# THE PLASTIC AND RUBBER PRODUCTS SECTOR IN EKURHULENI

## Briefing Paper 5

## Ekurhuleni Metropolitan Municipality – University of the Witwatersrand joint programme of research on industrial development in Ekurhuleni

**R. Dobreva and L. Madosi**

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# 1. Introduction

Industrial activity in the Ekurhuleni economy is concentrated in a small number of industry groupings. How these industries perform therefore have major implications for the growth and development of the local economy as a whole as this will have knock-on effects for other sectors such as transport, communications, retail and the financial sector.

The briefing papers on key industrial groupings in Ekurhuleni analyse data on recent performance in the context of longer-term trends. The major factors underlying the performance are assessed, including the impact of policy changes and the implications for local government.

## 1.1 The plastic products sector

The manufacture of plastic products is a dynamic and labour intensive industry dominated by small and medium firms. In recent years it has been the best performing sector of manufacturing nationally. Ekurhuleni is the largest national concentration of plastics firms and accounts for 29% of national plastics activity. It is often grouped together with rubber and chemicals, which as a grouping accounts for some 20% of local manufacturing output and 19% employment.

Plastic products are inputs into many other industries, making it an important industry for building broad-based manufacturing. Ekurhuleni is also situated close to the main supplier of material inputs, Sasol's Secunda and Sasolburg factories.

## 1.2 The rubber products sector

The rubber sector is slightly different from plastics, being dominated by larger firms supplying tyres for the auto sector. But, there are also important other rubber products such as flooring and footwear. In this paper we will focus to a greater extent on the plastics industry which is approximately five times the size of the rubber sector in Ekurhuleni.

# 2. Performance

The plastics sector performance has improved significantly in recent years but the strong Rand and weak domestic demand has meant that 2003 as again been poor. In the rubber sector, restructuring has meant falling employment and weak output growth. Expansion of plastics capacity has been achieved through higher investment levels. It is important to note, however, that plastics should be a

growing sector as it replaces other materials such as metals and, when we compare growth in South Africa with other industrialising countries, the South African record is relatively poor.[1]

Despite conditions for the competitiveness of the plastics industry, such as relatively low labour costs, developed infrastructure, and local supplies of the main material inputs there is a large trade deficit. The competitiveness of sectors using imported inputs highlights the problems for competitiveness of the import parity pricing practiced by the main local suppliers of polymer inputs to plastics.

## 2.1 National trends

Plastics sector output recovered towards the end of the decade and recorded growth rates of 6% in 2001 and a massive 16% in 2002 (Figure 1). Rubber products meanwhile have grown slowly over most of the period, with better performance also in 2002. The employment performance of plastics is even more encouraging (Figure 2). It is one of the few manufacturing sectors to have grown employment in recent years, with an average annual growth rate of 3.5% from 1997 to 2002. This contrasts with rubber products which recorded steadily falling employment levels.

**Figure 1. Output**

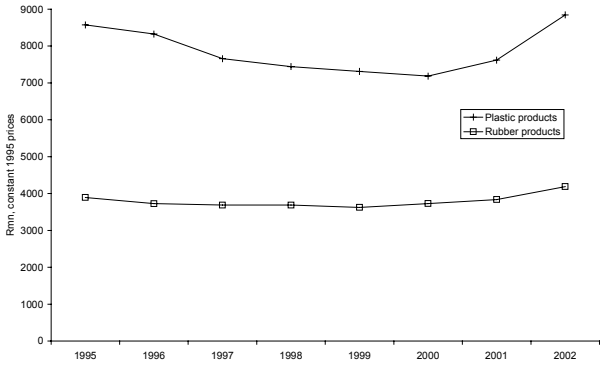
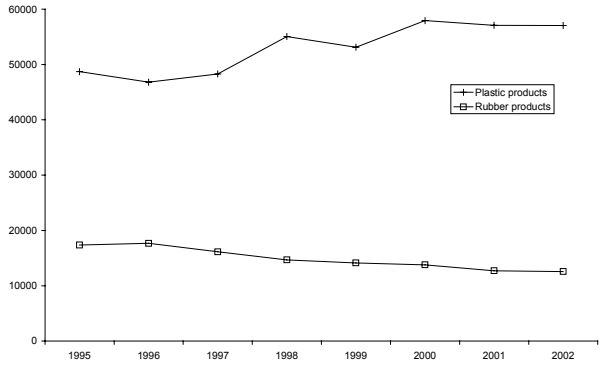



**Figure 2. Employment**

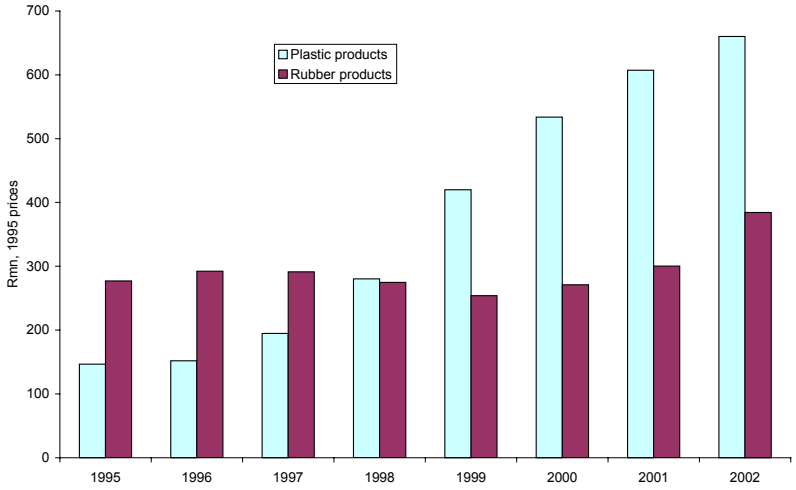



*Source: TIPS Standardised Industrial Database*

The difference in performance partly reflects the much more labour intensive nature of plastic products. And, while investment by rubber products firms has mainly been labour replacing, in plastics improved investment levels from the late 1990s has supported employment growth (Figure 3). While investment in plastics appears high, it is in fact only a return to the investment levels recorded in the early 1990s. The higher investment levels need to be sustained if the better growth and employment performance are to continue.

[1] For international comparisons see Machaka and Roberts (2003) 'The DTI's new 'Integrated Manufacturing Strategy? Comparative industrial performance, linkages and technology', *South African Journal of Economics*, 71(4).

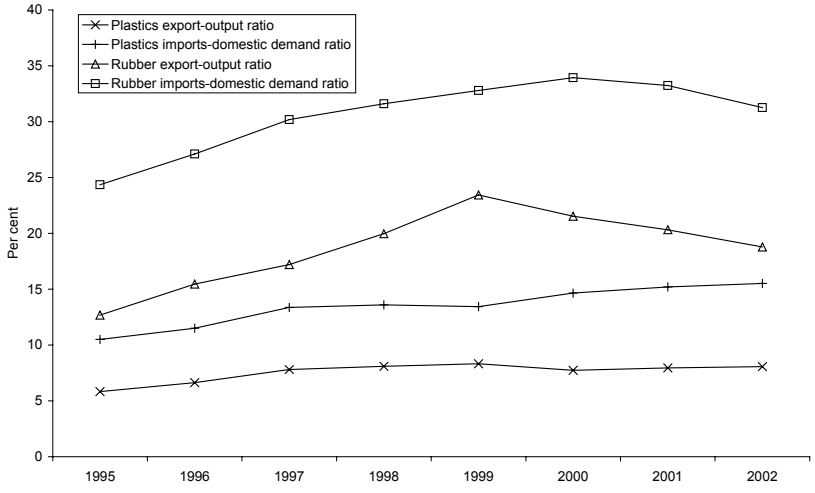
**Figure 3. Investment (Gross Domestic Fixed Investment)**




*Source: TIPS Standardised Industrial Database*

Both plastics and rubber products have a trade deficit with imports exceeding exports (Figure 4). Rubber products are relatively more traded with imports accounting for around 30% of domestic demand while only about 15% of output is exported. In plastic products there is a similar gap with imports higher than exports but at lower overall levels. The trade performance is analysed in more detail in section 3 below. It should also be remembered that South Africa is a major producer of the raw materials required for plastics production and that there is a trade surplus in inputs such as polypropylene and PVC. This upstream competitiveness is, however, not being translated into the competitive performance of downstream plastics product manufacturers in export markets or against imports.

