



1.

Introduction

The port of Durban was little more than a sandy lagoon until the mid 1800s; however, by the early twentieth century it had become the leading port in South Africa. This was due, by and large, to the utilisation of modern dredging techniques that made sufficient inroads into the narrow, stilted up entrance of the port to allow larger vessels through.

Durban is a hybrid port, with a limited separation between landlord and operational functions. The port of Durban was managed, until 2001 by the parastatal Portnet, the maritime transport wing of the state's transport group, Transnet. Portnet was restructured into two state owned enterprises or SOEs the first, the National Port Authority to take the role of landlord and a second, South African Port Operations (SAPO) to handle port operations. The port of Durban is formally managed by the NPA, a fully corporatised public company, allows for landside operations to be run by private terminal operators. 'Privateers control [the] lion's share of wet-bulk, dry-bulk and neo-bulk cargo operations in the port' (Jones: 2003), the container terminal, car terminal and combi-terminals have however remained in the public domain, falling under the large banner of SAPO.

Durban's traffic base grew steadily in the early and mid twentieth century as coal and later sugar exports formed much of the bulk trade. The port really came into its own in the late 1970s with the rapid containerisation of cargo, and quickly became the foremost container terminal in South Africa. Durban continued to focus on containers, liquid and break-bulk cargoes, as Richards Bay, the closest rival port, developed into a bulk and neo-bulk specialist (Jones: 1997).

Several specialised terminals, Island View, the petro-chemical offshore terminus, the container, combi and the car terminal were developed in the port. A variety of privately operated, industry specific terminals – like the sugar terminal are also present at the port.

The port of Durban has in recent years positions itself as the region's 'hub port' with excellent road and rail linkages into the hinterland as well as along the coast. Its geographic location allows for relatively easy movement of goods from the industrial complexes in Gauteng to the international market, as well as being ideally situated as a major thoroughfare for inputs into local industry as well as handling the export traffic of local produce as well as locally manufactured goods.

The impact of a changing traffic base on the port of Durban and the movement towards containerisation of seafaring cargo, has been well managed by the port. By 2003, Durban was the foremost container handling port in Africa and second only to Melbourne (in year 2003 figures) in the southern hemisphere (Jones; 2003:7).

A second notable trend has been the increase in 'multipurpose' traffic, single vessels that can carry a melange of unitised, break-bulk and parcel bulk cargo. Overarching both these trends however, is the inclination of ship owners to replace their aging fleet with larger and more economical bulk and container vessels (Jones: 1997).

While the majority of the bulk trades are carried in Handy-sized and smaller Panamax bulk vessels and pose no problem for usage in port, the number of Handy's as a percentage of the world fleet has dropped from 50.4% to 45% in 2001, while Panamax vessels have increased by 10% of the world fleet (up from 17.3% to 27.6%) in the same period (Jones: 1997). However, the trend is encapsulated by the growth in mega-vessel tonnage, which now stands at 18.7% of the world container traffic (measured in TEUs or Twenty-foot equivalent containers)TEU. This is of concern because as ships get bigger, their draught (depth) increases, this impacts their ability to access relatively shallow ports like Durban, which allows a maximum clearance of only 14m for a loaded vessel in ideal conditions. In reality, draft limitation threshold becomes operational from 12.49m, preventing most vessels larger than 4000TEU, which effectively excludes 15% of the world container fleet from accessing the port (Jones: 2003). This impact will continue to be felt as the world order book indicates that over 60% of orders in 2003 are for vessels in excess of 4000TEU. This will likely affect the positioning of berths and berth access as the length of wharf side is critical for the disembarking and loading of cargo.

Durban's cargo traffic is in the main container and unitised bulk (i.e. vehicles), both which require complex wharf side cargo handling and extensive storage and manoeuvring facilities. Both terminals are facing constraint due to the close proximity of the positioning of the harbour in relation to the city's central business district.

