. For the South African pharmaceutical industry this however is taking place at lower levels for all the indicators considered except in the case of employment.

INDICES OF INDUSTRIAL PERFORMANCE
EU, USA, AND SOUTH AFRICA (1992=100)

ECONOMIC UNIT	PHARMACEUTICAL INDUSTRY INDICATORS	1992	1999
EU	Output	100.0	255.5
	Exports	100.0	471.6
	Imports	100.0	425.9
	Employment	100.0	102.1
USA	Output	100.0	341.9
	Exports	100.0	443.0
	Imports	100.0	762.0
	Employment	100.0	114.9
South Africa	Output	100.0	182.4
	Exports	100.0	352.2
	Imports	100.0	345.6
	Employment	100.0	140.6

Sources: European Business – Facts and Figures 1990-2000 (Eurostat 2002)
Annual Survey of Manufacturers (US Census Bureau, 1992-2003)
Merchandise Trade Statistics (US Census Bureau, 1992-2001)
South African Statistics 2001 (Statistics South Africa)
Bulletin of Statistics 1992-2001 (Statistics South Africa)
Monthly Abstract of Trade Statistics 1992-1999 (Commissioner for South African Revenue Service).

Between 1997 and 2001 South Africa's share of the world market was less than 0.5% (see table 12 below).

WORLD MARKET FOR PHARMACEUTICALS AT EX-FACTORY PRICES (USD MILLION)

YEAR	1997	1998	1999	2000	2001
World Market	293838	307000	333312	317200	364200
South Africa	1418	1269	1238	1399	1274
South African Share	0.48%	0.41%	0.37%	0.44%	0.35%

Source: IMS Health 1996-2002.

The South African share is below that of other markets even if of comparable population size (table 13).

SELECTED COUNTRIES
(PROPORTION OF GLOBAL SALES, 2000)

COUNTRY	PROPORTION (%)
USA	41.2
Japan	15.9
Germany	4.7
France	4.4
Italy	3.0
United Kingdom	3.0
Spain	1.6
South Africa	0.4

Source: IMS Health 2001.

Although domestic output has declined, real demand for pharmaceutical and medicinal products has remained strong. Consumption of medicinal and pharmaceutical preparations has risen by 41% in real terms between 1994 and 2001 in comparison to consumption for semi-durable goods at 34% and that of the non-durables category, to which pharmaceuticals belong, at 14%. In the presence of falling domestic output and a greater demand for innovative and advanced medication, demand for imported goods is also strong, with imports having come to occupy greater portion of the domestic demand for pharmaceuticals[7].

Firms

All of the major pharmaceutical companies are represented in South Africa. However, production is only done by very few, ie:

Aspen	Generics & ethicals
Merck	Generics
Adcock-Ingram	Generics & ethicals
Be-Tabs	Generics
MSD	Diagnostics
Janssen	Ethicals
Roche	Ethicals
Makro Medical Supplies	Diagnostics

[7] Source: Pharmaceutical Manufacturers Association Annual Report 2002

As can be seen from the national review, the major pharmaceutical companies are closing production facilities in South Africa. Both Pfizer and GlaxoSmithKline recently consolidated their operations at other sites. However, existing facilities are generally being used as distribution points.

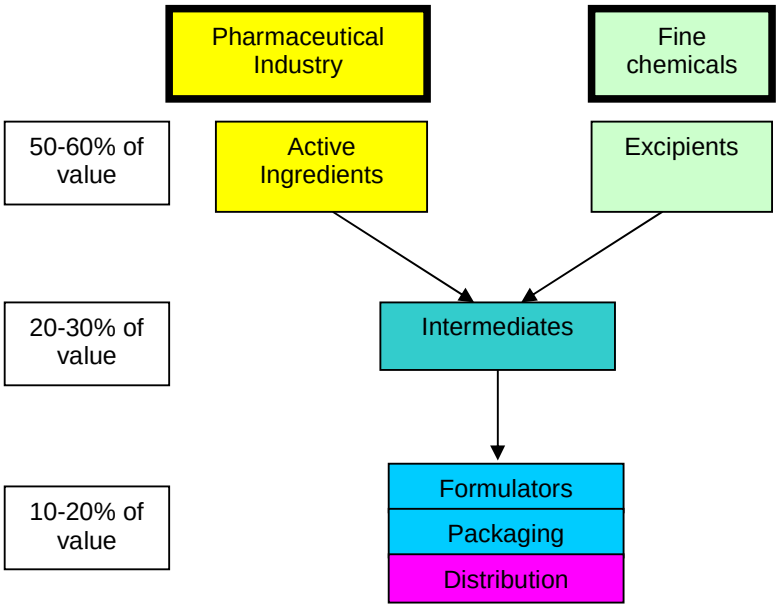
Of interest is the very strong growth of Generics manufacture. The 4 largest pharmaceutical manufacturers are all producers of generics (Aspen, Merck, Adcock Ingram and Be-tabs). In fact, these have all moved contrary to the trends, and have shown excellent growth and have invested in plant and equipment, while other manufacturers have closed their operations.

Be-tabs has shown growth of 25% p.a. over the last 3 years, and expects this to be in excess of 15% for the next 5 years. The company has bought equipment from other pharmaceutical manufacturers and has expanded its site in Roodepoort.

ATTRACTING PHARMACEUTICAL MANUFACTURE TO SOUTH AFRICA

As mentioned above, one of the Chemicals sectors showing strong growth and export performance is the pharmaceutical sub-sector. Growth is being shown in both ethical drugs and generic substitutes, but data indicates that generics manufacture is growing rapidly, while ethicals are mostly imported into South Africa for local consumption as well as onward export into Africa. Generic products are also being exported to the Middle East (specifically Saudi Arabia and more recently, India).

The simplified production process and value chain for pharmaceuticals is shown below:



Usually, the active ingredients are produced by the multi-national in its home base and exported to the country manufacturing the intermediates. Here the active drug is combined with various other products of the fine chemicals industry to produce the drug in its useable form. As FDA approval is required, requirements are stringent and, as a result, only a few of these plants exists world-wide. The drugs are then sent to formulation operations in various locations, where the final product is manufactured, packaged and distributed.

It is useful to compare the performance of the pharmaceutical sector in Ireland. The country has managed to attract a number of multi-nationals and is exporting increasing quantities of ethical drugs world-wide.

Starting greenfields operations over 30 years ago, Ireland targeted the production of active ingredients and intermediates. The country has certain advantages

- A pro-business government environment
- A well educated, flexible workforce
- Strategic investment in infrastructure
- Inflows of high technology inward investment
- Increasing levels of export growth
- New confidence in Ireland's people and their capabilities

As most multi-nationals were based in the USA, Ireland used its powerful lobbying group to persuade companies to relocate their production to Ireland. The major financial concession is a flat 10% tax on profits from products exported from the country.

Ireland has been very successful in its drive to attract pharmaceutical business, and now produces chemicals, intermediates and packaged drugs worth US$ 40 billion per annum (€ 35 billion). 13 of the top 15 pharmaceutical companies have production units in Ireland. There have been spin-offs from this influx of multi-nationals, ie

- Software services – growing very strongly in Ireland
- Fine chemicals – the chemicals industry in Ireland employs 4,000 people, compared with 20,000 in the pharmaceutical industries. This industry will export approximately €7 billion in 2003.
- Stainless steel fabrication

In addition to the multi-nationals, there are about 150 Irish manufacturers producing a range of pharmaceutical products:

- Human pharmaceuticals
- Generics
- Vitamins and mineral supplements
- Veterinary pharmaceuticals
- Diagnostics
- Sub-contracting of manufacture for majors

There are also a number of allied businesses such as

- Biotechnology

- Medical devices
- International healthcare services

The Irish pharmaceutical industry continues to show very strong growth of 11% per annum. The country also spends about 12% of revenue on R&D. Irish exports grew by 72% between 1994 and 1998, the third highest in the 29 member OECD. Irish export growth rates outpaced World Trade growth in the same period by a factor of three. Ireland has a trade surplus equal to 16% of GNP and is the most export-oriented country in the Euro zone. Ireland now ranks as the third largest exporter in the world on a per capita basis after Singapore and Belgium / Luxembourg.

An important factor in pharmaceuticals is the level of skilled human resources. Over the last ten years the number of students in third level education has increased by 80% while the numbers in Technical / Technological Institutions has more than doubled. The proportion of Irish people aged 25-34 with scientific qualifications is the highest in the OECD. Returned emigrants have brought with them new ideas, skills and experience. Ireland now has a young, experienced, highly educated and dynamic workforce.

Although highly attractive financially, it is unlikely (but not impossible) that South Africa will be able to repeat the Irish experience. Why?

- Remote from World markets – but possibly manufacture for Africa
- Strict accreditation requirements cause small number of facilities worldwide
- Not enough skills at the required levels of production and management
- Lack of international lobbying power to attract high-tech investment
- No critical mass of pharmaceutical manufacturers and ancillary suppliers
- Communications infrastructure relatively poor

Firms in the Other Chemicals sector

As can be expected of Africa's major commercial centre, South Africa reflects the presence of almost all world players in the chemical industry. All sectors of the Industry are well represented, including majors such as

Petrochemicals	BP, Shell, Exxonmobil, Petronas, Total, Caltex, Sasol
Base organic chemicals	Sasol, Dow, Degussa, African Products
Basic Polymers	Sasol, Dow, BASF, 3M, Crest
Speciality chemicals	Chemserve, Akulu Marchon, Dow, Merck, Henkel,
Fertilizers	Norsk Hydo, Sasol
Plastics resins	Dow, BASF, Hoechst, ICI, Du Pont
Fine chemicals	SA Fine Chemicals, BASF, Hoechst
Agrochemicals	Merck, Bayer, Degussa
Pharmaceuticals	GlaxoSmithKline, Pfizer, Bayer, Aventis, Novartis, Roche, Astrazeneca, Aspen, Janssen, Bayer
Explosives	Akzo Nobel, AEL, BME
Paint	Plascon, AECI Coatings/PPG, Prominent/Kalon

However, further analysis shows that almost all of these companies have head offices and major sales/distribution operations in the Gauteng region, but very few manufacturing operations. This is for a number of reasons, described elsewhere.

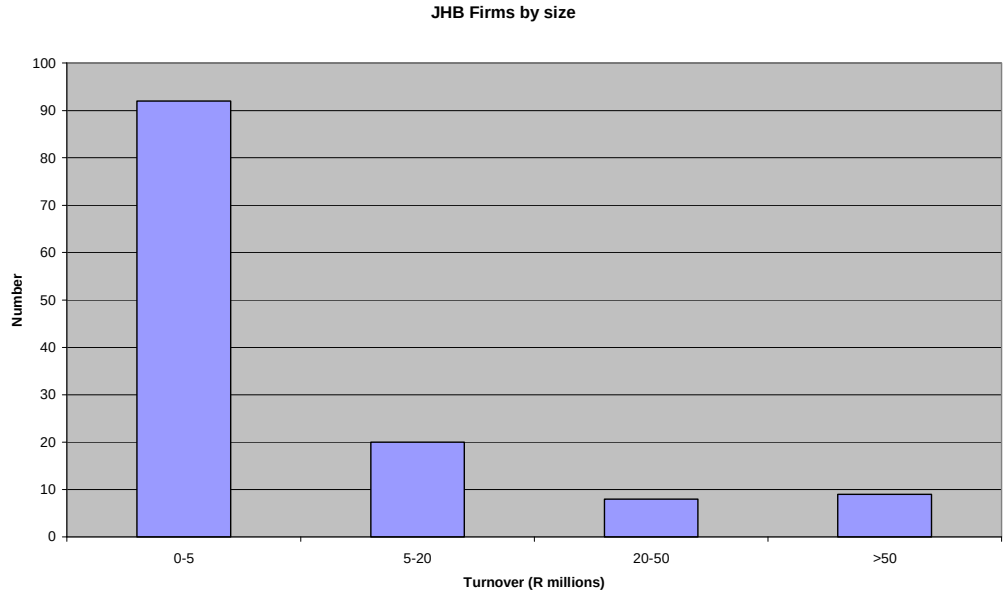
As shown in the Monitor study, the East Rand has a far greater concentration of manufacturing firms, and this applies to a large extent to the chemicals sector. Durban also has a large number of chemicals manufacturers.

An analysis of Chemicals manufacturing in the Metro areas shows that almost all manufacturing is done by medium or small companies.

Firm size, categories & segmentation

A 2002 study done by Blueprint for Joburg Metro showed that, of the 129 Johannesburg chemicals manufacturers identified, 72% produce less than R 5 million per annum, while only 7% (9 firms) produce over R 50 million per annum. The graph below illustrates the split of manufacturers by size.

This finding supports the Monitor research, which showed that larger firms were decreasing in the Metro areas, while smaller firms were increasing in number.



However, although not fully researched, South African Metropoles would have certain advantages for production of 3rd wave chemicals. These operations are clean, do not require large sites or major transport facilities, and require highly-skilled manpower. These skills are readily available in the major cities, and the access to leisure, research facilities and sophisticated suppliers and services are major factors in attracting the high-level staff needed.

SECTION 7 - REGULATORY CONTEXT

The potentially hazardous nature of the chemical industry has caused the industry to become highly regulated. Internationally, regulations exist to control almost every aspect of the chemicals supply chain, eg

- Standardised Classification of chemicals
- Safe production of chemicals
- Occupational Safety & Health to protect workers
- Emissions control to protect air quality and health
- Pollution control to protect groundwater
- Consumer education in correct use of chemicals
- Recycling regulations
- Storage of hazardous chemicals
- Transport of hazardous chemicals
- Registration of design engineers

There are also a number of international treaties governing the production, trade and use of chemicals, eg

- Nuclear non-proliferation treaties
- Weapons grade chemical control treaties
- Clean Air and Sustainable Development protocols
- Trade agreements

The implications of this high level of regulation on SMEs are well recognised, and are discussed in a number of papers, and the issue is addressed by many governments.