**Figure 4. Trade performance**




*Source: TIPS Standardised Industrial Database*

Higher levels of investment and employment have underpinned lower productivity in plastic products (Figure 5). This is also consistent with the low wages which prevail in the plastics industry, and suggests that the sector is well positioned for continued growth with the emphasis on supporting

higher productivity levels and skills development once more. In rubber products by comparison, falling employment and stagnating output has meant increased labour productivity (Figure 6).

**Figure 5. Productivity – plastics**

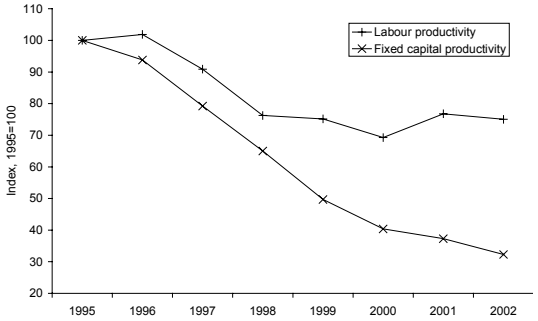
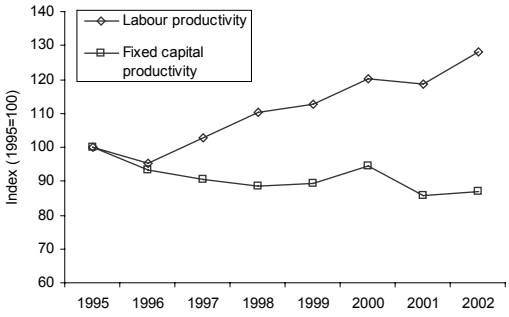



**Figure 6. Productivity - rubber**

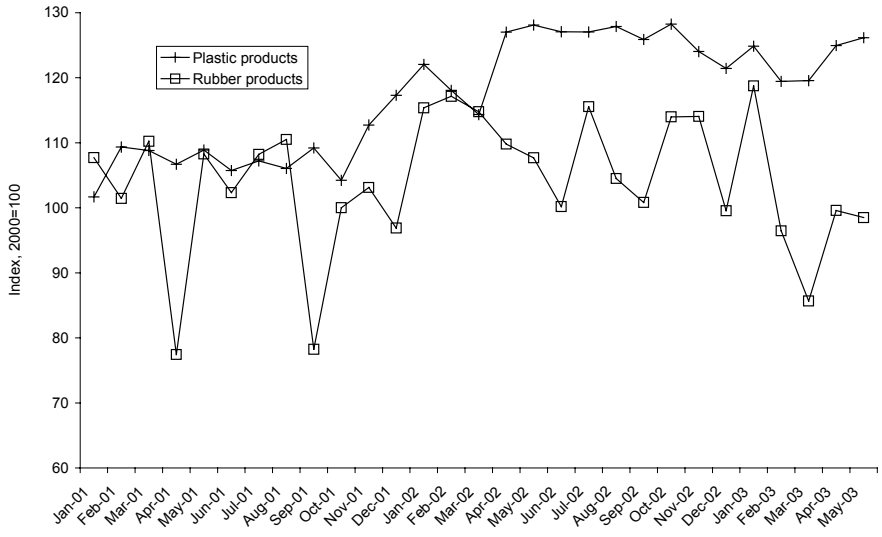



*Source: TIPS Standardised Industrial Database*

### *Short-term developments*

As these sectors face import-parity pricing of their inputs and compete with imports in their output markets they are strongly affected by exchange rate movements. Plastics output increased significantly with the Rand's depreciation towards the end of 2001, but with the strengthening of the currency in 2003 growth has been reversed (Figure 7). Output of rubber products has fluctuated over the period with no trend evident.

**Figure 7. Physical volume of production (seasonally adjusted index)**

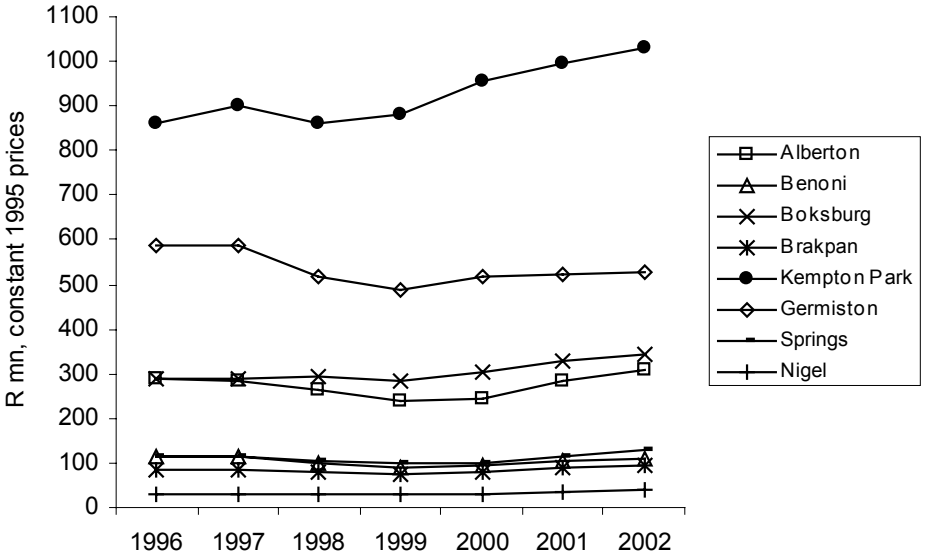



*Source: Statistics South Africa*

## 2.2 Performance of industry in Ekurhuleni

At the metro level, the data for plastic and rubber products is aggregated together with fuel, petroleum and chemical products. The Kempton Park area has the dominant proportion of value added in this broad grouping (Figure 8). On average, in the period 1996-2002, the fastest-growing region was Nigel, albeit from a very low base, followed by Kempton Park and Boksburg. Germiston was the worst performer, recording an average annual decline of 1.6% in value added. After declines in value added in 1998-99, growth of the fuel, petroleum, chemical and rubber products sector in Ekurhuleni was relatively strong, in line with national patterns.