While the physical location has created capacity constraints in the port, its location in the broader sense of national transport corridors has been for more effective. The development of integrated transport corridors – in line with the vision proposed by the Moving South Africa (DT: 1998) document – has been successfully established incorporating the port of Durban.

Durban plays a pivotal role in the development of effective freight corridors in the region, in 1997 figures the Durban-Gauteng corridor moves 21m tons of freight (inclusive of all modes of transport) per annum, with an expectation that this will rise to 39m tons along the corridor by the year 2020 (DT: 1998). The creation of effective transport corridors is linked to the notion of merging ports into streamlined hubs through which the most efficient sized vessels may be serviced and freight moved through a 'hub port' along the 'spokes' of the transport corridors efficiently to its required destination.

This is clearly indicated by a brief examination of port traffic flows, Durban is the busiest non-bulk terminal in South Africa, and currently the second busiest port in the southern hemisphere, as shown in the figure which appears below:

Figure 1: Comparison of Port Traffic, Selected Southern Hemisphere Ports (2000)

Port	Total Port Traffic (m tons)	Rank	Container Traffic (TEUs 000s)	Rank
Richards Bay	91.5	1	5	15
Newcastle	73.9	2	9	14
Durban	49.7	3	1291	2
Santos	43.1	4	945	4
Sydney	24.6	5	999	3
Melbourne	22.3	6	1322	1
Casablanca	19.8	7	311	9
Abidjan	14.6	8	434	7
Auckland	13.3	9	561	6
Cape Town	11.8	10	395	8
Lagos	9.1	11	178	11
Mombasa	8.9	12	219	10
Buenos Aires	7.8	13	716	5
Dakar	7.2	14	149	13
Port Louis	4.7	15	161	12

Taken from Jones (2003: 7) Table 3 African and Southern Hemisphere Port Traffic (selected ports, 2000).

A further indication of the effectiveness of this model was the establishment of the revamped car terminal in 1998, with 7000 parking bays and dedicated berth for car carriers and overhead double carriageway bridge linking the quay to the terminal (www.sapo.co.za) that was built to meet the requirements of the local auto industry and auto market. The freight network allows for vehicles to move to and from the hinterland, via both road and rail, linking local producers and customers into the global market.

As the study centres on the car terminal and the KwaZulu-Natal auto industry, it is critical to understand that the major route for the international transport of car 'parts' (components) is predominantly through the container terminal at the port of Durban and not the car terminal which deals with the conveyance of fully built up vehicles.

2. Durban's Economy In Context

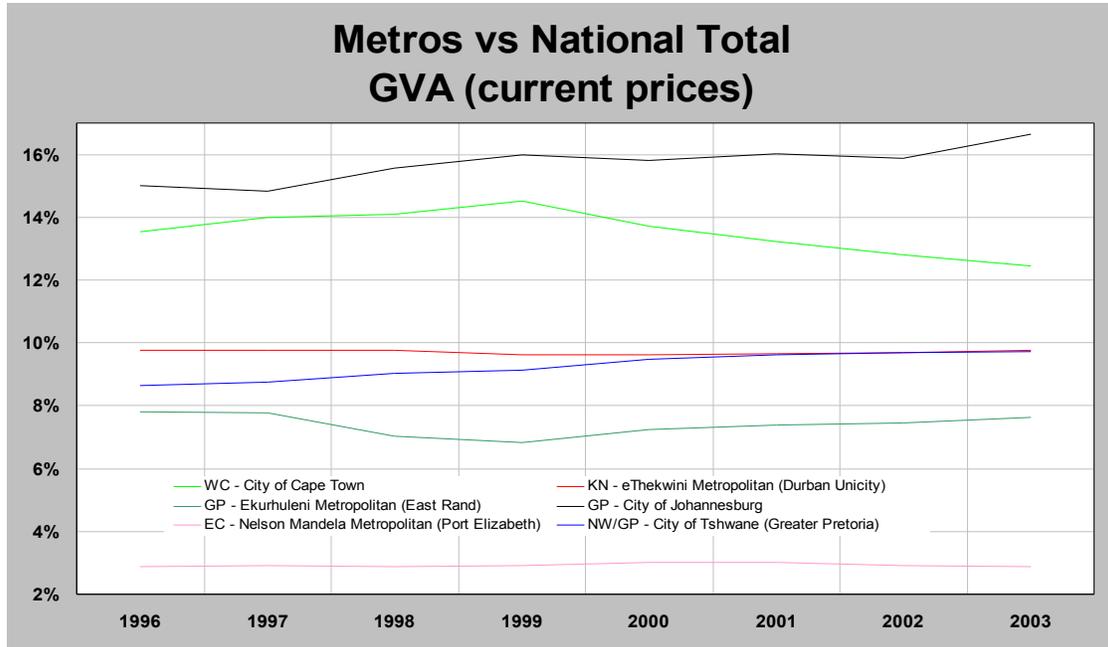
The past decade of evolving democratic local government in South Africa's cities has occurred in a context of significant and far-reaching economic change. During this period South Africa has