South African Domestic Legislation, Regulation and Policy

Although not as highly developed or rigorous as legislation in most developed countries, South Africa has a legal and regulatory framework for the Chemicals Industry that is comprehensive and encompasses most aspects of the supply chain, eg

- Medicines and Related Substances Control Amendment Act
- Atmospheric Pollution Prevention Act
- Environment Conservation Act
- Emissions Control Act
- National Road Traffic Act
- Local Water regulations
- Safety & Health (OSH Act)
- Workers Compensation
- Labour legislation

Although legislation exists, in many areas of the above de-facto compliance is often limited to the larger companies. The cost of compliance is high and policing of the regulations is not considered adequate, leading many smaller companies to avoid effective regulatory control.

In the 1999 Monitor surveys, the existence of a labour "Hassle Factor" was reported. This appears to be one area where policing is strict (probably because of Union pressure). As a result, many firms actively seek to reduce the size of their labour forces. However, this is not only a South African phenomenon. In the Chemicals industry, the trend to reduce jobs is world-wide. It can be expected therefore that the major South African chemical industry companies will not provide major growth in jobs. This growth will have to come from expansion of the SME sector.

The South African Government has also identified the industry as a potential economic growth sector, and a number of studies and strategy documents have been prepared. These include:

- National Chemicals Strategy 2001
- National R&D Strategy

It is not intended to give detailed insight into these documents, as this is outside the scope of this project.

An EU project entitled "Responsible Entrepreneurship for SMEs" was launched in 2002 in order to improve knowledge about SMEs' current involvement in socially and environmentally responsible practices. It also aims at taking stock of existing support initiatives and tools for SMEs and to publish a series of case studies illustrating responsible entrepreneurship practices.

SECTION 8 – SMEs IN THE CHEMICAL INDUSTRY

There is now unanimous recognition among business and government of the vital role played by Small and Medium-sized Enterprises (SMEs) in the economy. For example, SMEs are one of the main driving forces behind the growth of the chemical industry in Europe, helping to boost its competitiveness, and playing a major role in employment levels. Contrary to popular belief, small and medium-sized enterprises (SMEs) constitute a major component of the European chemical industry. **Indeed, out of the total number of 33,000 chemical enterprises, 98% meet the current statistical definition of SMEs. Between them, they provide two thirds of all jobs, and generate over half of company turnover within the European Union**.

The chemical industry is a major contributor to employment, technology and wealth-creation. Small and medium-sized enterprises (SMEs) are an essential factor in its dynamism and entrepreneurship.

Due to their size and organization, SMEs are particularly responsive to the changing economic climate and evolving technologies. They are therefore a source of flexibility and key elements in industrial clusters.

SMEs in the chemical industry actively participate in the development of new products and processes. More than in any other industrial branch, in-house innovation is increasingly vital for them amid ever fiercer international competition. By embodying innovation in the chemicals they manufacture, they widely contribute to its dissemination to industry as a whole.

SMEs in the chemical industry face many difficulties which are common with SMEs in other branches:

- burden and complexity of legislation
- stifling administration
- lack of management and marketing skills
- uneasy access to long term finance
- Access to relevant information sources.

Given the key role of chemical industry SMEs with respect to employment and sectoral competitiveness, an action programme is called for to support their long-term growth and development in an increasingly challenging environment.

SECTION 9 – SUCCESS FACTORS FOR SMEs IN THE CHEMICAL INDUSTRY

Numerous international studies have pointed to a number of factors that affect the success or failure of smaller businesses.

Success factors for SMEs

- Access to skills
- Access to start-up capital
- Access to operating finance
- Information
    - Technical
    - Regulatory/legislative
    - Market
- Access to wider markets
- Access and ability to use Innovation
- Business support
- Minimal administrative load

In the chemical industry, skills, capital availability, information and access to markets are the most pronounced problem areas. Additionally, efficient logistics are necessary. A specific problem for SMEs in the chemicals industry lies in that they are excessively hindered by the disproportionate burden that environmental legislation imposes on them.

These factors are discussed below, with examples of international and South African practice and support available. Key issues are identified, with suggestions where appropriate.

1. Access to Skills

Human capital plays a crucial role in economic growth, and education and training are instrumental in providing the "human capital" with the right skills and competences for the knowledge society. The chemical industry is particularly dependent on high levels of often specialised skills.

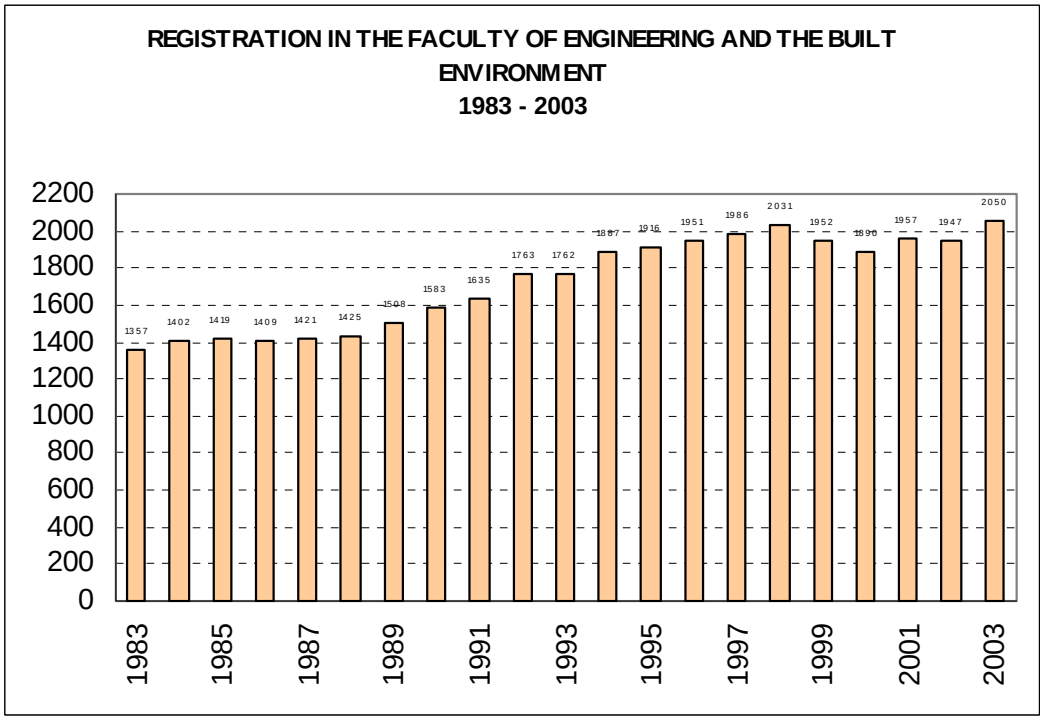
Both international and South African research on SMME development emphasizes the importance of improving both human capital and access to financial capital as ingredients for success. Inadequate training in the SMME sector has been noted by Rogerson (1998), Martins and Tustin (1999a), and Rwigema and Karungu (1998).

One of the most worrying trends in developed countries is the fast declining number of students graduating in chemical related disciplines (chemical engineers, technicians, chemists and laboratory analysts)[8]. If there is no constant (or growing) supply of these skills, innovation will be slower and the competitive advantage will be lost in the longer term to nations that do develop the requisite skills.

[8] "Enhancing the Competitiveness and Sustainability of the UK Chemicals Industry"' DTI, 2002

In South Africa, there are serious concerns about the lack of skills available to support the chemical industry. The Bureau for Economic Research's quarterly manufacturing survey routinely finds that a lack of skilled labour is a serious constraint.

However, in contrast to the EU trend, the country is attracting ever larger numbers of students in technical fields. For example, UCT currently has an enrolment of 650 chemical engineering students, selected from over 3,000 applications. The situation is similar in most educational institutions across the country[9].



Source: UCT

Evidence from recent studies shows that there is no shortage of engineers in entry-level positions, but a large gap exists for engineers with over 15 years of experience[10].

This evidence indicates that South Africa is experiencing the effects of a brain drain over the last 10 years, but that the supply of technical staff should normalise as new graduates enter the job market – provided these graduates stay in the country.

This is reassuring for the economy as a whole, but there is still a concern that SMEs will be unable to attract technical staff, and possibly only at a much later stage than larger firms, who can afford to employ recent graduates, train them and pay higher salaries. An answer to this issue may lie in fostering of entrepreneurship, thus enticing graduates with technical skills into smaller firms.

[9] Prof C O' Connor, Dean of the Faculty of Engineering & the Built Environment, UCT
[10] SA Institute of Consulting Engineers, 2004

When asked about what national government could do to promote SMME growth[11], the provision of education and training was among the key factors identified by SMME entrepreneurs. Given the prevailing scarcity of skilled labour, it is natural for SMMEs to view the provision of training as a public good. However, it is unclear whether SMMEs might want government to facilitate and promote private provision of skills training rather than to provide training itself.

Government must determine: what role is most appropriate; how best to ensure that the gains from training efforts are realised quickly; and how to focus efforts in order to achieve faster growth in the SMME tier.

Some preliminary observations about the skills problem can be made. It seems paradoxical that around 40% of SMMEs report difficulty in finding skilled labour and less than 25% engage in any form of training. The need for training in South Africa, especially among the previously disadvantaged black population is obvious, and reconfirmed by various types of information. Having a population with the wide variance of schooling, specifically with the prevalence of low schooling and limited skills, does not augur well for the country at a time when technological change and economic liberalisation both have placed a higher wage and productivity premium on skills than was previously the case.

Recognition of the importance of skills development is one thing, but how to fine tune policy to achieve this is another. There are questions about where exactly to focus efforts, what kinds of skills are especially needed, what sorts of skills suppliers have and will be the most effective, and how the composition of skills needs will shift over time.

The skills issue in South Africa has been debated at length, and it is considered outside the scope of this project to address specific skills issues for the Chemical industry. This role belongs with Industry bodies, academic institutions and Setas).

2. Innovation

In the light of the current globalisation and the growing competition from emerging economies, flexibility remains an important asset. However, this is no longer sufficient to stay in the race. More intense internal innovation and R&D have henceforth become major priorities for SMEs in the chemical industry.

2.1 Fostering innovation

Fostering innovation has a number of requirements, eg

At a National level:

- Development of a coherent framework to manage innovation
- Creating collaboration between Government, private sector and research institutions
- Enabling finance for start-ups and R&D
- Creating a network to link all players

[11] "The economics of SMMEs in South Africa", TIPS Dec 2005

Many countries have realised the importance of innovation. In Spain, the Ministry of Industry started a programme to foster innovation best practices in the region's small and medium enterprises. The program has run over several years and included a series of projects aligned along five horizontal action programs, which intend to have an effect in the environment where businesses compete, to increase their innovation capacity by:

1. fostering business innovation management,
2. promoting subcontracting of technology by means of the consolidation of a real technological market in Spain,
3. fostering the creation of technology-based start-ups,
4. promoting business information and telecommunication technologies, with a special emphasis on the impact of the Internet and e-commerce, and
5. fostering manufacturing and advanced logistics.

One of the most important projects has been the development of a Strategic Innovation Plan for Catalonia (INNOCAT). INNOCAT aims at stimulating the innovation activities among small-and-medium-size enterprises, which constitute 95% of the industrial framework in Catalonia. The competitive strategy for these industries has been, during most part of the twentieth century, based on a cost-advantage approach. After the integration of Spain into the European Union economic area in 1986, the competitive advantage progressively shifted to a quality approach.

In the late 90's, the challenge to differentiate Catalan firms became the ability to incorporate continuous new product value through technology or design, or to increase their process technological competencies, that is, their ability to continuously innovate.

Flexible production and integral logistics are key pieces of business innovation.

*At a business level, i*nnovation is probably the least understood and controlled of any company's main processes. The process of transforming materials and the process of delivering customer orders are moving tangible items and therefore are more suitable to being monitored. Organizational structures are designed to ensure that these processes are well managed. When materials stop moving, everybody notices. However, the innovation process moves and processes ideas, and that makes its monitoring rather more difficult.

The best way to manage its flow is to embed the ideas into innovation projects and manage the projects through the innovation process. For a company, selecting, defining, and managing innovation projects is a big challenge, as it requires abilities and strategies, often lacking in traditional management.

2.2 Horizontal research activities involving SMEs

Co-operative research projects have been successful for a long time. The strength of this type of project is to allow SMEs, eager to innovate but without research capacities, to benefit from the main advantages that the research activity may offer.

2.3 Assisting SMEs on Intellectual Property Right (IPR) matters

2.4 Use of ICT

Information and communication technologies (ICTs), and particularly e-business, offer many opportunities for SMEs to grow and prosper. While some are embracing change very successfully, for the most part SMEs find the opportunities presented by ICT difficult to grasp. The obstacles are well documented. They include lack of technical and management skills in SMEs, lack of appropriate e-business solutions, the high cost of ownership of ICT equipment, concerns about security and privacy, and complex regulatory frameworks for e-commerce. Most significantly of all, many SMEs are not yet convinced of the appropriateness of e-business for their particular circumstances.

2.5 Incubation

The importance of business incubators is twofold. Firstly, they favour the setting up of new companies and, secondly, they provide the appropriate business support needed to increase the chances of their survival and growth.

The European Best Procedure project, concluded in January 2002, found that 90 % of all start-ups set up inside a business incubator are still active three years later, and that the public cost of creating jobs inside incubators is €4 000, which is very low compared with other public means and programmes. The 850 European business incubators assist in creating 29 000 new sustainable jobs every year in enterprises that are more viable than those set up outside incubators. The project concluded that the number of incubators varies considerably according to the Member State, and that there are significant differences between the way in which EU and non-EU, particularly US, incubators operate. There is therefore scope for sharing experience.