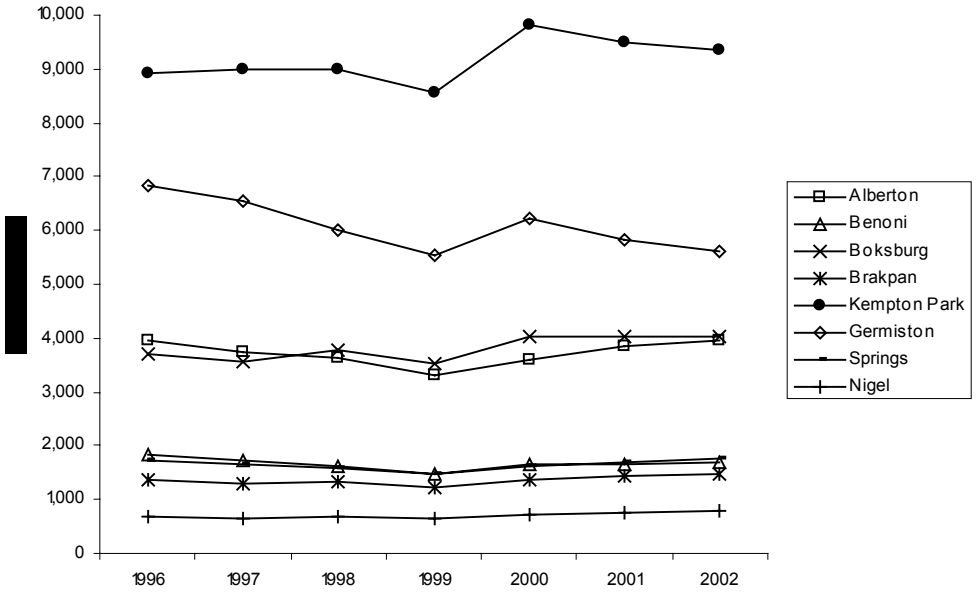
**Figure 8. Gross geographic value-added of fuel, petroleum, chemical & rubber products**




*Source: Global Insight*

Employment at metro level has not followed from the expansion in value added (Figure 9). On average, in Ekurhuleni as a whole over the period 1996-2002, employment remained static. Kempton Park has the largest proportion of employment but is not the best performer in job creation. Nigel recorded the largest growth in employment, once again from a very low base, followed by Boksburg and Brakpan. Producers in Germiston reduced their employment levels as output shrank.

**Figure 9. Employment in fuel, petroleum, chemical & rubber products**




*Source: Global Insight*

## 3. Analysis of key factors underpinning performance

The key factors underpinning the performance of rubber and plastic products firms are quite different. While rubber products are very closely linked to the auto sector with the majority of output being rubber tyres, plastics products are more diverse in terms of the markets served. Plastic products firms are also more dependent on polymer inputs (a basic chemical product). After analysing the input – output linkages in 3.1 we discuss the pricing of polymer inputs in some detail as this is crucial for the competitiveness of plastics firms.

As noted above, South Africa has well-established production capabilities and large trade surpluses in several important polymer inputs led by polypropylene and PVC. These products are of major significance for the cost competitiveness of downstream plastics firms yet import-parity pricing means that none of the cost competitiveness of upstream producers is passed on down the value-chain. In addition, recent data on international pricing indicates that polymer producers such as Sasol and Dow Chemicals mark-up prices above the import-parity levels.

Given that the plastics sector is increasing employment, bottlenecks in the form of skills, as well as technical capabilities more broadly are an important concern in plastics in particular. This is briefly discussed in section 3.3. We return to these issues in section 4, drawing on the Ekurhuleni firm survey data.

### 3.1 Linkages: inputs and major markets for outputs

#### *Rubber products*

The rubber products sector uses inputs from the agricultural sector (including natural rubber), which contributes 15% of total inputs, while petroleum products, basic chemicals and primary plastics collectively comprise 38% of total inputs (Table 1). The sector also has a strong link with metal products and machinery.

**Table 1. Major inputs to the rubber tyres & other rubber products sub-sectors, 2000 (Rmn)**

| Input sectors | Rmn |
|---|---|
| Agriculture and mining | 502 |
| Textile Products | 147 |
| Wood and paper products | 90 |
| Petroleum products | 251 |
| Basic chemical products | 295 |
| Primary plastic products | 744 |
| Metal products and machinery | 400 |
| Other manufacturing | 197 |
| Electricity | 212 |
| Water | 24 |
| Transport, comm and other services | 553 |
| ***Total inputs at purchasers' prices*** | ***3415*** |
| ***Total gross value added (GDP)*** | ***1644*** |
| Compensation of employees | 1157 |
| Taxes less subsidies | (3) |
| Gross operating surplus/mixed income | 490 |
| ***Total output at basic prices*** | ***5060*** |

*Source: Statistics South Africa, Supply and Use Tables*

The main output linkage is with the rubber tyres sector (73% of output), which in turn supplies the automotive industry. The other rubber products sub-sector absorbs 21% of output, while the rest is sold to the footwear, medical and surgical equipment, cleaning compounds and other industries.

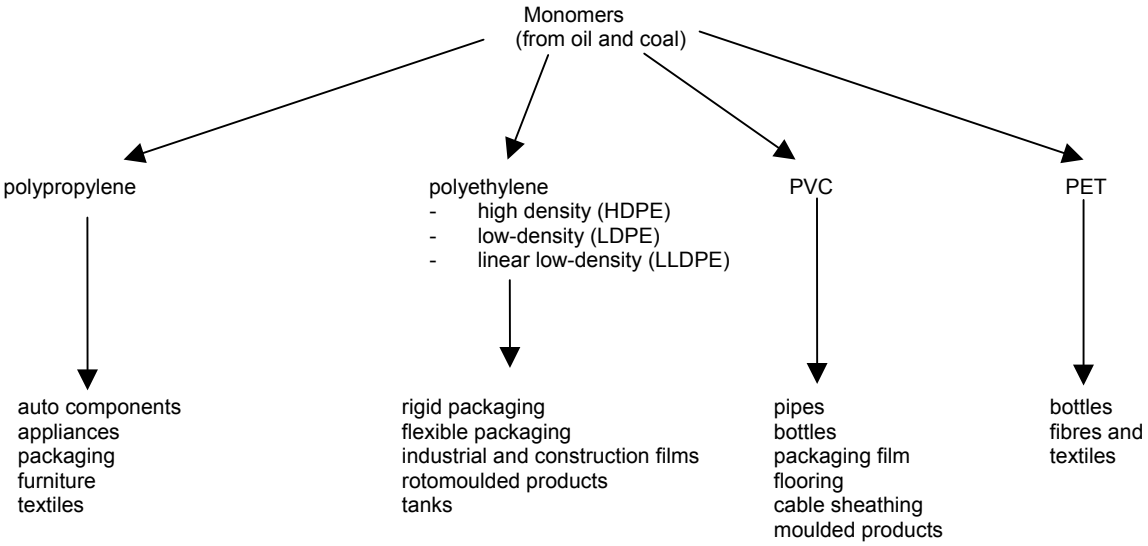
#### *Plastic products*

Based on the processing of oil, natural gas and coal, a number of distinct levels in the chemicals and plastics production chain can be distinguished (see diagram below). The chain starts from 7 main organic chemical groupings comprising the 'building blocks' from which various polymers are produced. A few of these polymers then form the main inputs into manufactured plastics products, which can be separated into intermediate and final products.[2]

The plastics industry includes a range of products which are intermediate inputs into other sectors, and finished products such as baths and basins. Major markets include packaging, builders-ware (such as pipes) and the auto sector. The polymer inputs are not included in plastic products, but are instead classified as part of the basic chemicals sector.