steadily shifted away from its status as an isolated pariah state with protectionist economic policies and increasingly unsustainable levels of debt. The impacts of the reform of this system have been felt in all spheres of the economy and left no spaces untouched. These reforms were dominated by rapid trade liberalisation, fiscal restraint and monetarist-orientated macro-economic management. In a context where for the bulk of the late 1980s the country's levels of economic growth were muted a considerable policy emphasis was placed on encouraging improved levels of growth.

The impact of these reforms, together with the legacy of Apartheid, has been enormous on cities such as Durban. Not only have democratic local governments' inherited local economies with amongst the highest levels of inequality in the world where the bulk of residents still live in conditions of unrelenting poverty, they have also seen the structure of their key economic sectors shift rapidly as a consequence of domestic and global policy adjustments (SACN, 2004; Parnell, 2004). The following information seeks to present, over time where possible, some indication of the economic circumstances pertaining in Durban during this period. In presenting this it should be noted that much of this information has only recently come to light and for much of the past decade cities such as Durban have had little more than a patchwork of unreliable and out-of-date data sources supplemented by anecdotes on which to base policy development and plan interventions.

Durban rivals Cape Town as South Africa's second most important geographic centre of economic activity after Johannesburg. Whilst Johannesburg's primacy in economic terms has never been in dispute, Durban, Cape Town and more recently Pretoria with their similar population sizes have been consistently present and significant also-rans. The figure below (Fig 1) gives an indication of the share of national product originating in Durban during the past decade.

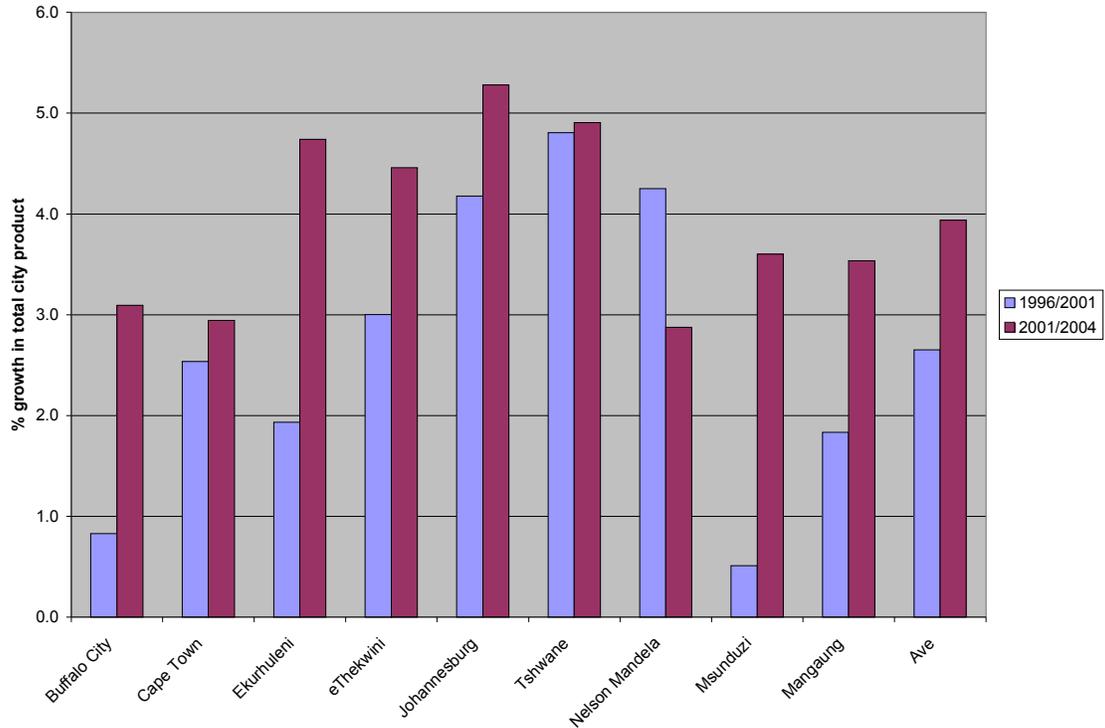
Fig 2- GVA by selected city (Global Insight)