The project also showed that the quality of the management team is crucial to performance. Finally, the project showed that business incubators should be encouraged to benchmark.

The Gate2Growth Incubator Forum is a pan-European network of professional managers of technology incubators and incubators linked to research institutes and universities, launched in 2002. It is supported by the Commission as part of its Gate2Growth Initiative. It aims to contribute to raising professional standards and to the exchange of experience and good practice among incubators and business support services at European level.

Gate2Growth Incubator Forum members can participate in good practice workshops with incubator managers from across the continent, high tech cluster visits and human resources development. They get access to Eurotech Data, a specialised information service, and can compete for the Gate2Growth Incubator Forum Awards for outstanding professional incubator management. Membership is open to professional, dedicated incubator and business support organisations.

2.6 University spin-outs

The Commission published in 2002 the results of the Finance-Innovation-Technology (FIT) project on “university spin-outs in Europe – overview and good practice”. The exercise resulted in the description of good practices and examples of successful spin-out programmes. It found that there are over 300 spin-out programmes across the EU.

A possible way to increase entrepreneurship and mobility between universities and industry might be to offer academic staff who attempt a spin-out the right of return should the venture fail. The variety of approaches in evidence across Europe can be distilled into a four-fold classification: topdown, network, incremental multi-layer and technopole.

The network approach is considered the most effective, as it elicits greater economies of scale and builds critical mass quickly, particularly in isolated regions that cannot readily access innovation finance or management expertise. Spin-out development cannot be left to venture capitalists, as their investment criteria are too restrictive. Public subsidies are essential to ensure that the widest possible choice of projects is considered. Intellectual property rights should not be handed over too early to investors, and are perhaps best dealt with on a cross-licensing basis with investors, start-ups and universities sharing ownership. The resulting suggestions have been taken up in the Gate2Growth Initiative.

2.7 Support for Innovation in South Africa

Information, education and training platforms

South Africa is relatively well-endowed with research and business support agencies

Research	Wits University Rand Afrikaans University Wits Technikon UCT, Durban-Westville, Free State, Stellenbosch
Development & Technical support	CSIR/Bio/Chemtek Mintek Biopad Innovation Hub BRICs
Business Support	Investment banks Commercial banks DTI/IDC
Business Associations	CAIA Wesgro Chemical Institute SACOB
Training	CHIETA Private sector training organizations (eg Mast) Industry training bodies, eg SA Painters Training Ass. BIFSA

South African Government support for innovation is discussed in detail in the Kaiser report done as an element of this study.

South Africa already has a number of programmes to support innovation. However, there is a need to expand and communicate its Innovation Strategy and incentives (eg SPII) to smaller businesses, and simplify application procedures.

Also, a programme to educate business in innovation management is necessary. This could be addressed via SEDA, industry setas or universities.

3. Reduced regulatory and administrative load

Another major hindrance to the growth and thriving of SMEs is the mushrooming legislative and administrative burden, especially in the field of environment. This is of particular relevance for SMEs in the chemical industry

It is recognized that administration is a potent waste of resources and time, diverting management from focus on issues relating to the business. In the EU, there is now a requirement to perform business impact assessments of proposed new regulation to help determine whether the new rules are proportionate to their intended effects. They also take into account the effects on potentially more vulnerable small and medium-sized enterprises.

There have been recent steps taken in SA to reduce administrative load and regulatory compliance requirements, especially for SMEs. However, there is a need to benchmark the SA regulatory environment against other advanced and developing economic regions of the world. Further steps to simplify and reduce administration are necessary to assist firms in becoming more competitive. De-regulation is not the only solution, and rationalisation of the regulatory framework would possibly be more appropriate.

3.1 Business start-ups

Difficulties experienced in starting up an enterprise can clearly act as a direct brake on entrepreneurship. In the EU, considerable emphasis has therefore been placed on improving start-up procedures. In response to a call from the Lisbon European Council, the Commission conducted a Best Procedure benchmarking exercise during 2001 with the active participation of Member State experts and officials. The exercise established a clear mapping of procedures in each Member State and assembled considerable data on actual practice, including illustrative cases of best practice. A series of benchmarks provide realistic targets for national authorities. The analysis showed that there has been steady progress in reducing delays in administrative procedures in recent years.

The main recommendations of the EU project on start-ups include the following:

- The potential gains from investment in ICT are still not being realised
- there are wide variations and scope for improvement as regards the number of individual procedures required to register a company
- major differences still exist in the time and costs faced by entrepreneurs setting up a private limited company.

3.2 Ongoing regulatory burden

The Better Regulation Package, adopted by the Commission in 2002, aims at reforming the way in which the institutions, individually or jointly, are legislating at the European level, and how the Member States implement and apply this legislation at the national level. This ambitious package responds to the request of the Lisbon European Council and aims at simplifying and improving the regulatory environment. It constitutes a political reply to the criticism expressed regularly by some national authorities and stakeholders against an allegedly excessive, less appropriate and too heavy Community legislation.

The Commission has decided to set the example in developing a new culture of "legislative quality" within its services, by launching a series of actions. In accordance with the conclusions of the European Council of Seville, some of the actions proposed in the Action Plan to the European Parliament and the Council are discussed in an inter-institutional group, in view of concluding an agreement. This agreement, which the Seville European Council proposed to be concluded before the end of 2002, would mainly deal with the use of framework directives, co-regulation, self-regulation and an ambitious programme for simplification.

The Commission envisages the implementation of a programme for simplifying Community law. Simplification exercises will focus on ways to remove burdensome procedures and administrative costs thus making legislation more user-friendly and easier to apply. Considerable efforts are being made by many EU Member States to simplify regulatory requirements and to improve the efficiency with which documents are processed. This includes

- improving the administrative efficiency of current procedures by introducing "Single Access Points" and statutory response times
- switching from a system based on authorisation to a system based on self-certification
- reducing the number of licences or approvals and reducing the number of procedures
- enhancing the involvement of users through the use of the Internet to provide information, and publicity campaigns
- reducing the scale and complexity of the documents required to establish new business
- and reducing the level of mandatory costs.

3.3 Legislative impact on business

The EU Commission also introduced an impact assessment procedure, which requires a proper assessment of compliance costs and administrative burdens to ensure framework conditions that are conducive to entrepreneurial activity, competitiveness and sustainable economic growth.

To this end, the Commission has been conducting business impact assessments (BIAs) on its legislative proposals since 1986. While this system has proved useful over the years, it has had some shortcomings. For example, BIAs have sometimes been carried out on nearly finalised legislative proposals, whereas they should have already intervened during the early drafting process. Moreover, the costs of the proposals for business have rarely been quantified. In addition, the BIA system has only provided for a partial assessment, making it

difficult for policy makers to get a complete and equitable picture of all the potential impacts of a proposal.

3.4 Legislation in the area of e-commerce

In an emerging area like e-commerce, an important role for research and technological development (RTD) is in supporting the regulatory process. The EU regulatory framework in this field is developing rapidly. Each piece of legislation requires a thorough analysis of the technology impact, and in return technology development and its innovative deployment might affect current and future legislation.

Promotion of interoperability and standardisation are also important in this respect, as well as cooperation with international initiatives and bodies.

Many of the EU recommendations detailed above are applicable to SMEs in South Africa, both to encourage start-ups and enable firms to concentrate on business rather than regulatory compliance.

3.5 Environmental regulation issues

Under Responsible Care, the European chemical industry is committed to seeking a continuous improvement of its environmental performance. The European chemical industry also supports the need for a harmonised and evenly enforced environmental legislation across Europe, which is not the case today. It believes at the same time that the current EU environmental framework is overly regulated.

Negotiated agreements with voluntary participation, such as the Dutch covenants, should be favoured as an alternative to legislation. They not only offer more flexibility of implementation to individual companies, but are also thought to be ultimately more effective.

Due to their size and lack of managerial and financial resources, chemical industry SMEs are particularly vulnerable to the burden and complexities of current environmental legislation, which imposes disproportionate costs on them. Though they are confronted with the same difficulties as larger companies, they have insufficient human resources, skill and time available to deal with them. That is why environmental legislation needs to be simplified in line with the conclusions of the Molitor report.

However, simplification is not enough. SMEs need a different kind of public administration, which could behave not only as a "guardian" of the environment, but could also stimulate and promote industrial activity in a sustainable manner.

Goal-setting legislation, with targets determined by public authorities, must be preferred to regulations fixing ways and means by which these goals have to be attained. This would provide operators with more flexibility to choose the most cost-effective way of complying with legislation, which is of particular relevance to SMEs.

On the energy front, Europe's chemical industry is making great strides in cutting back greenhouse gas emissions, but at a substantial cost. The industry is currently exceeding EU

targets under the 1997 United Nations Kyoto Protocol by a wide margin: Its emissions of greenhouse gases have decreased by more than 20% since 1990, compared to the overall EU commitment to reduce greenhouse gas emissions by 8% between 1990 and 2012.

This reduction is partly due to globalisation of chemicals production and a build-up in overseas capacity, but it also reflects technical innovation on the part of producers based in Europe. The European chemical industry's research into new catalysts makes it possible to burn less energy for the same result. Advanced catalysts also make it possible to produce chemicals from renewable raw materials such as biomass.

Promoting environmental management systems in small and medium-sized Enterprises:

In 2002, the Commission launched a Best Procedure project on Member State initiatives to promote environmental management systems (EMSs) in SMEs. The project, defined in response to a call by the May 2001 Industry Council and carried out in close cooperation with Member State experts, examines and compares relevant factors, policies and initiatives in this area, with a view to identifying and exchanging good/best practices. It looks at national and regional initiatives, both in relation to formal (ISO 14001 and EMAS, and less formal EMSs, which can be stepping-stones to these more formal systems. The project is expected to result in a number of specific recommendations for policy at European and national level.

There is a a possibility of developing a scheme to encourage SMEs to audit or self-audit their compliance and improve their environmental management systems.

Climate change has been identified as a priority area in this new action programme, and, with a view to meeting the targets established by the Kyoto Protocol, means to assist SMEs to adapt, innovate and improve performance will also be developed.

There is an opportunity for South African companies to use the provisions of the Kyoto Protocol when building or operating new plants, by selling carbon credits to developed country firms. It is uncertain whether this opportunity extends to the smaller companies.

International environmental regulations will also affect South African companies that do business globally, and local firms will have to comply with these. This will have a knock-on effect on SMEs. Information on possible consequences should be provided to SMEs.

Also, self-auditing of environmental compliance by SMEs should be investigated.

4. Access to finance

The issue of access to finance is critically important, specifically for firms that show entrepreneurial talent and skills to grow. The question is how conducive is South Africa's domestic financial architecture to SMME growth. The financial landscape includes banks, non-bank lenders, as well as public institutions.

Finance remains the main obstacle preventing businesses from starting, and often in their failure. SMEs too often suffer from insufficient management and marketing skills, and from inadequate financing.

There are generally problems in 3 areas of financing:

- Access to capital for start-up
- Access to sufficient working capital during the growth phase
- Vulnerability to debtors

4.1 Finance in South Africa

4.1.1 Commercial banks

South African banks are typically accused of either lending only to "older," "larger" and/or "white" companies, or requiring collateral that is unaffordable to the small businessperson, particularly PDI entrepreneurs.

Levy (1996) has explored, through the questioning of entrepreneurs, the lender perception of South African banks with regard to age, size and collateral discrimination. He found that even small and new firms have access to South Africa's banking system and, as far as collateral is concerned, South Africa's bank system is unusually flexible relative to developing countries. However, the average values above tend to conceal a much more gloomy picture among 'African businesses,' which represent only 7% of Levy's sample and all complained about prejudices of banks against them.

More recent evidence suggests that banks have tremendously extended their engagement to SMMEs since 1996. It is difficult to say it with certitude, though, because the major banks do not disclose many statistics about their SMME books. Therefore, only "informal" sources are available, which are not all based on the same SMME definition. Table 4.1 is therefore only an indication of estimated orders of magnitude.

The most prominent of specialised non-bank financial institutions operating in the formal SME sector is Business Partners. With a business investment book of more than R1 billion in 2001 (of which approximately R200 million is the short-term portion), its book reaches almost the same order of magnitude as the main commercial banks. From this combined evidence, it can be assumed that non-bank financial intermediaries provide approximately R3-5 billion to SMEs, of which approximately one-half represents micro-enterprise finance, the other half being dedicated to larger enterprises.

	Standard Bank	Nedbank	ABSA	FNB[126]	Total banking sector
SME Clients	360,000	N/a	170,000	N/a	
Non-borrowers	226,800	N/a	N/a	N/a	1,000,000
Borrowers	133,200	N/a	N/a	N/a	370,000
Total book in R billion	5.2	4.96– 8	?(3 -7)	? (2-4.5)	R20 bn
Average loan size in Rand	R39,039	N/a	R47,058	N/a	R54,054

Source: MFRC, unpublished working notes, based on Presentations to the Parliament Portfolio Committee for Trade and Industry on the role of Banks in Financing SMMEs (June, 2000) and Banking Council of South Africa (BCSA)

4.1.2 Wholesale institutions

In an attempt to facilitate access to loan finance to SMMEs, Khula Finance Ltd was established as a 'wholesale' institution to support retail financial intermediaries (in their majority commercial banks) financially and/or by assuring guarantees of loan repayment.

There is a frequent perception, however, that this policy initiative has not lived up to its expectations. It is believed that

- many potential borrowers did not even apply for a loan (an awareness problem)
- commercial banks did not use it (co-operation problems)
- and for those micro-entrepreneurs who happen to learn about the Khula schemes, lack of management support accompanying a loan application remains a constraint (ie mentorship is needed).

One of the main reasons why a great deal of misunderstanding about the role of finance in SMMEs exists is that there are very few attempts to understand what financial intermediation in an economy means. The importance of finance to SMMEs remains a matter of debate in as far as what matters most – skills, entrepreneurship or finance.