[2] For a detailed account of the sector see Crompton (1995) *An Industrial Strategy for the Commodity Plastics Sector*. Cape Town: UCT Press.

***The plastics supply chain***




Primary forms of plastics (polymers) account for 51% of total inputs to plastic products, and are equivalent to 30% of the total output value (Table 2). The competitiveness of the sector is therefore closely bound up with pricing of polymer inputs. Services such as transport and communications also account for a significant proportion of input costs (9%).

**Table 2. Plastic products - sources of inputs and value added (2000)**

| **Input sectors** | **R mn** |
|---|---|
| Agric & mining | 100 |
| Textile products | 80 |
| Wood & paper products | 237 |
| Petroleum & basic chemicals | 465 |
| Primary plastics | 3 362 |
| Other chemicals | 145 |
| Plastic products | 1095 |
| Metal prods & mach | 240 |
| Other manuf | 253 |
| Electricity & water | 28 |
| Transp, comm, finance & other services | 597 |
| ***Total inputs at purchasers' prices*** | ***6 611*** |
| ***Total gross value added (GDP)*** | ***4 479*** |
| Compensation of employees | 4 014 |
| Taxes less subsidies | (18) |
| Gross operating surplus / mixed income | 456 |
| ***Total output at basic prices*** | ***11 090*** |

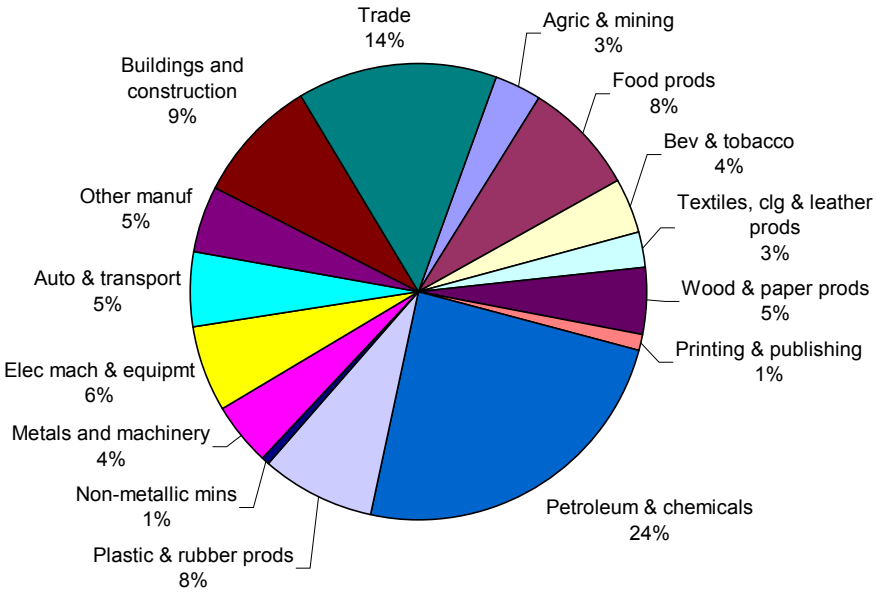
*Source: Statistics South Africa, Final supply and use tables, 2000*

Reflecting the relative labour-intensity of the sector and the low levels of investment in the 1990s, compensation of employees accounts for 90% of gross value-added. This also reflects low levels of profitability and tight margins in the sector.

Most plastics products form intermediate inputs for other domestic industries. Only 6% are sold to households or to government or purchasers in the service sector and 8% are sold as exports. As intermediate products, plastics feed into a wide range of sectors, effectively placing the industry at

the heart of manufacturing (Figure 10). This reflects the importance of plastics as a material as well as the use of plastics for packaging. The nature of much of plastics output means that it is both a contributing factor to, and reliant on, the performance of manufacturing more broadly.

**Figure 10. Breakdown of industries to which plastics are sold, 1998**




*Source: Statistics South Africa, Final supply and use tables, 1998*

### 3.2 Pricing of inputs and the behaviour of large firms

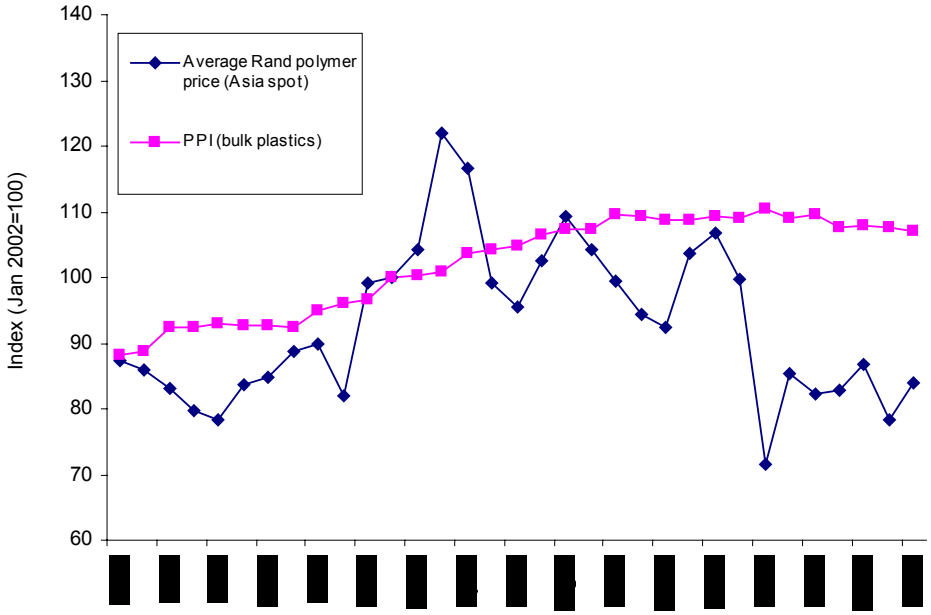
Pricing of polymer inputs is the single most important factor in plastic product firms' cost competitiveness and far outweighs other costs such as wage rates. Polymer prices in the local market were 25% higher in October 2002 than they were in January 2001. Prices for some polymers increased by even larger amounts. One firm interviewed was paying prices at the end of 2002 that were 230% higher than in 1998. And, plastic products firms are not able to pass on the cost increases to their own customers due to the more competitive nature of their markets, including competition from imports.

Import-parity pricing means that prices are adjusted to be equivalent to the actual cost of importing polymers even where there is a very large local surplus such as in polypropylene. Closer examination of pricing patterns indicate that the pricing is in fact on an 'import parity plus' basis as local prices have not come down to reflect the strengthening of the Rand.

To compare the fluctuations in international prices we convert the US dollar prices into Rands, and index the prices to compare changes in average international polymer prices with the South African

producer price index for bulk plastics (polymers). This reveals that the effect of the major appreciation of the Rand has not been felt through lower local prices (Figure 11).

**Figure 11. South African producer price index for bulk plastics and average international spot polymer price**




*Source: Bloomberg and Statistics South Africa*

Firm interviews revealed that prices of polypropylene to local buyers increased by 40% from January 2001 to June 2002. And, prices of PVC were 31% higher in April 2002 than in January 2001. These are larger price increases than reflected in the overall producer price index, and yet they are for products in which South Africa has a large surplus.