The significance of this information is best seen together with information on average annual growth during this period. For Durban during the late 1990s this was a relatively meagre 2.3% (SACN, 2004). During this same period Pretoria grew at 5.1% and Johannesburg witnessed growth levels of 4.5% (SACN, 2004). This suggests that economic restructuring in South Africa has left Durban with a disproportionate presence in lower-growth traditional manufacturing sectors and only a limited presence in higher growth technology and knowledge-based services activities.

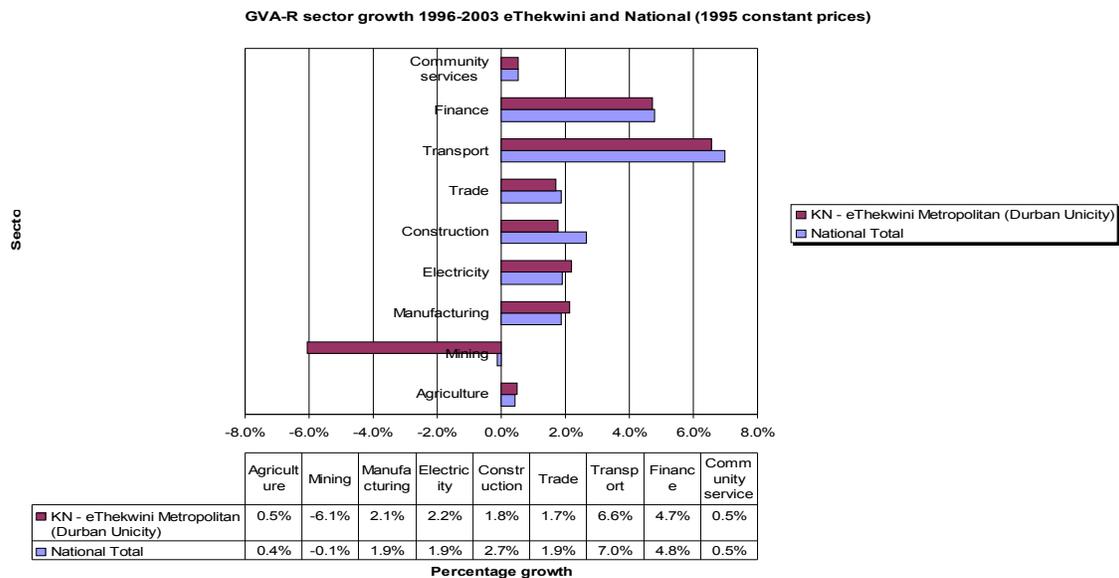
Nevertheless, more recent growth figures have shown that Durban is recovering and at least a part of the story behind this has to do with the port activities and its connection with local businesses that produce and or distribute product. Figure 2 below shows how Durban's level of growth has increased in relation to the 1996-2001 period.