In reviewing access to finance for SMMEs, it should be borne in mind the number and range of institutions providing different kinds of finance for different kinds of investment. Some institutions provide long-term capital, others short-term capital, some equity and others debt.

Perhaps even more striking in South Africa is the "fragmentation" between formal and informal capital markets, which operate under very different priorities and constraints and with few linkages between each other.

The picture on the demand side is equally multi-faceted. In particular, different categories of firms have:

- Different needs for capital to run their businesses
- Different resources that they can invest; and
- Different access to external finance

To start with, a firm's need for capital, in quantity and quality, depends on factors like the firm's size, its sector, and its age/growth opportunities. For example, a manufacturing firm on

average will need substantial long-term capital, while a retail business will mostly need short-term revolving funds to finance its inventory. Young, fast-growing enterprises can generate a considerable need for working capital, while established slow-growth businesses tend to generate sufficient cash-flow to face their needs. A start-up can not afford too much debt and will rather require equity, while better-capitalised enterprises can be better off using debt.

Not only can the needs for capital vary from one segment to another, but also the firms' creditworthiness, i.e. the way expressed needs are distributed between "qualified" and "unqualified" demand. Thus, an inequality clearly exists with regard to own resources of the entrepreneurs. This is important because most of the time the initial (own) investment of the entrepreneur will be

- the only start-up resources
- the indicator with which any external financier will gauge its investment risk before providing finance
- even after external finance is granted, probably the cheapest resource for the enterprise.

Clearly, in the South African context, there is a fundamental inequality between white and "previously disadvantaged" entrepreneurs in that respect.

Lastly, suppliers will more easily provide finance to (and in the first place, entrepreneurs will more skilfully apply for finance in) certain types of firms. In particular, access to finance is easier for older firms than for young ones, and there are also differences between micro- and medium-sized enterprises, between an enterprise emerging from previously disadvantaged backgrounds and an established white business, etc.

The picture also varies depending on the type of finance. Although no supporting statistics are available, it is expected that long-term finance is much more difficult to obtain than short-term. Most enterprises need both, but apart from instalment finance for the purchase of equipment, the supply of long-term finance appears to be very limited.

This means that, depending on the segment under consideration, we may be in the presence of different types of "market failure." A frequent assumption underlying statements from various representatives of the industry is that micro- and young/emerging enterprises are less creditworthy than medium-sized firms. This belief is generally backed on evidence that the failure rates of the former are higher than that of the latter. However, there is still a lack of evidence on whether this higher mortality is a cause or a consequence of the higher credit rejections, and whether the higher risks of these segments can be made up for an accordingly higher return. In theory, based on the law of diminishing returns, there would be some room to believe that the provision of finance to highly under-capitalised firms would produce incomparably high returns on investment.

In summation, there are strong reasons to believe that the demand, creditworthiness and supply functions take very different forms depending on the segments of SMMEs. It will be important for policy to recognise this multiplicity and to adopt "target-group focused" approaches rather than one lump-sum approach designed to resolve the finance issue in general.

Although there is funding available for business start-ups via Khula and others, these programmes need to be better communicated and the application procedure simplified.

4.2 Start-up capital

Countries like the USA have a very well established venture capital market, leading to relatively easy access to funds. This is not the case in South Africa, where, although there is an active venture capital market, commercial banks remain the main providers of capital. However, SA banks are risk-averse, and funding for start-ups is generally only available if guaranteed by Government (eg Khula). Even in this case, funding is slow to reach its goals[12].

European Union states are also addressing this difficulty in locating investor funding.

Risk capital is a key source of financing for new and innovative enterprises. The Community's strategy on risk capital is embodied in the 1998 Risk Capital Action Plan. Successive European Councils have acknowledged its importance and called for its implementation by 2003. The RCAP identifies a range of policy areas in which action is required to promote the development of an efficient and integrated market for venture capital in the EU. These are

- integration of national markets;
- institutional and regulatory reform;
- tax reform;
- promotion of high-tech SMEs;
- development of appropriate human resources; and
- fostering of an entrepreneurial culture.

Since the second half of 2000, the EU risk capital market has experienced a severe correction. The correction reflects the continuing deflation of the bubble in technology, media, and telecommunication investment which, together with a global economic slowdown has depressed equity markets and reduced incentives for venture capital investors. But the venture capital industry has matured and is now significantly better equipped to weather economic downturns.

Eliminating the remaining regulatory and administrative barriers will be essential in the revival of the venture capital market.

Finally, the Commission has adopted a Communication on state aid and risk capital clarifying the conditions for compatibility of public funding.

It is clear that there is generally a lack of credit available to the private sector, that banks have very limited experience of lending to SMEs, and that collateral requirements for loans are often high.

To promote business angel financing, the Commission, in the framework of the Best Procedure, in November 2002 published a report on benchmarking business angel policies

[12] "The economics of SMMEs in South Africa", TIPS Dec 2005

in the Member States. **The report noted that the supply of start-up and early-stage equity finance has become more and more dependent on business angels**, who are wealthy individual investors. The reasons for this include changes in the banking sector, which have made lending unattractive for banks due to low margins and high overhead costs. In addition, venture capital funds are also often not able to accommodate the large number of small deals with heavy due diligence requirements. Business angel networks bring together angels and increase the efficiency of the matching of angels and entrepreneurs by making it likelier that angels find suitable entrepreneurs.

The report made the following main recommendations:

- regular surveys should be conducted in the business angel marketplace to increase the ability to make informed decisions;
- sustained awareness raising campaigns are needed in many Member States and in the candidate countries to present the benefits of the business angel market for potential angels and entrepreneurs;
- business angel network operations often need public sector support, and particularly local and regional authorities should consider supporting the business angel marketplace this way;
- the Member States should pay attention to the effects of taxation on business angel activity; and
- at European level, a business angel panel should be created to discuss topical issues affecting the angel community.

Furthermore, the results of a project on informal investors and high-tech entrepreneurship, which was part of the Finance-Innovation-Technology programme, were published in 2001[13]. The project showed that the start-up of a new technology-based firm is often financed by the founder, friends and family, with the help of bank loans. Although loan guarantees can help, as the firm grows, the risk often outgrows the bank's limits. As institutional venture capitalists seldom invest less than €400,000, business angels can fill this equity gap. They provide advice and contacts in addition to finance, and can be grouped into six types depending on their experiences and preferences.

Business angels need an exit strategy for their investment. This can be a sale to a venture capital company, a sale to another company, or a public offering in a stock exchange.

To close existing risk capital matching gaps and complement existing regional initiatives, business angel networks, investment forums, business plan competitions, etc., the Commission supports a pan-European database of investment opportunities, in order to help innovative entrepreneurs and SMEs access existing
networks of financiers, corporate growth and incubator experts and patent officers. The service is managed by a team of investment analysts with a venture capital or entrepreneurial background and offers financing guides, templates and business plan diagnostic methodologies.

[13] Benchmarking business angels, Enterprise DG, November 2002, http://europa.eu.int/comm/enterprise/entrepreneurship/financing/index.htm European Commission, Innovation/SMEs Programme, EUR 17030.

The Growth and Environment scheme is a guarantee scheme designed to facilitate the access of smaller businesses to loans for the purpose of financing environmentally friendly investments. This is achieved by allowing financial institutions to grant loans with favourable conditions to SMEs. The Commission provides budgetary support to cover the cost of the guarantees for these loans. The Growth and Environment scheme is a programme sponsored by the Commission and managed by the European Investment Fund (EIF). By the end of 2001, EIF had committed the total available budget.

SME Guarantee Facility

This Facility was launched in 1998 under the Growth and Employment initiative and extended within the framework of the Multiannual programme for enterprise and entrepreneurship.The following four types of guarantee are available under the facility:

- Loan Guarantees: to support enterprises with growth potential and up to 100 employees. Under this window, the EIF issues partial guarantees to cover portfolios
- of loans;

- Micro-credit Guarantees: to support micro-loans for very small enterprises with up to 10 employees

- Equity Guarantees: counter or co-guarantees of eligible guarantee schemes to cover equity investments in SMEs with fewer than 250 employees (no direct guarantees to venture capital funds)

- The Seed Capital Action (SCA) was launched in 2001 within the framework of the
- Multiannual programme for enterprise and entrepreneurship. It aims to stimulate the supply of capital for the creation of innovative new businesses with growth and job-creation potential, including those in the traditional economy, through support for seed funds, incubators or similar organisations in which the EIF participates. The action provides support for the long term recruitment of additional investment managers to reinforce the capacity of the venture capital industry to cater for investments in seed capital.

4.3 Angel finance and venture capital

Business angel finance and venture capital are often viewed as an alternative to bank finance, especially for young “high-risk high return” companies, whose available collateral or equity resources are too low to qualify for a bank loan.

As far as Business Angels are concerned, most recent statistics suggest that in the last three years, approximately 1.1% of South Africans have privately invested into firms that were not theirs. This is less than in most developed countries, but it suggests that the business angel culture is far from being insignificant. The Global Entrepreneurship Monitor (GEM) evaluates the total amount of angel investment over the last three years at approximately R1 billion.

While there are very divergent estimations, KPMG’s “2000 Private Equity Survey” seems to

indicate that compared with the size of the economy, South Africa has one of the most vibrant venture capital and private equity markets, with more than R33 billion under management (see Table 4.2).

	Value of private equity investments (US $ billion)	As a % of GDP
USA	400.0	4.9%
UK	27.6	2.3%
Israel	10.4	12.1%
SA	4.3	4.2%
Netherlands	4.2	1.3%

Source: KPMG and the South African Venture Capital and Private Equity Association, "2000 Private Equity Survey," April 2001[132]

The venture capital/private equity sector, hence, is not small in South Africa. However, considering that "private equity" includes all equity investments in non-listed companies, the size of the sector is not necessarily an indicator of the importance of equity as a source of finance for SMMEs. Although very little evidence is available in this area, there is a strong presumption that only a small portion is directed to SMMEs (presumably less than R5 billion).

Some research has been done on applications for loans and venture capital. Estimating demand is a difficult exercise, and the lack of reliable data probably explains why few comprehensive attempts have been made. The main source of evidence stems from surveys. In this regard, two interesting studies can be mentioned, again with very different results pointing at a need to derive conclusions through broader and statistically more focused investigations.

The first interesting insights are put forward by Levy (1996). In his interviews of 134 small South African companies, he found that for most of them, access to finance was not perceived as a major obstacle. Out of a list of institutional obstacles, even companies of less than five years of age in average considered "access to finance" a moderate constraint. Further investigations with debt-free enterprises revealed that the reason for their absence of loan was more often the lack of a desire to borrow, or the high interest rates, rather than the collateral requirements or other access problems.

KNC and Associates have surveyed 213 black businesses, most of them being very small to small enterprises with a focus on the services sector. Firms were asked whether they had applied for venture capital funding and if so, whether they were successful. The results point at a lot of unsatisfied demand in the very low layers of the size range.

Size of firms (total assets) (R million	Number of firms	Applied for venture capital funding		Received venture capital funding	
		Number	*In % of firms surveyed*	*Number*	*In % of firms which applied*
less than 0.5 m	120	18	15%	1	5.5%
0.5-2 million	38	7	18%	1	14%
2-5 million	9	2	22%	1	(50%), but not significant
Above 5 m	11	7	64%	3	43%

Source: Karungu *et al.* (2000)

Financing of innovation

Innovation and Technology Equity Capital Pilot Project – I-TEC

The I-TEC (Innovation and Technology Equity Capital) is aimed to encourage economically viable, high-quality early-stage investments in technologically innovative European SMEs, by building lasting capacity within venture capital operators to appraise and manage such investments. €11 million was set aside for 28 venture capital firms. In addition to financial aid, I-TEC offered participating firms access to the Eurotech Data information service, which on demand prepares, within two weeks, a dossier on a technology, market sector or product. Finally, I-TEC participants were invited to a series of half-day meetings to build up a network of contacts, with a view for example to syndicating investments among them or exchanging experience and good practice by discussing topical subjects such as the current exit climate.

The results of the interim assessment of the I-TEC pilot project were published in 2001. It was found that I-TEC complements other schemes, uniquely supporting the cost of managing venture capital, rather than investing directly in equity or providing guarantees. A very high proportion of I-TEC deals were syndicated, indicating a trend for venture capitalists to seek reciprocal transnational syndication of investments as a way of spreading risk. I-TEC participants make more cross-border investments than venture capitalists generally. The industry as a whole has benefited from a long-term increase in capacity resulting from the engagement and training of new staff.

I-TecNet is a pan-European network of early stage technology venture capital investors, launched in 2002. It is part of the Commission's Gate2Growth Initiative (described above, launched in 2002 and builds on the achievements of I-TEC. I-TecNet aims to improve the capacity of European venture capital operators to invest in early stage technology SMEs. The activities of the network include good practice workshops for investment managers from across Europe, with outside experts, a structured visit programme to high-tech cluster locations in Europe, and an internship programme for high-flying business and technology graduates. The network also provides promotion and networking opportunities in workshops, seminars, conferences and partnering events organised across Europe in the context of the Gate2Growth Initiative, as well as access to databases on investment and syndication opportunities. Finally, it provides access to service providers from the Gate2Growh Community in a range of fields and to Eurotech Data, a specialised information service for the venture capital profession. Thanks to I-TecNet, entrepreneurs can access a network of around 70 capable venture capital investors,

interested in business projects with a high degree of innovation in technology, product, service or process and which exhibit a potential for high growth and new job creation.

The Commission published in 2001 the results of the Finance-Innovation-Technology (FIT) project on guarantee mechanisms for financing innovative technology. The project found that a guarantee is often vital to ensure access to finance in a climate where banks are hesitant to support high-risk, low-profit ventures with only intangible assets. However banks are beginning to realise that contrary to common assumption, new technology-based firms (NTBFs) may present a lower financial risk than SMEs in general, because they usually have a core of very highly educated, mid-career professionals, even though they may lack management and marketing experience. Most existing schemes guarantee loans, but those targeting NTBFs, who are keen to benefit from fast growth, often guarantee venture capital equity.