***How big is the mark-up over international prices?***

The import-parity approach to pricing was confirmed in all firm interviews. And, to further ensure the ability of upstream producers to maximize prices, in 2003 upstream suppliers switched from quarterly pricing agreements to monthly changes in prices. The cluster study conducted by PARAS Africa in 1998 identified the elements added onto the international price in order to calculate the import parity price as follows (Section 8, p.14):

Ruling fob polymer price in country of origin
+ sea freight (varies depending on region)
+ Duty at 10%
+ Landing/wharfage etc. at R120/tonne
+ Coastal transport at R25/tonne
+ Insurance, forward cover, stockholding provision at 3%
= Import parity price

Little appears to have changed, a calculation in July 2003 for Sasol's pricing of polypropylene reveals a mark-up over international prices of 29% for inland customers (Table 3).

**Table 3. Sasol import-parity price calculation (Rands, per tonne)**

| **Polypropylene** | **July 2003** |
|---|---|
| Ruling fob price in international market (Hong Kong) | 5 473 |
| Sea freight | 299 |
| RSA fob | 5 771 |
| | |
| Duty at 10% of fob | 547 |
| Landing, wharfage, agency and documentation fees | 221 |
| Transport: | |
| - Inland (container turn-in and railage) | 189 |
| - Coast (container turn-in and cartage) | 31 |
| Landed cost (import quote): | |
| - Delivered inland | R6 734 |
| - Delivered coast | R6 527 |
| Indirect costs of importing: | |
| - stock-holding, payment terms, de-stuffing, warehousing | 304 |
| **Import-parity price** | |
| - Delivered inland | **R7 038** |
| - Delivered coast | **R6 831** |
| **Sasol** implied added-value costs (technical services, bulk delivery, quality, complaint resolution etc) | |
| **Inland price** | **R7 038** |
| **Coastal price** | **R6 831** |

Note: All prices in Rands, converted from international price at 2-month forward R:$ exchange rate of 7.81

It is worth re-stating that the polypropylene so priced is being delivered from Sasol's factory at Secunda. In other words, the actual transport costs are lower to an inland location than to the coast, and there is no duty, wharfage, or other costs being incurred.

It is important to note that Sasol further takes into account the indirect costs of importing, although it justifies this by listing benefits that it provides, which happen to come to the same amountas the indirect import costs.

The addition of notional costs is further emphasised by the justification given by Sasol for delaying price reductions. In a price release sent to a plastics firm for September 2003 they note that 'The local market price is based on a two month delay as it takes on average 60 days to procure and land imported product into a local warehouse.'

**Table 4. Import-parity price**

| **Polypropylene (injection) – Asia spot price used for comparison** | **Feb-02** | **Sep-03** |
|---|---|---|
| Ruling fob price in international market*(Rand/$) | 5799 | 4643 |
| Freight | ? | ? |
| Duty at 10% | 579 | 464 |
| Landing/wharfage | 120 | 120 |
| Coastal transport | 30 | 30 |
| Insurance, forward cover, stockholding provision at 3% | 174 | 139 |
| **Import-parity price** | **6703** | **5397** |
| **Sasol price (Grade 1100M/N)** | **7200** | **6850** |

The delay in reducing prices, and effectively therefore pricing at significantly above import-parity levels, is also evident in a comparison by a local plastics firm of imported prices and Sasol prices in February 2002 and September 2003 (using wharfage and related charges significantly below those

used by Sasol) (Table 4). This reveals that the margin by which Sasol's price is above the import parity price (excluding sea freight charges in this case) has increased. In September 2003 the margin by which Sasol's prices were above international prices was 48%. This compares with a mark-up of 24% in February 2002.

While we have mainly focused on Sasol in the discussion, Dow Chemicals prices on the same basis. This means that where they produce the same products and there is a surplus, namely in polypropylene, there is an incentive to attract customers from the other firm to avoid exporting such a large proportion of output at much lower prices than attained in the local market. If unchecked this process of attempting to attract the rival's customers by offering lower prices would push down prices through a process of competition and prices would no longer be set at import-parity level. To prevent this happening the two firms would need to be able to maintain the understanding that prices be set at import-parity, effectively colluding together.

***Export rebates on polymers used by downstream firms***

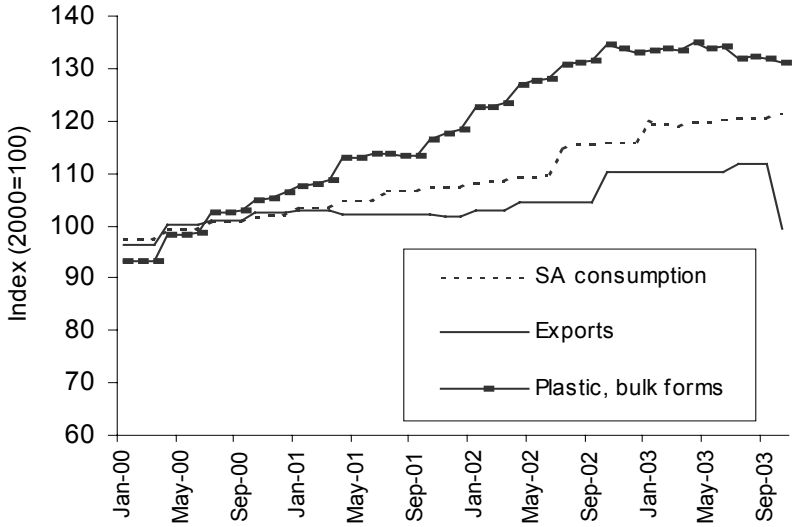
In order to increase local demand for polymer without reducing prices for existing local demand the main polymer manufacturers use an export rebate for plastics firms which export their finished product. Sasol also offers a second type of rebate for 'product development'. The export rebates given are, however, not equal to the export price received by Sasol for the export of unbeneficiated polymer but are only around a 10% reduction. The export rebate applies only to countries outside of those in the Southern African Customs Union, Malawi, Mozambique, Zambia and Zimbabwe. The sales are invoiced at the South African price and a rebate is granted upon satisfactory proof of the export of finished goods.

For example, the rebate amounted to R400/tonne for polypropylene for export in near Africa (overland exports) and R800/tonne for deep-sea exports from October 2002 to September 2003. Another company (pipe producer) reported that export rebates from Sasol amount to 5% of the price. Despite the incentives, exports are not growing particularly strongly. And, as noted below, one of the best performing sectors in terms of exports is where inputs are imported. As a result, in 2002 39 % of polypropylene was exported in an unbeneficiated form. Sasol's plans to increase polypropylene production by a further 300 000 tonnes per annum indicates that the export price which will be earned on this additional production is sufficient to earn a commercial rate of return.

***The effects on downstream competitiveness of plastic product firms***

Prices on plastic products have clearly not kept pace with increases in prices of inputs, suggesting extreme pressure on downstream firms (Figure 12). It particularly notable that prices of exported plastic products have fallen reflecting the severe impact that price increases of inputs have had on the export competitiveness of plastic companies.