Figure 3 – Average Annual GVA Growth 1996-2001 and 2001-2004



The figure below (Fig 3) illustrates the performance of key sectors in Durban at a broad level. Noteworthy is the growing impact of services type activity and in particular the transport sector with Durban being the location of the Country's premier container and liquid bulk port.

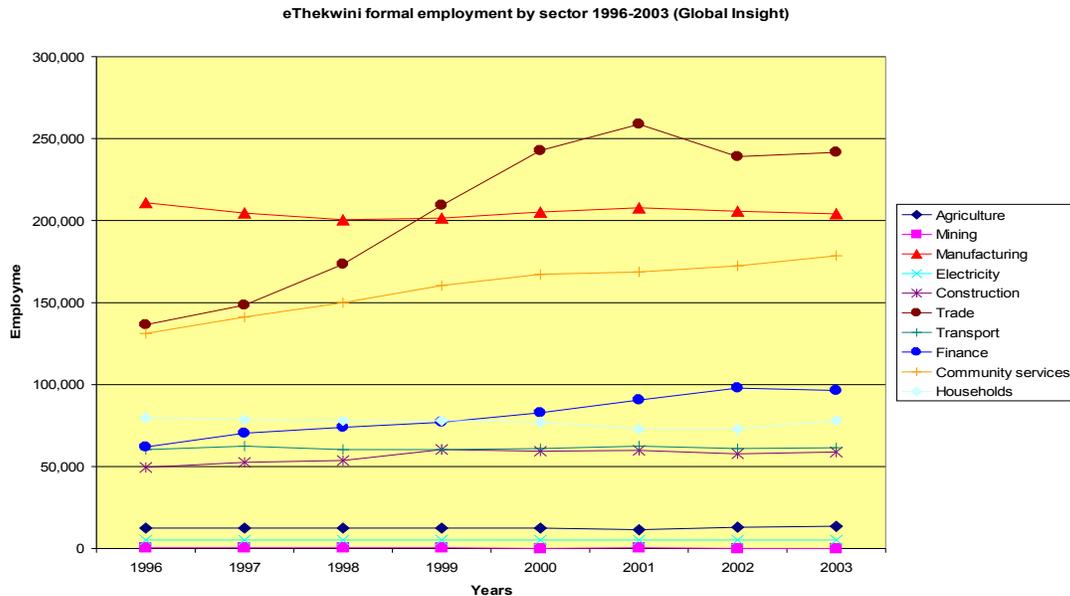
Fig 4 - Broad sectoral growth performance in Durban (Global Insight)



The changing sectoral character of the Durban economy is particularly noticeable when looking at formal employment. The figure below (Fig 4) provides clear evidence of how employment has

shifted into tertiary sectors in the past decade. Where absolute growth in formal employment has occurred, it is in service activities that it has been most significant. It should be noted that in many instances these services jobs are not particularly well paid, neither are they high-skill or as secure as the employment might have been in other sectors in the past (e.g. in government/community services or in highly unionised manufacturing sub-sectors).