Guarantee schemes face a failure rate of between 3% and 10% of the sums guaranteed. Guarantees do not tend to reduce the interest charged on loans. Some governments are building private sector capacity by supporting mutual guarantee societies. One of the main problems facing guarantee schemes is how to make themselves better known to SMEs. Guarantee schemes are more effective when part of an integrated programme of financial and advisory support measures.

Funding of new technology based firms by commercial banks in Europe

According to the study on the funding of new technology based firms by commercial banks in Europe, published by the Commission in 2000, almost all banks use the same assessment criteria for new technology-based firms (NTBFs) as for other SMEs. Specific approaches to NTBFs are more common among British banks, patchy in other parts of northern Europe, and rare in southern Europe. Overall, only 15% have special packages for start-up companies, and only 27% recognise the existence of an identifiable category of NTBFs. No bank accepts intangible assets such as intellectual property as security for a loan. The major barriers to increased bank lending to NTBFs are the limited flow of applications, high risk, undercapitalisation of applicants, and lack of bank expertise.

Corporate venturing in Europe

According to the survey on corporate venturing in Europe, published by the Commission in 2001, corporate investments of €1.2 billion per year amount to 10% of total European venture capital, but 40% of early-stage investing. About three-quarters is invested in Europe. Corporate venturing is spread evenly through the EU's major economies, with the exception of Italy. Five sectors – communications, utilities, food, drink and tobacco, metal manufacturing and air transport – account for 44% of Europe's corporate venturers. Most corporations making a venture capital investment are primarily motivated by the strategic goal of forging a link with a new technology or market that might prove crucial to its future.

Allowing entrepreneurial staff the scope to develop their ideas through SME spin-outs also gives a corporation the opportunity to exploit in-house R&D quickly and cheaply. SMEs gain credibility from the endorsement of their investor, as well as forms of support that would otherwise be beyond their reach.

We should explore ways to encourage South African corporates (large business) to engage in corporate venturing, possible by enhanced tax relief or public recognition.

4.4 Working capital

Due to their weaker bargaining power and to the higher risk involved for lenders, SMEs are characterised by higher working capital requirements and by a greater proportion of short-term finance. They also pay higher interest rates to lenders to compensate for higher perceived risk.

4.5 Vulnerability to debtors

A related issue to the lack of working capital is the fact that SMEs are vulnerable to actions on the part of larger companies. This is not unique to South Africa; however, the economic concentration of this country creates a situation where smaller companies are very often suppliers to larger companies, who are in turn critical to the success of the smaller firm. SMEs have very little bargaining power with their large clients, and can be easily abused or pressurised.

In particular, slow payment results in poor cash flow, the most common cause of business failure in the SME segment. SMEs are also often in a COD payment mode with their suppliers, which exacerbates the problem.

Combating late payments has become a priority in the EU. Estimates suggest that one out of four insolvencies arise due to late payment, resulting in the loss of 450 000 jobs, and receivables worth €23.6 billion every year. Late payments have been a major problem for SMEs. Following its adoption by the European Parliament and the Council in June 2000, the Directive provides a common European minimum legal framework with provisions for payment periods, due dates and a statutory interest rate, as well as rights for creditors for adequate compensation when they are paid late.

Of particular benefit to SMEs will be the rights accruing to business associations to pursue legal actions against debtors on behalf of their members.

Although many Government departments and certain corporates have payment policies that favour SMEs, it is suggested that South Africa examine means to give SMEs the necessary power to demand timely payment, especially from larger companies, possibly by involving business associations.

5. Access to Information

One of the major problems faced by SMEs is the lack of access to relevant and timely information, needed to make decisions, develop new products and investigate markets. Many of the EU programmes are aimed at using ICT to make information available to SMEs at low cost.

South Africa needs to accelerate the introduction of Web-based information systems, as well as reduce the cost of broadband access and ownership. A **chemicals SME portal** with links to all relevant information sources, eg Chemweb, dti, SARS, Tradeworld etc would be most useful.

Gate2Growth – The European portal for growth businesses

The EU Gate2Growth Initiative is intended to support innovative entrepreneurs in Europe. It provides a common portal for technology entrepreneurs, innovation professionals and intermediaries. The initiative focuses on helping important support players to improve their capacity to assist entrepreneurs by networking and exchanging experience and good practice at European level. These include early stage technology venture capital investors, managers of technology incubators, managers of industrial liaison and technology transfer offices linked to universities and research centres, academics in entrepreneurship, finance research and teaching. Gate2Growth thus provides tools, infrastructure and support services directed to innovative entrepreneurs as well as to their supporters. In response to a request by the European Parliament, a one-stop-shop risk capital website will be further developed.

In SA, First Tuesday is a similar concept, introducing technology entrepreneurs and financiers at informal functions.

1. There is scope for a Web-based system to link the various funding players and allow simpler communication.
2. The Eurotech Data information service, which prepares, within two weeks, a dossier on a technology, market sector or product, could serve as a model for SA venture capital providers.

6. Access to markets

Access to product markets is a critical component of a competitive economy. Entry to product markets naturally depends on the extent to which both regulatory and structural barriers are not biased against potential clients, and in particular small firms, in favour of incumbent or monopolistic firms. The government has an important role to play in ensuring, via a range of policy instruments that those firms that are able to compete do not encounter disadvantages by sectors that control distribution chains, or entry barriers are particularly high due to collusive behaviour.

Besides stimulating domestic demand and encouraging exports, there is not much that the government can directly do in order to assist SMMEs. However, if demand is a constraint because of concentration in product markets, there is a great deal that government can do directly to ensure better access and demand for SMMEs. This section discusses a number of policy options for product market interventions. The effectiveness of policy interventions in this area is, however, not obvious.

SMMEs are specifically sensitive to aggregate demand in the economy. They are, however,

not necessarily more constrained by low aggregate demand than large firms. SMMEs of all size classes and legal statuses identify falling demand levels and/or lack of marketing expertise as their strongest constraints. In an attempt to offset these constraints, policy makers need to distinguish between steps, which will have the effect of broadening the total demand for the output of the SMME sector, and steps that will simply help some SMME firms take away market share from others. Marketing efforts by both SMMEs and support institutions that shuffle market shares of large firms to SMMEs are of no overall value, unless they lower total costs by shifting production from less efficient to more efficient firms.

However, within a slow growing or stagnant economy, there is scope for SMMEs to grow if they succeed in snatching market share from other sectors such as large firms. SMMEs can gain market share from the large-scale sector either through the changing composition of demand in a way that favours SMEs, for example through the increased share of services in total manufacturing, or by more rapid improvements in competitiveness, presumably through cost reduction.

It is incumbent upon the government to ensure that market shares, whether among firms or broadly defined sectors, will mainly respond to a reduction of real costs and not marketing finesse, predatory use of market power, or other things that are not reflected in consumer satisfaction. If there is evidence to suggest that the SMME sector enjoys advantages over the large-scale sector in its employment and distributional impacts (such that the multipliers of SMMEs are higher than those of large firms) then there are good reasons or public policy to ensure that:

- SMMEs do not lose market share to the large scale sector except through genuinely lower costs by the latter
- Competition amongst SMMEs is limited in such a way that real resources are not wasted.

Public policy can facilitate this in various ways. Firstly, an active competition policy will ensure level playing fields. At another level, export assistance and/or indirect interventions such as procurement policy could also be significant. Other means of ensuring SMME advantages over large firms include assistance with marketing expertise.

It has been argued that more favourable macro-economic conditions and effective SMME support measures alone are unlikely to unleash the potential of the SMME sector if high concentration in supply markets continues to hamper the competitiveness of SMMEs, and concentration in product markets (which is typical for most of South Africa's consumer industries) reduces their market access.

Although concentration, anti-competitive behaviour and market access have been identified as possible SMME constraints, it is difficult to determine from the current literature, how significant this is. Nevertheless it would seem that an effective competition policy, which is now in place in South Africa, is crucial.

Market contestability from a SMME perspective has been debated elsewhere but has received little research attention in South Africa. It is, for example, not clear why SMMEs in South Africa are not prominent in certain market segments. Do they lack comparative advantage? Is market access in fact blocked by the predatory behaviours described above? The answers to these questions may vary according to sectors and industries, but they are most urgently needed for those sectors where SMMEs constitute the majority of firms.

Depending on the outcome of such an analysis, intervention through competition policy should be considered.

The focus of such an investigation then needs to shift from an intra-industry to a pipeline analysis. It is useful to determine, for example, whether the extreme dualism that characterises the link between retailers and producers in South Africa's furniture and clothing industries is prevalent in other industries and if so, to what extent monopolistic retailers depress supply by SMMEs in order to keep prices up or to strengthen ties with longstanding suppliers.

As mentioned earlier, if there is evidence to suggest that the SMME sector has advantages over the large-scale sector in its employment and distributional impacts (such that the multipliers of SMMEs are higher than those of large firms), then there are good reasons for public policy to consider promoting the sector. As repeatedly emphasised, this must be underpinned by efficiency and not simply through handouts to inefficient firms.

Exporting

SMMEs usually lack the financial resources necessary to withstand phases of economic decline and to explore export opportunities that could make them less vulnerable to fluctuations in domestic market demand. Indeed, only 10-15% of the sample of SMMEs in Greater Johannesburg engages in exporting. The development of an export surplus, with the help of a realistic exchange rate allows aggregate demand to exceed aggregate absorption. However, encouraging exports is another daunting challenge.

Exporting as a growth opportunity for SMMEs that are confronted with falling local demand has been a popular recommendation during the late 1990s in South Africa – both among policy makers and SMME entrepreneurs alike. Despite a number of export promotion schemes, however, export efforts by SMMEs have been modest, in the region of 15% of output, while SADC-countries appear to be the major export destinations. Problems range from

- establishment of the first contacts and marketing
- development of production capacity to meet higher quality requirements
- logistics
- price competitiveness

The Export Promotion Schemes of the DTI consist of financial assistance for entrepreneurs to personally explore potential export markets and to overcome liquidity problems because of delayed payments for exports and/or the fluctuating exchange rate. Despite the importance that has been attached to the export potential of SMMEs, there is little empirical evidence on successful SMME exporters or constraints that are specific to exporting SMMEs. Therefore, policy makers have little guidance from the literature.

As a first step, the broad exporting environment has to be assessed. This involves an analysis of how recent global markets behave, followed by an evaluation of measures that are more specific to the concerns of smaller exporting firms. This could include concerns such as the removal of red tape required to get started in the exporting business, encouragement of participation in domestic and international fairs that can provide important information on markets and technology, as well as the identification of appropriate human

resources that are most important to help firms in this area (e.g. language skills where targeted markets are not English-speaking).

A second phase could see the registration of products and services currently exported by South African SMMEs and the province of origin in order to get a spatial handle on the export behaviour of SMMEs.

The relatively small size of the South African chemicals market, linked to the cost implications of small volumes, necessitates intense focus on export-based business. This can be promoted by

- high-level trade agreements (AGOA, Mercosur FTA etc)
- export assistance to industry (dti schemes)
- information on export markets
- information and assistance in export procedures, customs requirements etc, usually provided by trade associations
- opening up of African markets (via Nepad)
- provision of efficient logistics hubs (IDZs etc)
- reducing the cost of transport to ports

In addition, Government can play a role by insisting on procurement from SMEs wherever possible, and using locally manufactured goods.

Most of these issues have been recognised, and Government is putting the required measures in place. However, the details and implications of trade agreements need to be communicated to SMEs so that they can take advantage of opportunities.

7. Supporting needs

7.1 Information and communication technologies (ICT) skills

The availability of adequate information and communication technologies (ICT) skills is an important condition for the competitiveness of chemical enterprises in the global economy and the implementation of any competitive strategy. This emphasises the urgent need to tackle ICT and e-business skills shortages and, in this context, to promote the development of e-learning solutions, in particular solutions that are adapted to the needs of SMEs.

The development of e-business applications is increasing the demand for individuals with creativity and higher-level conceptual skills that will enable enterprises to increase productivity and harness ICT to produce greater economic value. Improving the availability of ICT and e-business skills (e-skills) involves actions at national level in several areas:

- Education & training
- enterprise and labour policies
- immigration
- outsourcing

- taxation
- research.

7.2 Stimulating the use of the Internet

To stimulate Internet take-up, the EU has concentrated on providing a favourable environment in which companies and any other types of organisation can develop digital skills and services.

7.3 Broadband access and security: The important enablers

In the eEurope 2005 Action Plan, the importance of broadband networks is emphasised. Broadband networks as such will not create future SMEs, but as part of the transformation, broadband networks can help in providing SMEs with faster and more stable communications. Broadband means faster infrastructure, and will be accompanied by powerful economic and social implications.

7.4 Entrepreneurship

Encouraging entrepreneurship is a key to creating jobs and improving competitiveness and economic growth. Although the rate of entrepreneurship (actual or potential entrepreneurship) may be influenced by a number of different factors, there is also a cultural aspect that needs to be taken into account. In this respect, education may offer an important contribution. The development of an entrepreneurial attitude should be encouraged in young people, starting at school. The EU Communication on Lifelong Learning and the detailed work programme on the follow-up of the objectives of education and training systems in Europe, which defines entrepreneurship as a basic skill, both stress the importance of developing an entrepreneurial spirit among European citizens.

Benchmarking of education and training for entrepreneurship

In October 2000, the EU Commission organised jointly with the French authorities a Forum on “Training for Entrepreneurship”. As a follow-up, a Best Procedure project,”Education and training for entrepreneurship” was launched by the Commission, in close cooperation with the administrations of the Member States and Norway. The objective of the project, concluded in November 2002, was to identify and compare initiatives from across Europe that aim to promote teaching entrepreneurship in the education systems, from primary school to university. It concluded that entrepreneurship is now widely recognised as an important issue to be taught, with numerous initiatives underway.