**Figure 12. Producer prices for plastic products for SA consumption and for export, and for basic plastics (bulk forms)**

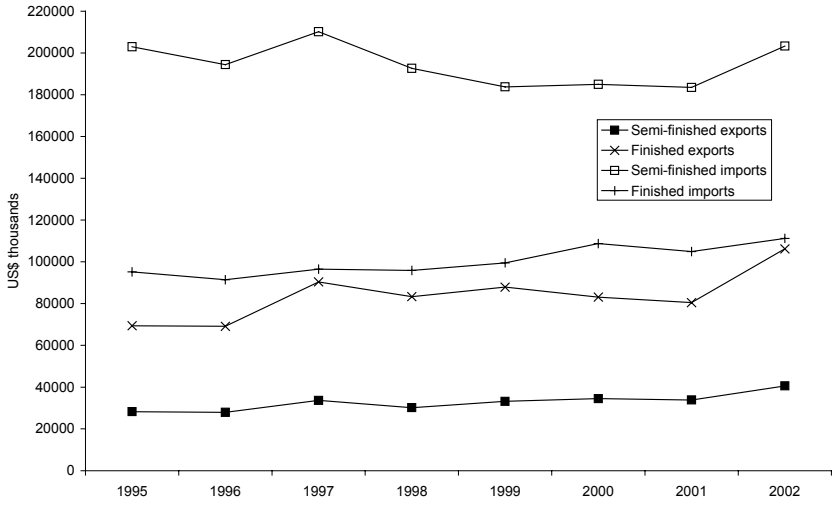



*Source: Statistics South Africa*

### 3.3 Trade performance and international competitiveness

Exports of plastic products have increased over the 1995-2002 period as a whole. Finished plastic products in particular appear more competitive with only a slight trade deficit (Figure 13). Semi-finished products by comparison, which include tubes & pipes, floor coverings and plates and sheets of plastics, have a very large trade deficit. Being of lower levels of processing the competitiveness of these products depend to a greater extent on input costs.

**Figure 13. Plastic products trade flows**




*Source: TIPS Standardised Industrial Database*

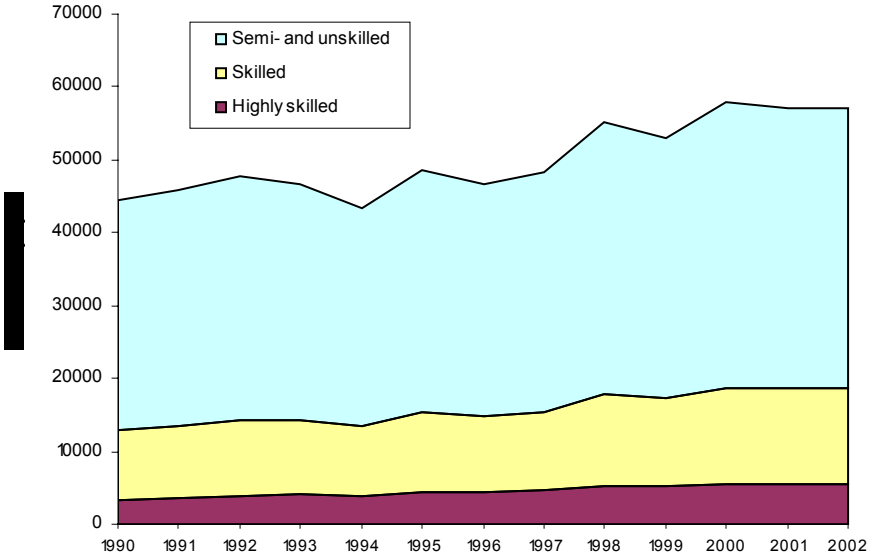
Note: Semi-finished products are HS3916-3921; finished products are HS3922-3926

In addition, one of the most successful export groupings of finished plastic products, that of baths & basins has more than doubled exports over the period and uses imported raw material. Its exports are largely destined for Europe. This again highlights the inherent possibilities for plastics products, but for the local pricing of material inputs.

### 3.4 Development of production capabilities

While the majority of employment in plastics remains in the unskilled and low skilled category, there has been a significant increase in the shares of skilled and highly-skilled labour (Figure 14). Moreover, from firm interviews it was evident that training and skills development are very important across skill categories. The performance of firms relies on the abilities of relatively low-skilled workers as machine operators to ensure the consistent quality of the product and efficient changeovers between different production runs. The better performing firms tended to have very stable workforces so that experience and skills were built-up on-the-job.

**Figure 14. Employment by skill category in plastics**




*Source: TIPS Standardised Industrial Database*

As a sector that is experiencing increased employment levels, the ability to train workers at different levels is important if skills are not to become a bottleneck. At present the main facility for the training of machine operators is the Plastics Federation of South Africa located in Midrand. This location is not particularly convenient for firms in Ekurhuleni, especially if ongoing training is to be taken more seriously. The Plastics Federation is willing to explore establishing a facility in Ekurhuleni, and the feasibility of this is a key issue to be taken forward in 2004.

The importance of being able to compete in product niches rather than in more commodity type areas was also emphasised in interviews and is consistent with the findings of the recent FRIDGE study.[3] Again, this relies on improved skills if firms are to shift to more highly specified products.

The recently launched Advanced Manufacturing Technology Strategy (AMTS) of the Department of Science and Technology also highlights the beneficiation of chemicals in the more labour-intensive downstream sectors such as plastics.[4] The AMTS envisages innovation networks and technical centres to support firms in improving their production capabilities. Given the concentration of plastics firms in Ekurhuleni it should be a key location for such initiatives.

## 4. Analysis of Ekurhuleni firm survey data

### 4.1 Firm performance and market conditions

37 firms responding to the Ekurhuleni survey identified themselves as being in the plastics and rubber products sector, with a total of 2512 employees in 2002 (an average of 68 per firm). The majority are small reflecting the low economies of scale in plastics manufacture (Table 5). And, small firms tended to be more likely to have increased employment than large or medium firms.

**Table 5. Firm size distribution**

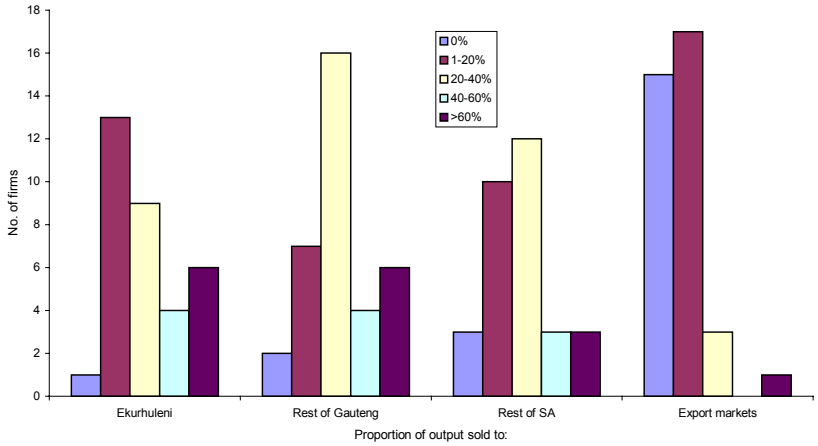
| | No. of firms |
|---|---|
| Micro (0-5 employees) | 4 |
| Small (6-49 employees) | 19 |
| Medium (50-250 employees) | 12 |
| Large (>250 employees) | 2 |

In line with all manufacturing firms surveyed, an increasing proportion (54%) of firms recorded turnover growth in 2002 of greater than 10%. This compares with 37% in 2001 and 34% in 2000.

The sector is oriented primarily towards the local and national economy (Figure 15). A very few firms export more than 20% of their output, however there are a large number of firms with some exports. Firms which export are likely to be better performing. Cross tabulations reveal that exporting firms are almost one-and-a-half times more likely to have recorded turnover growth greater than 10%,[5] although they are not more likely to have recorded increased employment.