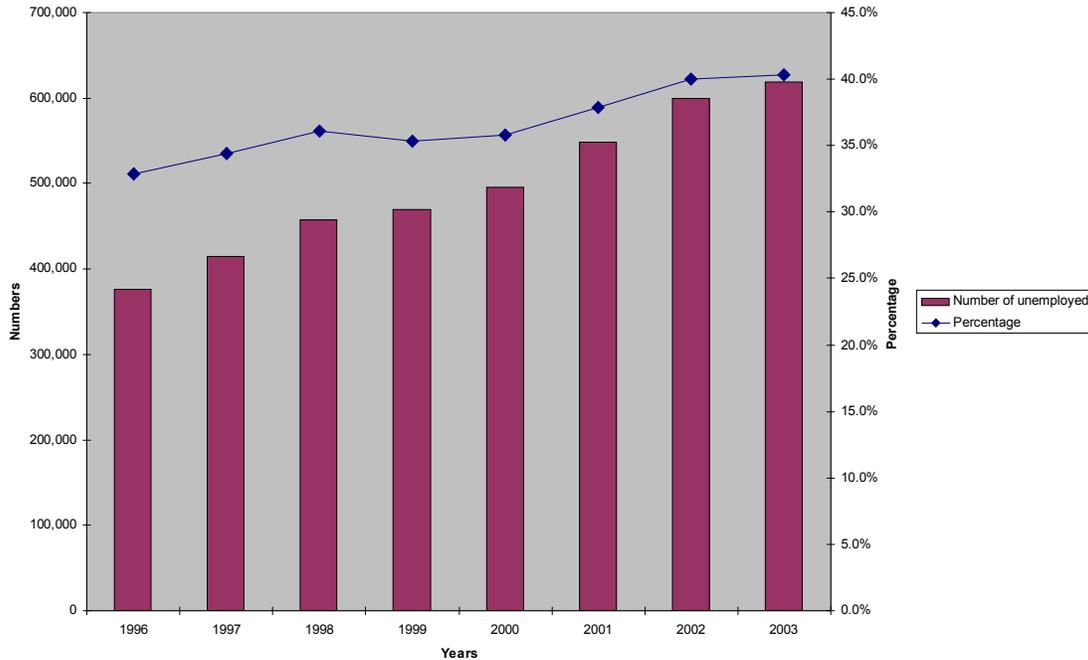
Fig 5 – Broad sector employment in Durban (Global Insight)



However, when looking at employment in the South African context it is essential to examine issues of unemployment as it is the persistence of massive unemployment that continues to dominate the economic environment in the Country. The scale of this unemployment at a national level is replicated at the local level as can be seen in the figure (Fig 5) below. Whilst new jobs have been created and the absolute level of formally employed has increased in the past years this limited growth has been overshadowed by substantial growth in the numbers of unemployed – witnessed not only in the data, but also in the growing numbers of people resorting to informal activities for survival.

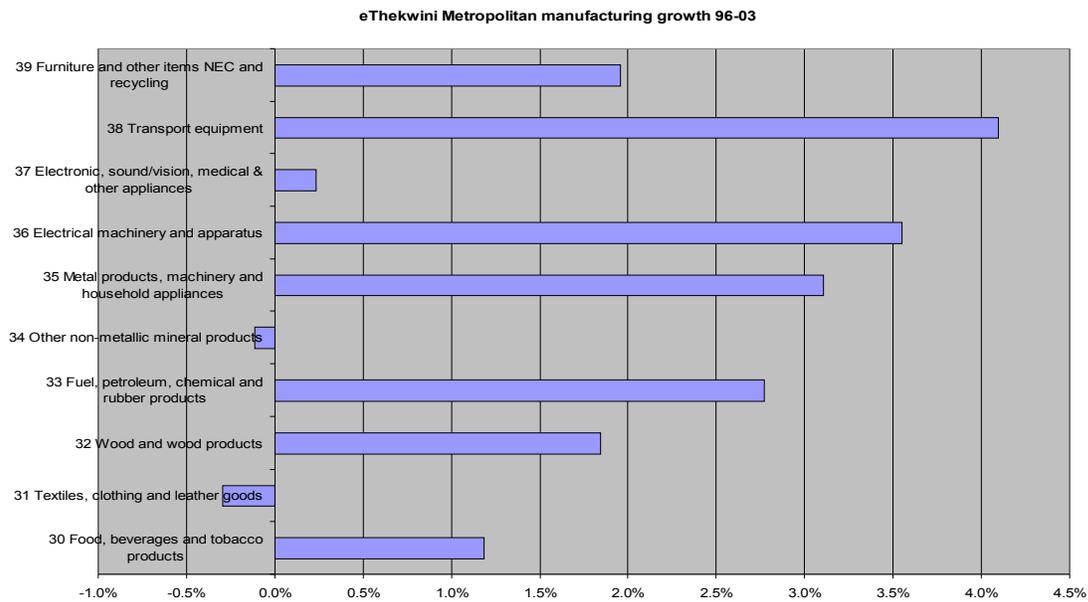
Fig 6 – Unemployment in Durban (Global Insight)

eThekweni unemployment (expanded) 1996-2003 (Global Insight)