In addition to this common trend, the project also highlighted that, in many countries, in particular at secondary level, schemes based on learning by doing (e.g. “mini-enterprises” created and run by students) are a widespread instrument for the development of enterprise skills. However, it was recommended that they be better integrated into the education systems and made more widely available.

Initiatives aiming at promoting the development of an entrepreneurial spirit are still not frequent at the level of primary school, but more widespread in secondary schools, very often depending on initiatives taken individually by the educational institutions.

The provision of specific training to the teachers on the subject of entrepreneurship is insufficient, both as regards initial training in teachers' colleges and further vocational training available during their career.

Links between schools and the world of business, aimed at the promotion of entrepreneurship are widely developed in most countries.

Entrepreneurship is key for the development of all SMEs in South Africa, including in the chemical industry, and the experience of other countries needs to be taken into account. The issue of teaching entrepreneurship, and at the appropriate levels, should also be addressed.

7.5 The issue of business failure

If an entrepreneurial culture is to be entrenched, there has to be a change in both the legal handling of and attitudes towards business failure. In the USA, business failure (while never sought, often occurs) does not attract the same social consequences as in say Europe or Japan. Entrepreneurs are expected to fail occasionally, and bankruptcy is simply a business/legal process, not a personal insult. In Japan and Europe, business failure can lead to social exclusion of the individuals concerned. As a result of these differing attitudes to failure, the USA has the highest rate of business start-ups and innovation in the world.

In 2002, the European Commission built on the Seminar on Business failure in Noordwijk in May 2001 and a study on the legal and social consequences of insolvency in 2002. On the basis of these, the Commission started a working group gathering experts from the Member States. This group discussed the results from the study, with a view to establishing benchmarks and guidelines for implementing change on restructuring, bankruptcy and a fresh start.

In 2002, to raise awareness for the need for action to avoid insolvency, a guide entitled "Helping businesses to overcome financial difficulties", highlighting the key results was made available in all the Community languages[14].

A similar guide should be considered for South African business.

7.6 Improved logistics

Logistic costs must be considered from an integral point of view, which includes the whole value chain, from suppliers to end consumers. Companies need to learn to identify and segment the key agents of the value chain. For example, suppliers must know where to compete: as first tiers, second tiers or applicators/assemblers.

Integral logistics comprises a set of actions and procedures necessary to schedule the production, get materials and components, manage the stock adequately, attend to the orders for finished products and later distribution to clients.

[14] See Recommendation C(97) 1161 of 22 April 1997 on Improving and Simplifying the Business Environment for Business Start-ups, OJ L 145, 5.6.1997

The techniques commonly used to optimise the manufacturing and logistic system are just-in-time and lean manufacturing, which enable firms to achieve the objectives concerning service and program accomplishment, minimising costs (mainly stock financing), need for plant space, transportation, packing and handling of materials and distribution of finished products.

On line interconnection between all the points of the value chain, and the harmonisation of standard criteria of the documentation and information, which regulates transactions is absolutely necessary to approach the philosophy of lean manufacturing. This implies new organisational models and new challenges for all the agents of the chain. Compatibility between the development of local clusters and the promotion of international outsourcing becomes a requirement.

It is interesting to note that the CSIR estimates that logistics costs in South Africa represent 14.7% of GDP (R180bn), compared to 8.5% in the USA. Considering that most chemical companies are based inland, there is therefore a major cost disadvantage for firms wishing to export.

South Africa is not unique. In the EU, there is serious concern over the growth in transport requirements. Shipments of chemicals in Europe total 1.5 billion tons per year, or 8% of total freight volume. The longer-term transport picture is worrisome. Freight volumes are predicted to increase by 50% in the next 10 years. Major changes are therefore required if gridlock is to be avoided. Removing the competitive obstacles described above is all the more vital as the European chemical sector is a highly globalised industry, exporting more than a quarter of its production.

In Singapore, major steps have been taken to enhance the global competitiveness of SMEs in the chemical industry. The Government has set up logistics hubs at relevant ports, which house smaller chemicals companies. Transport costs are minimized and logistics are highly efficient, with close cooperation along the chain[15].

1. If SA is to follow a similar export-based route, logistics problems will have to be avoided by proper planning, maintenance of transport infrastructure
2. Development of expertise in efficient logistics needs to be encouraged, including development of software tools.
3. Development of IDZs and Trade Hubs should also be progressed, as a means of reducing logistics costs and increasing SME competitiveness.

[15] The chemical industry in Asia now has a one-stop logistics support centre, with the opening of Jurong Logistics Terminal on Jurong Island. The centre, operated by Katoen Natie SembCorp, brings new logistics solutions to both local and overseas chemical producers. Its services include material handling and processing, packaging, silo storage, drumming as well as inventory management, transportation and transshipment of liquid and solid chemical products. Katoen Natie SembCorp also plans to develop a speciality chemical node to provide tailor-made solutions for speciality chemical companies.

In this facility, companies will be able to take up units of different sizes for processing purposes, and Katoen Natie SembCorp will provide logistics services on a multi-customer basis.

SECTION 10 – EMPLOYMENT ISSUES

Labour regulation and employment dynamics

The promotion of SMMEs is seen as an instrument to foster employment creation. There is, however, little empirical evidence on how strong this effect might be in South Africa. Current research on SMMEs in South Africa is limited to the use of entrepreneurs' perceptions, which invariably point to the constraining effects of labour market regulations, and in particular minimum wages. However, the research has thus far failed to analytically investigate the functioning of the labour market, and this in turn impacts on growth in SMME employment.

The functioning of the labour market is likely to affect employment growth in SMMEs because small firms tend to be more labour intensive than their larger counterparts. Indeed, SMMEs are disproportionately found in labour-intensive industries like clothing and furniture, and within a given industry they are more labour intensive than their larger counterparts. It is accordingly expected that high labour costs would deter new SMME formation and employment increases in existing firms.

As a middle-income country, South Africa has a highly heterogeneous labour force with a high dispersion of labour productivity (owing to a high variance in skills, which correlates with wage levels if left to the forces of the market). While the existence of a large supply of low-skilled labour should allow SMMEs to employ such labour at low wages, labour regulation may deter the skill-productivity-wage balance. There are indications that wages matter more to SMMEs than to larger firms, and that the application of too high a minimum wage makes SMMEs either exit, or become less labour intensive, i.e. to become more like larger firms. So far, however, this effect of wage levels on employment growth or decline in the SMME sector has not been rigorously analysed or quantified.

Flexibility of labour

Another issue of concern is the flexibility of South Africa's labour force. The typical growing SMME does not expand smoothly or continuously. Instead, its employment often fluctuates, reflecting the arrival of competition into the niche it was the first to find, the resolution of internal problems or those of the SMME entrepreneur and so on. There are indications that regulations that limit the flexibility of 'hiring and firing' cause some of the SMMEs that supply very volatile product markets to close down. Unfortunately, it is difficult to assess just how much flexibility is really needed for the survival of different groups of SMMEs, and how much merely provides a pretext for unfair dismissal. Likewise, the enforcement of basic conditions of employment such as paid maternity or sick leave especially burdens SMMEs because the monetary and labour replacement costs involved are not spread over a large enough work force.

One of the objectives of the dialogue with the respective unions is to clarify the difference between the areas where there is a true trade-off between the welfare of existing employees and the potential to create more jobs vs. those other areas where no such trade-off exists. This involves some combination of compromise between the interests of the two groups, and involvement of the state to bear costs, which neither of the two parties should bear. There is a widespread tendency in developing countries for unemployment insurance systems to take

more of the burden of labour reallocation off the firms, while at the same time avoiding a situation where the workers are forced to pick up that burden.

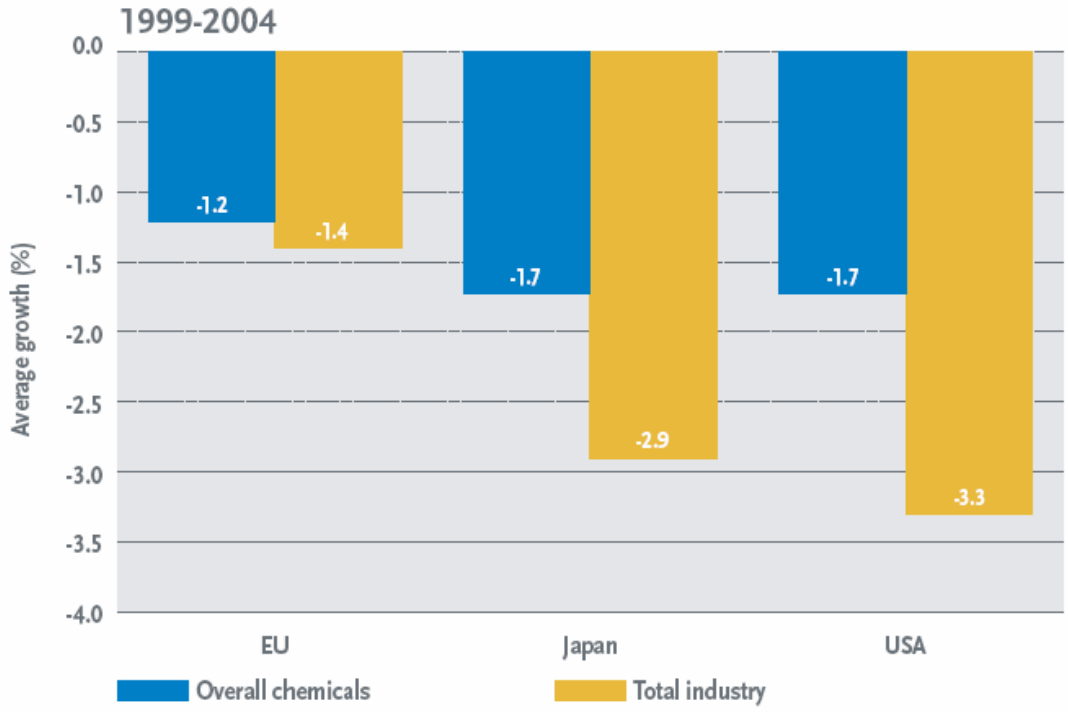
Research required

In order to assess the impact of labour market dynamics and regulation on SMME growth, data on employment changes by size and sector and on wage differentials among different sizes of firms is needed to answer the following questions

- Is South Africa's labour structure different from other middle-income countries, in
- particular with regards to self-employment in the micro-enterprise sector?
- Does measured open unemployment obscure survivalist or micro-enterprise activities?
- Are there large wage differentials between small and large firms, and are the associated
- wage/employment elasticities different (apart from variation across sectors)?

Labour trends in the chemical industry

Internationally, all industry is shedding jobs, and this is also true of the Chemicals sector.



Sources: Cefic, ACC & Eurostat

Due to the nature of Chemicals manufacturing (which requires technology, equipment, packaging, testing, etc), informal employment will usually be insignificant. However, downstream activities such as distribution and application may involve informal workers.

The labour profile of the Chemicals sector varies depending on the size of the firm. Larger firms have a higher proportion of professional skills, whereas smaller companies usually only have a single technical post, with the majority of the workforce being semi-skilled labour. The proportion of highly skilled personnel (defined as professional, semi-professional, technical, managerial, executive and administrative) is growing, from 16,9% in 2000 to 17,1% in 2001[16]. This indicates a decrease in labour-intensive operations and an increase in higher-technology development.

In general, Labour is well organized in the Chemicals sector, with most of the workforce being unionised. All larger firms are unionized, but there are exceptions in the smaller firms. The major union is the CWIU.

[16] Source: TIPS Standardised Industry Data Base

SECTION 12 - CURRENT SUPPORT MECHANISMS FOR CHEMICAL SME'S

The table below gives an overview of schemes provided by National and Provincial government to support SMEs (including chemicals). A full discussion of the services and support offered by each of these organisations is provided in the Appendices.