[3] The Fund for Research on Industrial Development Growth and Employment (FRIDGE) study on 'Growth and Employment in the South African Metals and Engineering Industry' included a section on plastic products.
[4] The strategy is formally titled 'A National Advanced Manufacturing and Logistics Technology Strategy for South Africa', prepared for the National Advisory Council on Innovation by CSIR Manufacturing and Materials Technology.
[5] Significant at 10% level.

**Figure 15. Proportion of output sold to different regions**




Demand has increased most in the past 12 months in domestic markets, while export growth has been weak. Firms' expectations for demand in the coming 12 months broadly match this.

Just fewer than 70% of firms operate below 80% capacity utilization suggesting that there is scope to expand production if demand picks up.

### 4.2 Firm competitiveness

In terms of input costs, a majority of firms have experienced high rates of increase in raw material costs and salaries and wages (Table 6). But, it is interesting that firms with high increases in salaries and wages (increases of greater than 10%) are 26% more likely to have also achieved high turnover growth. This strongly suggests that it is the skills and capabilities of employees that are more important than the hourly wage cost.

**Table 6. Number of firms recording different changes in production costs over past year**

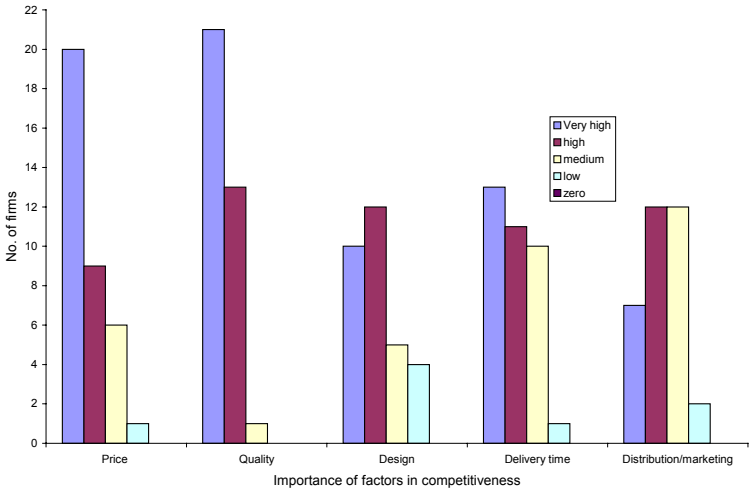
| | Negative | 0% | 0-10% | >10% |
|---|---|---|---|---|
| Raw materials | 2 | 2 | 15 | 17 |
| Interest charges & depreciation | 2 | 7 | 16 | 6 |
| Wages and salaries | 0 | 0 | 15 | 20 |
| Delivery and marketing | 0 | 2 | 22 | 8 |

It is also notable that the 9 firms that import the majority of their inputs are 70% more likely to have recorded high turnover growth.[6] This is consistent with the effects of import parity pricing practiced by the main polymer producers which means there is no advantage to using locally made polymer.

The most important factors for competitiveness were rated by firms as being price and quality, followed by delivery time (Figure 16). This is consistent with information from firm interviews, where plastics firms in particular reported that high raw material cost have forced them to seek niche markets in which they can be competitive.

[6] Significant at 10% level.

**Figure 16. Competitive factors**

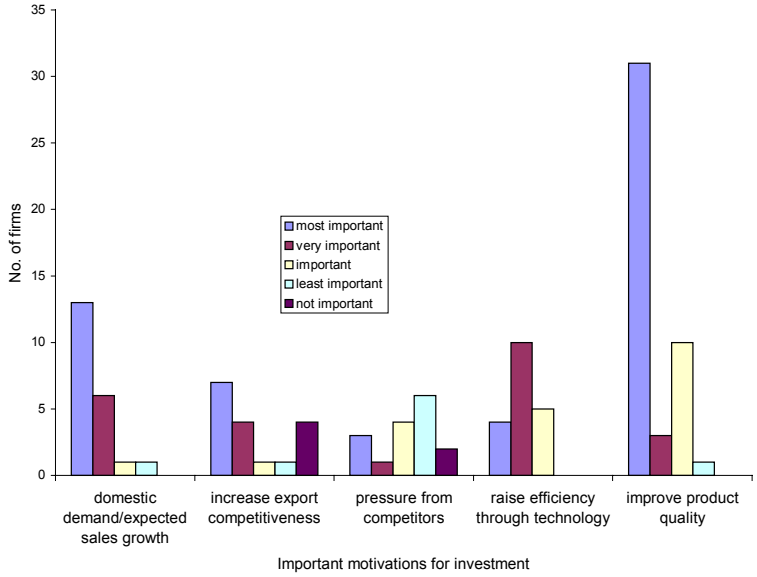



## 4.3 Investment, and skills development

The emphasis on quality, and the need to invest in upgraded machinery and equipment were strongly highlighted by the survey results for plastics and rubber firms. Firms have relatively old machinery and equipment, with 56% of firms reporting an average age of more than 10 years and a further 38% an average age of machinery of between five and 10 years.

The most important motivation for investment is to upgrade product quality, contrasting with the result for all manufacturing firms for which domestic demand was the most important investment motivation (Figure 17). And, firms which have made investments were more than twice as likely to have recorded high turnover growth and 94% more likely to have increased employment.[7]

**Figure 17. Important motivations for investment**

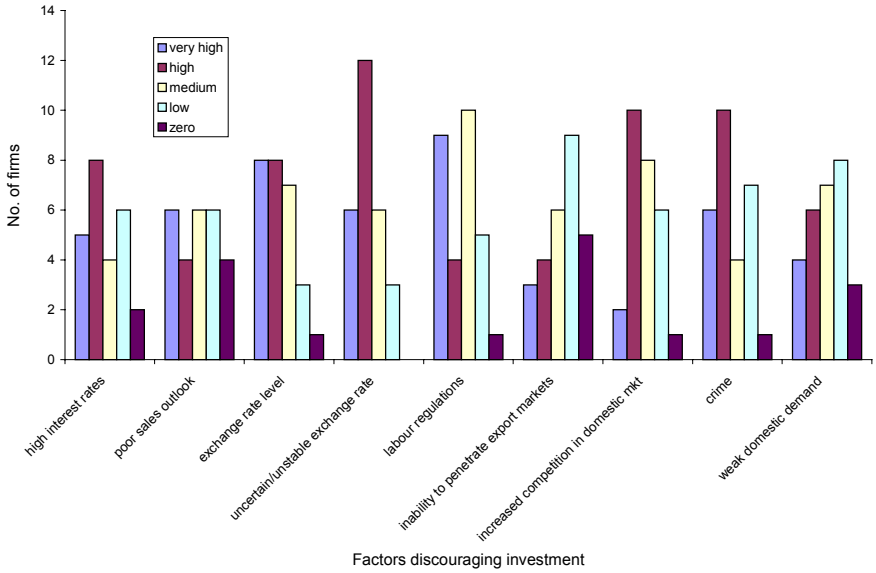



[7] Significant at 10% level.

Investment spending in 2002 was R1.8mn per firm and R26 352 per employee, a major increase over 2001. Investment in local supplied machinery recorded the biggest increase, of 148% from 2001 to 2002. Of investment expenditure in 2002 by plastics firms 63% was on imported machinery, and 33% on domestically sourced machinery.

Exchange rate uncertainty, followed by labour regulations and the exchange rate level, were rated as the most important factors discouraging investment (Figure 18). Increased competition in the domestic market from imports and crime were also highlighted as deterrents.