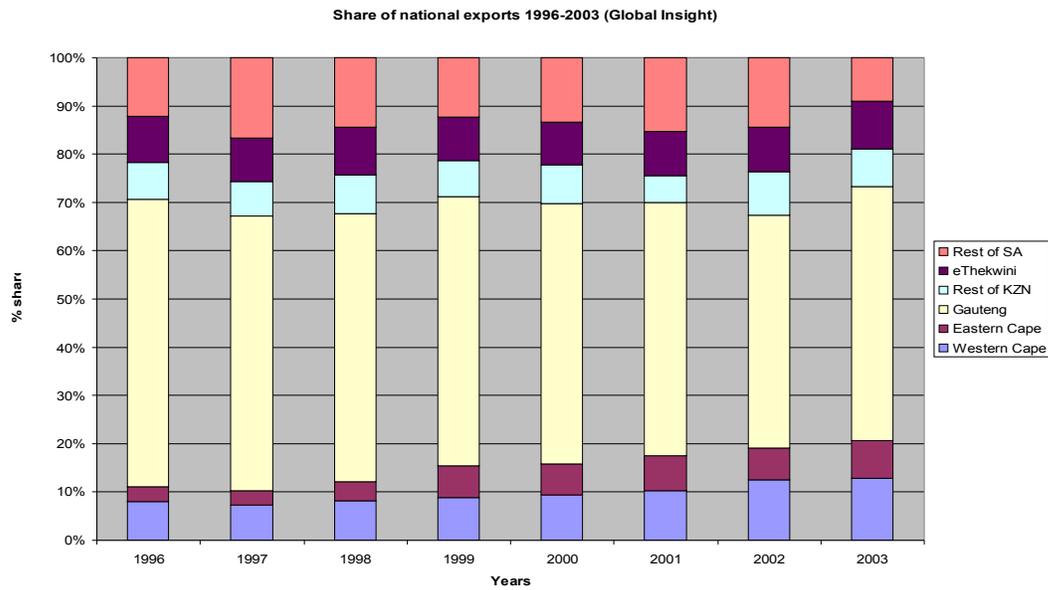
To understand matters of employment and unemployment and also other economic dynamics there is benefit in looking at key economic drivers in some more detail. Focusing on the key manufacturing sector, which was Durban’s economic mainstay for much of the last half of the last century, one can see in the figure (Fig 6) below the degree to which previously dominant traditional sectors have lost much of their lustre as drivers of local economic growth. This is equally true in terms of employment where, critically, major employment-intensive manufacturing employers such as clothing and textiles haemorrhaged jobs during the period of rapid trade liberalization in the 1990s. Whilst Durban remains a major location of manufacturing employment in South Africa (second after the East Rand in eKuruleni Municipality), the sector has not proved to be a rapid generator of jobs.

Fig 7 – Durban manufacturing sector growth (Global Insight)



However, looking through other lenses one can see the positive impact of policy adjustments. In the first instance it is noticeable that Durban’s share of national gross value added in manufacturing has grown in recent times reflecting a maturing in the economic base and a shift to greater technological intensity. Furthermore, in the South African context the rapid growth of manufactured exports in the past decade has been a major success story. Fig 7 provides an indication of Durban’s significant share of national exports. A closer look at the data reveals that Durban has moved from a position of a local economy importing more than it exported in the 1990s to a trade surplus area (although more recently the country has been showing a deficit on the current account driven by a rise in the value of imports relative to exports). Durban has therefore kept pace with South Africa’s rapid growth in export activity in the past few years. Nevertheless, this has not translated directly into major employment gains in manufacturing, although employment growth in sectors such as transport, financial services and trade and retail can also be attributed, in part, to growth in trade activity.