Institution	Name	Main focus	Comment
Thedti:			
The Enterprise Office (TEO)	Critical infrastructure Fund	Large organisations	▪ Not applicable to SMEs
	Accelerated depreciation allowance	All manufacturers	▪ Good scheme to encourage new investment in manufacturing assets ▪ Most SMEs do not pay significant taxes, so the value of a depreciation allowance is limited
	Industrial Development Zones	Export-focused manufacturers	▪ Used extensively internationally ▪ Could be highly attractive to exporting SMEs. ▪ Good for high value-added products, eg fine chemicals ▪ Admin & logistics support available for SMEs ▪ Implement IDZs in less-developed areas.
	Foreign Investment Grant	All manufacturers	▪ Good scheme to encourage foreign firms to export technology to SA in partnership. ▪ Grants are ideal for SMEs.
	Strategic Industrial Projects	Large organisations	NA
	Competitiveness Fund	All firms	
	Sector Partnership Fund	All firms	▪ Size of grant suggest that it will only be used for large projects
	Small and Medium Enterprise Development Programme	SMEs	▪ Cash incentives attractive to manufacturing SMEs. ▪ No data available on take-up.
	Skills Support Programme	All organisations	▪ Good for SMEs with large labour force. ▪ Admin load to heavy for smaller firms
	Export Marketing Incentive	SMEs	▪ Good scheme to support export activity. ▪ Administration light ▪ Funds are limited
	Business Regulatory Compliance Advice program	SMEs	▪ Valuable advice for SMEs ▪ Not widely known or used - should be communicated.
	SEDA	SMEs	▪ Joint dti, CSIR, Ntsika initiative to support SME manufacturers

TISA	Registration of patents, trademarks and quality marks	All firms	▪ Valuable service for SMEs ▪ Reports of very long delays
	Sector specific assistance (export councils, industry associations, Joint Action Groups etc)	All firms	▪ Valuable if SMEs join and take part in these
Khula	Technology Transfer Guarantee Fund	SMEs	▪ Loan guarantees are valuable to SMEs ▪ Good support for SMEs to import technology ▪ CSIR involvement can be problematic, as it can be seen as a competitor
	Various loan schemes	SMEs via retail funders	▪ Loans are available at preferential rates via RFIs. ▪ Administration and requirements limit the use of these funds
	Mentorship programmes	SMEs	▪ Business Training and assistance/advice to SMEs ▪ Response to previous gap identified ▪ Necessary for SMEs
Department of Science & Technology	Innovation Fund	All organisations	▪ Useful for development and application of new technologies
	Godisa	SMEs	▪ Incubator programme very useful for chemical SMEs
CIPRO	Registration of companies	All firms	▪ Necessary for SMEs ▪ Administration appears to be effective
SABS	Product test	All firms	▪ Used by SMEs
	Product certification (Mark scheme) and Capability Assessments	All Firms	▪ Used by SMEs if products require certification. ▪ Problem in that standards are written by Industry – often controlled by larger companies and may exclude SME products .
	System Certification (ISO 9000, 14000, OHSAS 18000, HACCP)	All firms	▪ Necessary for SMEs doing business with larger firms and export markets.
IDC	Finance for the expansion of the manufacturing sector	All firms, but focusing on larger investments	▪ Requires owners to have an equity stake – often disqualifies SMEs with little capital ▪ Not geared for smaller projects.
	Support Programme for Industrial Innovation (SPII) ▪ Matching Scheme	All firms	▪ Useful for SMEs ▪ Matching scheme good for supporting development ▪ Feasibility Scheme assists in developing the viability study. Grant too low (R30,000) for most Chemicals projects

	▪ Feasibility Scheme ▪ Partnership Scheme ▪ Risk Capital facility		
	Bridging Finance Scheme	All firms	▪ Aimed at larger contracts, as the minimum finance is R 500,000 ▪ Could be useful for SMEs wishing to enter Government business, or larger exports.
	Empowerment Finance Scheme	SMEs	▪ Loans of minimum R 5 million ▪ Useful to bring empowerment partners into manufacturing sector
Technology for Women in Business	Support for women in technology, business & entrepreneurship	All firms	▪ Indirect support – recognition and encouragement rather than assistance ▪ Valuable in attracting skills to technology ▪ Longer term effect on SMEs
CSIR	Material and manufacturing support	All firms	▪ Potentially excellent support for chemicals SMEs. ▪ Provides access to high-level technology skills ▪ Costs can be prohibitive
	Technology for Development Programme	SMEs, rural communities	▪ Good transfer of technology
National Treasury	Various tax concessions	All firms	▪ Only used for pure R&D activities ▪ Not SME related
Business Partners	Innovation Investment Product	SMEs	▪ Useful to make loan finance available to SME owners ▪ Risk-related premium adds to high cost of finance – may cause the business to be uncompetitive or the investment unattractive.
Chemin	Chemical incubator	SMEs in the chemical sector	▪ Provides infrastructure for new manufacturers. ▪ Location may not be ideal ▪ Not fully utilised.
Salmar	Commercial support	SMEs in chemical sector	▪ Useful in assisting start-ups.
BRAIN Website	Information	All firms	▪ Very useful site for general business support ▪ Not focused on Chemicals – recommend that a linked site be created.
Chemweb & Chemissa	Information	Chemicals	▪ Good source of information for SMEs in the chemical sector ▪ Should be expanded to cover all aspects of the industry, eg o Regulatory requirements o Safety/Hazardous substances

			o Customs requirements o Chemicals databases o Industry directory o Chemissa market/trade data to be made available free.
Provincial bodies	Wesgro	All firms	▪ Provide a combination of business advice, access to finance and infrastructure. ▪ Good support in terms of information and trade information
	TIKZN	All firms	"
	TIL	All firms	"
	MII	All firms	"
	GEDA	All firms	"
	ECD	All firms	"
Business Skills SA	Sizanani Scheme	SMEs	▪ Start-up capital and assistance to new business owners
KEY			
Finance			
Skills			
Information			
Business support			

According to the TIPS report in December 2002:

Although little research has been undertaken to specifically assess the effectiveness of new and restructured institutions providing support to South Africa's SMMEs, there are indications that the originally well-intended policy measures suffer from suboptimal implementation. General distrust to external agencies among SMMEs on the one hand, and the incapacity of support institutions to persuasively raise awareness about their existence and effectiveness on the other, are said to lie at the heart of the problem. Moreover, the poor co-ordination of service providers results in a replication of services, and clustering of institutions in urban areas.

This section explores these general findings and some more specific ones regarding the particular institutions.

12.1 No outreach to SMMEs

Both emerging and established SMMEs show little awareness of the existence of SMME support initiatives[17]. 57% of emerging SMMEs interviewed in Gauteng and 70% in the Western Cape had never had contact with or even heard of any support institution[18]. Established SMMEs, by contrast, are embedded in a network of "traditional institutions", such as the industrial councils and industry associations, but perceive them to lobby for large firms only and largely on labour-related issues. The lack of faith in the ability of the government to make interventions that would lead to an improved environment for small business contributes to SMMEs not looking for assistance from the DTI. Nevertheless, it seems that South African SMMEs have not developed a culture to use private consultants and tend to underestimate the usefulness of these services.

[17] Rogerson and Reid, 1997; Ntsika, 1999; Rogerson, 1999.

[18] Bloch and Kesper, 2000

12.1 Uneven distribution of services

Research into the support institutions of manufacturing SMMEs in Western Cape and Gauteng provides ample evidence that there is no lack of support services as such, but rather that there is an uneven spread of where, how and in which fields services are offered. More than a third of Gauteng's SMME service providers, for example, are located in the Johannesburg magisterial district. General education and training, especially in 'business skills,' emerge as the most prominent areas where support is offered, while more specific needs such as legislation around SMME start-ups, have received little attention by both public and private support institutions.

12.3 High search costs of service provision

The search costs to find an adequate service provider are prohibitive for SMME owner-managers whose time spent on non-productive activities has high opportunity costs. Contact details and recommendations of specific service providers are available neither from the Ntsika nor Khula Helplines, and referrals among local support institutions are rare. Likewise, the telephone directory, as the easiest accessible database of support institutions or directories prepared for the provincial SMME Desks (in Western Cape and Gauteng, for example), offers little specification of the services offered and the hourly rate charged. Once a potentially suitable service provider is identified, it is extremely difficult to get hold of the 'right' person at the first phone call made. Hence, the search for support is more than often given up before reaching its target due to the time and effort required.

12.4 Cumbersome administration and discontinuity of programmes

Once again, the main reasons why the DTI incentive schemes targeting SMMEs have not been used extensively are lack of information about their existence, red tape accompanying applications, and discouragement by dismal experiences of other applicants. Indeed, in the particular case of the Competitiveness Fund, for example, firms are expected to identify their needs and provide a detailed analysis how their performance will improve in the event that their proposed investment might be funded. Moreover, the requirements to qualify for and the components of certain schemes such as the SMEDP (see above) have changed several times over the past years without proper communication, which frustrates SMME owner-managers applying for these schemes.

12.5 SMME SUPPORT PROGRAMMES UNDER SCRUTINY

The 1999 survey on SMMEs in Greater Johannesburg revealed that SMMEs attach great importance to government promotion programmes for their growth. In order to assess the relevance and effective implementation of the existing SMME support, it is useful to unpack its different stages, ie:

- Design of programmes
- Marketing
- Implementation

The DTI, Ntsika and Khula are involved in the design of SMME support programmes and administer their implementation, which relies on the respective local intermediaries. The 1999 SMME survey raised the following questions to assess the functioning of programme support at different levels:

Table 3.1: Functioning of SMME Programme Support

Questions	Indicator to assess
Awareness of programmes	Marketing
Attempted usage of programmes	Design and Relevance for SMMEs
Assistance received	Administration or Description of Programmes
Comments on quality and cost of service	Relevance and evaluation of implementation

Table 3.2 and 3.3 provide information on the level of awareness and use of DTI and Ntsika/Khula programmes[50] among SMMEs in Greater Johannesburg.

Table 3.2: The use of DTI programmes (n=792)

	Awareness		Approached for assistance		Received help		Quality		Cost	
	Freq	%	Freq	% of those aware	Freq	% of approached	those Useful	% of those helped	Fair	% of those helped
Competitiveness Fund	16	2%	0	0%	0	N/A				
Sector Partnership Fund	19	2%	4	21%	3	75%	3	100%	3	100%
Economic Empowerment Scheme	121	15%	3	2%	2	67%	2	100%	1	50%
Venture Capital Scheme	78	10%	1	1%	1	100%				
SMME Development Program	100	13%	5	5%	2	40%	2	100%	2	100%
Emerging Entrepreneur Scheme	49	6%	1	2%	1	100%	1	100%		
Other	29	4%	7	24%	6	86%	5	100%	4	80%
Training Programs	27	3%	9	33%	8	89%	7	88%	4	57%
Loan Programs	97	12%	48	49%	46	96%	42	95%	13	31%
Total	536		78	15%	69	88%	62	95%	26	46%

Source: Chandra *et al.* (2001)

Table 3.3: The use of Ntsika/Khula programmes (n=792)

	Awareness		Approached for assistance		Received help		Quality		Cost	
	Freq	%	Freq	% of those aware	Freq	% of approached	those Useful	% of those helped	Fair	% of those helped
Local business service centre (LBSC)	46	6%	6	13%	5	83%	3	60%	4	80%
Tender advice centre (TAC)	69	9%	15	22%	11	73%	7	70%	10	100%
Retail financial intermediary (RFI)	23	3%	2	9%	2	100%	2	100%	2	100%
Technopreneur programme	16	2%	0	0%	0	NA				
Training and capacity building	45	6%	8	18%	5	63%	5	100%	4	80%
Training assistance	56	7%	7	13%	4	57%	4	100%	3	75%
Other	20	3%	11	55%	6	55%	4	80%	3	60%
Total	259		49	19%	33	67%	20	77%	22	85%
South African Bureau of Standards	518	65%	71	14%	67	94%	60	91%	52	81%

Source: Chandra *et al.* (2001)

The data in Tables 3.2 and 3.3 clearly indicate that only a very small percentage of SMMEs in Greater Johannesburg use support programmes. Indeed, besides the SABS and SBDC loan programmes, only about 7% of the 792 SMMEs received assistance from the respective institutions. Hence the criticism that these programmes are not effectively reaching their target groups is not unjustified. Nevertheless, the data in the tables allows for an in-depth analysis of where the source of the problem lies, i.e. whether it is in the design, the marketing or implementation at the micro-level.

12.5.1 Awareness of support programmes

Although all 792 SMMEs that participated in the 1999 survey were formal, only about two thirds were aware of DTI programmes. Awareness of programmes administered by Ntsika and Khula was even lower. Indeed, only one-third of the sample SMMEs had on average heard about these programmes. These findings support the general perception that SMME support programmes need to be marketed more effectively.

12.5.2 Attempted usage of support programmes

Of those SMMEs that know about the DTI programmes, only 15% approached the DTI and its related institutions for assistance. In the extreme case of the Venture Capital Scheme, for example, only one SMME (out of the 78 that were aware of it) finally approached the IDC for assistance. The local intermediaries that implement Ntsika and Khula programmes were approached by 19% of those SMMEs that were aware of them. Overall, however, more than 80% of the SMMEs in the sample did not approach either institution for assistance despite being aware of their programmes. These findings suggest that the respective institutions need to work on establishing trust relationships with SMMEs.

12.5.3 Receiving assistance from support institutions

On average, two-thirds of the SMMEs that applied to Ntsika or Khula, and 88% of those approaching the DTI and its related institutions, received assistance. The remaining SMMEs apparently did not meet the requirements to qualify. This may indicate that the selection criteria are not made sufficiently clear to potential applicants.

12.5.4 Satisfaction with support programmes

Contrary to general perceptions, the vast majority of SMMEs that use support programmes appear to be satisfied with the assistance they obtain in terms of reception, quality and cost. Nevertheless, Ntsika's 'flagship' LBSC programme was rated worst (40% of SMMEs did not find it useful), which confirms the findings from other surveys referred to above. Likewise, the costs of loans provided by the DTI and its related institutions were perceived as too high by 69% of the sample SMMEs.

In sum, SMMEs in the Greater Johannesburg Metropolitan Area rate government promotion programmes as one of the leading factors to assist in their growth. Data from this section clearly indicates, however, that current SMME support programmes have ample room for improvement. Stronger marketing efforts will help to increase the awareness among potential beneficiaries, but perceptions of institutions and selection criteria for programmes, decide whether usage follows awareness. Contrary to general assumptions, SMMEs that received assistance are generally satisfied with the quality and costs of services.

12.5.5 Differential use of SMME support programmes

Findings from the 1999 SMME survey in Greater Johannesburg suggest that certain segments of the SMME economy use particular programmes more frequently. The identification of those SMMEs that use particular support programmes may inform the refinement of such programmes to target only specific segments of the SMME economy. The findings are discussed in this subsection.

12.5.5.1 Sectoral differences

The use of support programmes differs from sector to sector. Differential use51 by sector and industries suggests that support programmes respond better to the needs of some industries than of others. The data in Table 3.4 reveals, for example, that almost 25% of the clothing industry use support programmes, as compared with about 8% in tourism and 5% in IT.

Table 3.4: Differential use of SMME promotion programmes by sector

Sector (p-value = 0.10)	% Using
Clothing/garments	23%
Metal workers	11%
Furniture	12%
Prepared food/beverage	9%
Tourism	8%
Construction	12%
Retail	11%
IT	5%

Source: Chandra *et al.* (2001)

12.5.5.2 Differential use by size

Overall, usage of SMME programmes is alarmingly low for SMMEs of all size classes. The data in Table 3.5 suggests that larger SMMEs are more likely to receive assistance than their smaller counterparts. The fact that only 6% of the micro-enterprises use SMME support programmes points to the poor reach or inadequate response to the needs of 'emerging' SMMEs.