**Figure 18. Importance of factors discouraging investment**




The responses on education and skills were similar to investment in machinery and equipment. The average education level of firms' employees is low. 85% of firms reported the average level of education as being below matric. Firms investing in skills development are better performing.

A much higher proportion of plastics and rubber firms (44%) claim back the skills development levy than the average across industry. In total firms spent approximately R4mn on training in 2002, of which R3mn was spent on in-house training. This amounts to R1 592 per employee, which is much lower than the average for all manufacturing firms surveyed despite the low levels of education in the plastics sector.

### 4.4 Government policies and incentive schemes

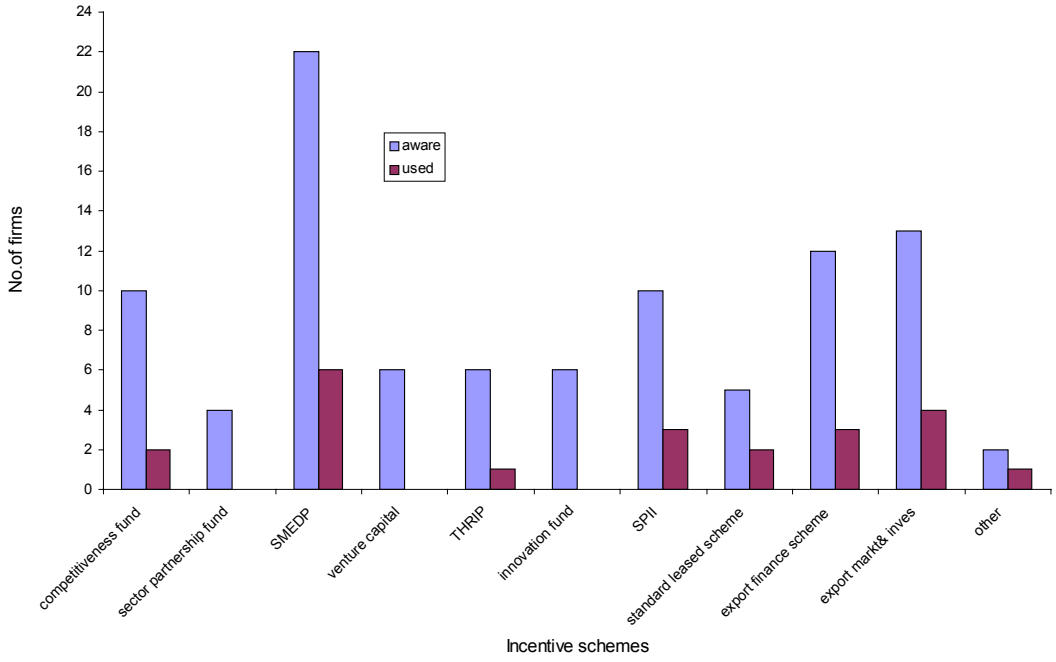
In line with information from firm interviews, reliable services, in particular uninterrupted electricity supply, and better public transport for firms operating several shifts were the two most important areas for improvement in local policy (Table 7).

**Table 7. Local economic development policies identified as important**

| | % of firms |
|---|---|
| Supporting skills training | 52 |
| Marketing the area | 24 |
| Ensuring reasonable tariffs | 74 |
| Ensuring high quality of life in the area | 60 |
| Ensuring reliable services (elec, water) | 89 |
| Ensuring reliable & safe public transport | 88 |

As with all manufacturing firms, although the awareness of some of the national incentive programmes was high in cases such as the SMEDP, usage levels are still low (Figure 19).

**Figure 19. Number of firms aware of, and using incentive schemes**




Usage of programmes such as the SMEDP are still much higher than the average for all firms responding to the survey. 17% of plastics and rubber firms have used the SMEDP, and a fair proportion of firms have also used the Support Programme for Industrial Innovation, Export Finance Scheme, and the Export Marketing and Investment Scheme. Firms using incentives were 67% more likely to have increased employment[8], more likely to have an average education level below matric,[9] and also claimed back the skills development levy.[10] They were also more likely to have increased their investment levels from 2001 to 2002.[11] But, they were not more likely to export.

[8] Significant at 10% level.
[9] Significant at 5% level.
[10] Significant at 1% level.
[11] Significant at 5% level.

# 5. Developments in the Policy Framework

## 5.1 Policy framework

There have been major policy initiatives in 2002 and 2003 which have a direct bearing on the plastic products industry. The policy framework governing manufacturing emphasises the promotion of downstream beneficiation and the production of more labour-intensive goods. In addition, the value-matrix methodology being employed by the Department of Trade and Industry highlights the importance of bringing together factors such as logistics and skills development in the upgrading of production capabilities. As illustrated in the above analysis these are important elements for a growing plastics industry.

The main policy initiatives are as follows:

- The ***Integrated Manufacturing Strategy*** of the Department of Trade and Industry places increased value addition downstream and the strengthening of vertical and horizontal linkages at its centre. Plastic products also falls within one of the target industry groupings of the DTI of chemicals industries. The strategy identifies a range of broad issues to be taken forward through specific policy measures. These issues include the pricing of inputs and improving skills and technological capabilities. The specific policy measures are still to be developed and so it is important that concrete concerns which relate the plastic products industry in Ekurhuleni are effectively represented.

- The ***Advanced Manufacturing Technology Strategy*** **(AMTS)** of the Department of Science and Technology through the National Council on Innovation also establishes a framework for government action to support industrial development, specifically as it relates to research, technology and productive capacities. The AMTS also includes specific plans specific plans for increasing the beneficiation of chemicals. AMTS plans which should be applied to plastics include:
  - A national tooling network
  - An Advanced Production Innovation Network (technology focus): This will initially involve a more detailed analysis of production technology demands across industries to lead to a manageable list of intervention possibilities. The plastics sector is one such possible area for intervention.
  - Advanced Materials Network (Technology Focus): This includes advanced polymers as one identified material. The commercialisation of technological developments means their use in plastics conversion, amongst others. For example, improved properties such as heat resistance and rigidity enable plastic products to be used more widely.
  - Chemical Industry Network and proposed Chemical Industry Development Agency: The network will involve creating and maintaining a relevant database of skills, technologies, products and materials and programmes to provide technology flow and process skills to

value-added opportunities. The possible Chemical Industry Development Agency will play an important role in meeting development needs across the industry.

- The ***Minerals Beneficiation Bill*** and ***Liquid Fuels Charter*** are two measures which relate to the behaviour of firms in the upstream chemicals industry that make the inputs to plastic products. A key challenge is to link measures to concrete initiative to increase downstream beneficiation in the form of plastic products.

### 5.2 Possible initiatives

Possible initiative relate largely to drawing together the different agencies responsible for supporting aspects of manufacturing such as CSIR, the Setas, IDC, and Gaumac. Particular examples of initiatives include:

- Establishing a Plastics Federation training facility
- A proposal for a technical centre/innovation network under the AMTS
- Identifying the specific obstacles to small plastics firms and ensuring that Gaumac is equipped to meet these needs.
- A collective buying group for polymers and better logistics services to lower costs of supply

To take such initiatives forward requires developing a specific programme to realise the gains from collective action. The steps in such a programme include: a consultative process with firms and industry bodies; designing appropriate institutional structures and linking them to the application of policy tools and programmes at the national level, including the roles of the CSIR, IDC and DTI; applications to establish Innovation/Technical Centres in Ekurhuleni, as per provisions set out in the Advanced Manufacturing Technology Strategy; support for skills development and training.