Table 3.5: Differential use of SMME promotion programmes by size class

Size (p-value = 0.035)	% Not using	% Using
Micro	93.56	6.44
Very Small	87.34	12.66
Small	86.15	13.85

Source: Chandra *et al.* (2001)

12.5.5.3 Stronger use by exporting SMMEs

Exporters make more use of SMME support programmes than non-exporting SMMEs. This does not only apply to support programmes to facilitate exports such as the EMIA, for example, but to the entire spectrum of programmes. These findings point in two directions. First, initial awareness and successful usage of one of the programmes is seemingly followed by further usage of other programmes. It is therefore critical to inform a particular SMME about the most applicable programme to stimulate its demand for other programmes. Second, if exports are identified as a potential source of growth, more attention to export promotion schemes may foster such growth.

12.5.5.4 Differential use by race

Finally, black entrepreneurs use SMME support programmes more than their white counterparts. The higher usage by PDI entrepreneurs indicates that supply-side measures indeed play a role in economic empowerment and reach their target group (at least in 'very small' and 'small' enterprises). These programmes have, however, not been able to channel more foreign direct investment into the SMME economy.

Table 3.7: Differential use of SMME promotion programmes by race

Race (p-value = 0.001)	% Not using	% Using
Black	81.25	18.75
Coloured	85.71	14.29
Asian	89.86	10.14
White	93.38	6.62
South African – no race	79.03	20.97
Foreign - from other African country	100	0
Foreign - from country outside Africa	92.06	7.94

Source: Chandra *et al.* (2001)

12.5.5.5 Stronger use by growing or older SMMEs?

Further cross-tabulation not shown here reveals that there is no significant relationship between growth status or age and usage of SMME support programmes. While it is possible that the latter's gestation period is longer than a few years, these results may equally indicate that programmes are ill-designed to promote SMME growth, or that growing SMMEs are not using government support programmes. The available data does not allow for a clear answer in this regard.

12.5.6 General observations

It is generally agreed that the originally well-intended support programmes focus on the main SMME constraints, but suffer from sub-optimal implementation. Contrary to such perceptions, however, the incapacity of support institutions to persuasively raise awareness about their existence and effectiveness explains low usage of programmes better than their poor implementation. Except for the LBSC and loan programmes, SMME entrepreneurs are seemingly satisfied with the assistance received.

Usage of programmes is higher among black-run, exporting and larger SMMEs. Stronger marketing efforts are needed to raise awareness among smaller black-run and non-exporting firms.

Blueprint's research supports the overall conclusions for the Chemical industry, which are more fully discussed in the Kaiser report. However, we emphasise those and additional measures applicable to SMEs.

SECTION 13 – RECOMMENDATIONS

The following are gaps in support for chemical SMEs, with suggested actions:

Provision of Finance

- Encourage development of additional start-up finance schemes as there is a significant market failure amongst private sector lenders to provide adequate funding
    - Encourage venture capital market
    - Provide timely data for potential investors
    - Provide a mechanism for contact between capital providers and SMEs
    - Reduce investment risk through loan guarantee schemes
- More support for conducting marketing activities in key export markets – extend the EMIA and ensure that sufficient budget is available
- Review level and terms and conditions of development finance. Tax incentives are usually of little use to SMEs (especially start-ups), as these will only be in a taxable position at some time in the future.
- Streamline and coordinate incentives for the sector
- Develop tools (mapping and checklist) that enable potential applications to easily assess which incentives fit a given strategic business need and to make a quick first assessment of eligibility
- Simplify application procedures and tailor to chemicals industry if possible
- Create a stepped application procedure for all incentives, so that the lower capital requirements from SMEs are simple and quick.
- Provide a “one-stop-shop” service where applicants can present a project and its objectives and be connected with the appropriate incentives entity
- Use a Chemical SME Portal to guide the process and link to support providers.
- Enhance role of intermediaries/consultants
    - Consultants do not play a significant role in assisting SMEs, except
        - When funded as part of the SPII Feasibility Scheme.
        - When provided by Macs/SEDA
    - However, consultants can be provided as part of the offer at SEDA sites, Khula, Business Partners, Provincial investment bodies and others. These could be used to guide the SME owner in the most optimal use of incentives, and to assist in preparing the necessary applications.
- Enhanced, targeted finance schemes in Provinces
- Procurement to support SMEs

Regulation

- Continue with elimination of regulatory requirements
- Rationalise regulations
- Benchmark any new regulations with our competitor nations
- Business support centres to provide assistance with compliance
- Analyse the impact of international and trading partner environmental regulations on local SME suppliers, and steps to be taken to comply
- Consistent application of environmental regulations to all firms
- Application of Safety & Health provisions
- Enforcement of municipal zoning requirements
-

Information

- Design and implement Chemical Industry portal that provides a single source of information for all players in the South African Chemical industry
- Provide links for SMEs to network and access research
- Extend the EMIA and support for accessing market information.

Innovation & Skills

Local government to provide suitable training facilities
Create an education programme to teach entrepreneurship
Create a training programme to teach firms how to manage innovation

Techno-economic issues

Manufactured goods

Following from the discussion above, and considering the shortage of resources such as skills and capital, it is recommended that SMEs in the South African chemical industry be guided to concentrate on niches that have potential for superior economic growth, or where local SMEs may have a significant competitive advantage, eg

Domestic potential for growth

- Water supply and treatment
- Agricultural products, eg agrochemicals, natural products
- Pharmaceutical support services, eg clinical trials
- Production of generics
- Mining applications

Export potential

- Mining supplies
- Mining Technology
- Agrochemicals
- Niche agricultural products (eg herbs & derivatives)
- Industrial cleaners, degreasers etc
- Develop a niche for Black consumer products
- Generic drugs
- Water treatment chemicals
- Biochemicals

Services

It is well known and accepted that the Services sector is many times more employment intensive than manufacturing. It is also less capital-intensive. SME firms could be encouraged to enter:

- Service/applications industries

- Analytical services
- Logistics services
- Business support services focused on the Chemical industry

General

- Incentives communication / awareness raising
  - There is still a general lack of awareness and uptake of incentives that are available to SMEs
  - Publicise available incentives in key industry publications (e.g. Engineering News) and to industry service providers (e.g. professional service providers, CSIR, universities, etc.)
    - Communicate role of Manufacturing Advisory Centres/replacement SEDA access points - potentially provide single point of contact that assists in determining most suitable incentives to apply for
    - Use Portal for information and communication.

The table below illustrates these recommendations at the various levels.

Level	Area	Actions
National Government	***Trade***	▪ Facilitate trans-national cooperation and business (especially in Africa) ▪ Conclude trade agreements
	Infrastructure	▪ Maintain the SA road infrastructure ▪ Improve rail links and management ▪ Expand port facilities
	Logistics	▪ Create integrated hubs for small chemical manufacturers, eg Jurong Logistics Port, & Dubai. Aimed at target markets, ie at ports such as Richards Bay, Coega, or an inland port such as Polokwane. ▪ Support technology to enable efficient communications and data transfer. ▪ Support logistics software development to integrate all steps along the value chain. ▪ Enable SMEs to acquire the necessary IT equipment to use the technology (ie technology loans) ▪ Enable e-commerce and customs processes
	Innovation	▪ Support innovation by SMEs and make sure that collaborative R&D is more easily accessible to SMEs ▪ foster linkages between SMEs and universities ▪ encourage wider participation by SMEs in programmes supporting technology development and transfer

	Skills	▪ Raise the standards of education in science and technology and make sure that enough young people undertake such studies ▪ Ensure that the full range of technical and business skills and levels is produced by educational institutions ▪ Enable SMEs to easily employ imported skills ▪ Implement entrepreneurial education
	Regulatory	▪ Government must develop a positive attitude towards small business ▪ Simplify the legislative framework and conceive new pieces of legislation with the circumstances of SMEs in mind from the outset ▪ Combine the current prescriptive legislation with a goal-setting one, providing scope for voluntary initiatives ▪ Submit new and old legislation to cost-benefit analyses ▪ Harmonise legislation and see to it that it is equally enforced ▪ Promote negotiated agreements with voluntary participation (such as the Dutch covenants), as an effective alternative to legislation, especially in the field of environment
	Finance	▪ Make SMEs' access to long-term & start-up finance easier ▪ Rationalise the range of incentives available ▪ Reduce the administrative load in applying for Government incentives ▪ Reduce risk to investors in targeted sectors ▪ Assist to develop a working venture capital market and create conditions for angel investors to become involved in new chemical businesses ▪ Enact legislation to enforce timely payment to SMEs (eg EU).
	Information	▪ Use new information technologies (ie Web) to reach effectively the population of SMEs and provide them with relevant information on products, markets, processes, legislation, financial and managerial know-how, public funding, etc. ▪ Assist with strategic & high-level market research

		where appropriate
Sector level	***1. Service Industry Development***	• Provide facilities for training of downstream service personnel, eg painting & cleaning contractors, concrete repair specialists, Hygiene services. These training efforts could be combined with private sector initiatives. • Support for emerging services companies via targeted procurement (possibly in collaboration with established firms) o Cleaning services o Building maintenance o Water treatment services o Encourage consolidation of small firms o Consulting services • Support for pharmaceutical testing facilities
	2. Development of 3rd wave industries in metropolitan areas	These industries are well suited for a metropolitan environment. • They require high-level technical & management personnel (usually available and prefer urban locations) • Production is clean and does not create pollution or noise • Low waste volumes – but may require special services • Do not require major infrastructural upgrading • Add very large value
		Some approaches • Support for Biotech and natural product initiatives o Eg Specify products using biotech inputs • Search for possible PPP in high-tech manufacture • Metros to provide specialised services required o Waste disposal o Laboratory facilities • Assist in providing the necessary production spaces, eg a Biotech Parks.

		• Assist in Trade Development initiatives • Create virtual Export Trade Hubs to assist exporters of these and other products.
	3. Development of chemical products in rural areas	▪ Products based on natural resources o This should be combined with nodes of excellence, where quality can be assured, economies of scale attained and markets accessed on behalf of many smaller players o Market & quality research required ▪ Minerals beneficiation, close to mines ▪ Platinum – based products, eg fuel cells

SECTION 14 - CONCLUSION

The industry analysis data indicates that the Chemicals sector is becoming less important in the South African context, despite being identified as a priority sector for development. This trend is being driven by large Multi-National manufacturers optimising their international operations and re-structuring for maximum global competitiveness. The South African market for chemicals is very small by world standards, and does not by itself justify investment in new production facilities – such investment will usually only occur if the product has global markets.

However, Gauteng, Mpumalanga and Limpopo have advantages as a distribution point for access to African markets. Although individually small, the combined African market is attractive to certain producers. Markets such as basic consumer goods, water treatment, mining and medicines are being targeted by a range of producers, and it is recommended that Government encourage this trend by providing export services and establishing Export Trade Hubs or IDZs.

On a cautionary note, information indicates that Manufacturing is not an ideal sector for SME's to enter, with a high level of business failure. Specifically in Chemicals, manufacturing often requires high levels of capital, technical and management expertise and the ability to access markets. In many markets, established companies have developed the necessary resources and have large cost advantages over smaller firms. Also, this sector does not create employment in large numbers – in fact, success in manufacturing often leads to consolidation and loss of existing jobs as the firm becomes more automated and capital intensive.

It is therefore recommended that South African SMEs select specialised products, in niche areas where there is a demonstrable competitive advantage. For example, South Africa has a history of technological development of mining and minerals beneficiation. This is a major domestic growth area, and is becoming a good export market as Africa enters the world minerals markets. In addition, Gauteng has advantages in its location close to mining areas, and there is therefore an opportunity for local SME companies to become major players in this market. South Africa's cities are also suited to the development and manufacture of niche, high-tech 3rd wave, performance chemicals. These require high levels of skill, engineering support and specialised facilities, which are usually available in metropolitan areas. Internationally, SMEs are active in these types of businesses.

Also, the Services sector, where chemicals are applied and used, is an opportunity for development of SME's, and is a large creator of employment. It is recommended that all metros and municipalities actively support the development of services businesses.

Finance is a major constraint for chemicals SMEs, but the research indicates that very few SMEs are accessing the existing support measures due to lack of knowledge, bureaucracy, high ROI hurdles, and a long decision-making process. In addition to this, apart from Business Partners, commercial banks are risk-averse and are not significant funders of chemicals SMEs. Also, research indicates that the cost of finance provided by thedti and other is considered high, and has the potential to make the business uncompetitive. The work done by the European Commission to unblock sources of funding, especially for high-

technology or innovative projects, should be examined in detail. The encouragement of a more active venture capital market and angel investors in Chemicals should be considered.

Access to information is vital to all SMEs, and chemical companies have specific needs for product, market, regulatory and business data. It is highly recommended that a new portal be established, or that Chemweb be upgraded, to supply these information and networking needs.

Access to appropriate technical skills is important to the chemicals sector, and SMEs have difficulty in competing with larger companies for these scarce resources. An entrepreneurial culture may cause technologists to enter SMEs in preference to the corporate world.

Low-cost production and transport to markets is a requirement in the chemicals industry, and South Africa has certain disadvantages due to its location. Also, other exporting countries are using highly sophisticated logistics networks and trade ports to improve their competitiveness, and South Africa will have to improve its transport infrastructure and logistics to make SMEs more competitive.

In summary, the chemicals SME sector is important in most countries, creating most of the jobs and innovative new products. However, there are many challenges facing South African SME manufacturers, and the sector therefore requires substantial support to maintain a competitive edge. Although many support mechanisms are available, most of these are not well-known and are under-utilised. A number of interventions are needed to strengthen the chemicals SME sector.