Fig 8 – Export performance over time



In looking at Durban’s economy it is also essential to examine the economic state of households and individuals as it is at this level that the manner in which citizens experience the economy is most revealed. In the Durban context, the challenges that are faced in improving the regional growth performance and increasing levels of formal employment need to be considered in terms of how matters of growth and employment relate to household conditions.

3.

Unpacking Exports and Imports

The exports of most of the main products under consideration in this section exhibit important fluctuations over time. In value terms, yearly shifts are particularly pronounced for oil and petroleum products and for paper and forest products.

Though fluctuations prevent a proper identification of export trends between 1998 and 2004, a few points still emerge from the data. The two main expanding sectors over the period under consideration were vehicles and steel. Exports of these grew by 22.4% and by 7.5% respectively per year. Only exports of vehicles have grown on a consistent basis throughout the period however; steel exports from SA grew sharply from 2002. Some of the sectors presented earlier in this section exhibited recent patterns of export decline. Exports of granite and sugar dropped between 2002 and 2003 and again between 2003 and 2004. Having said that, it is important to emphasise that sugar exports have picked up since early this year as international prices are very high.

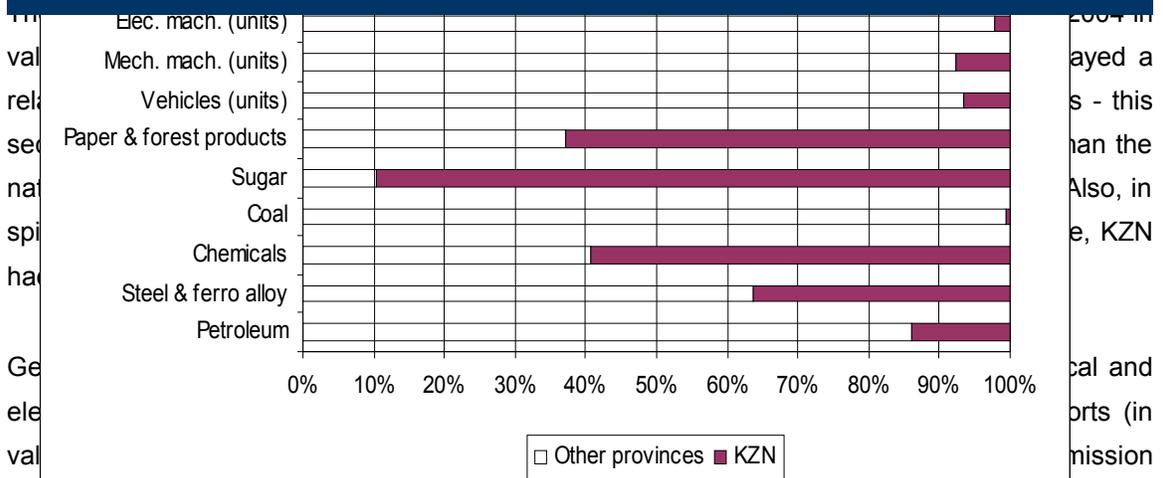
A clearer pattern emerges in volume terms. The following is reported for the sectors discussed above:

- Substantial declines occur in volumes of oil & petroleum products exported from SA between 2001 and 2004. Similarly, volumes of granites exported by South Africa dropped by as much as 35% per year between 2001 and 2004;
- A series of sectors appear stable in the volumes exported. Between 2001 and 2004, volumes of iron & steel products and of chemicals have increased marginally (respectively by 3.9% and 4.1%), whereas coal exports were comparatively stagnant in volume terms.
- Wood and paper exports (narrowly defined) increased sharply by as much as 31.7% per year. (The data also show that wood articles have increased the most over the period). Also, volumes of sugar exported grew by about 22% per year.
- Finally, for mechanical machinery and vehicles (whose volumes are partially defined in number of units and partially in terms of kgs exported), it appears that exports have grown from KZN rather than from other parts of South Africa.
- More generally, stressing that products are detailed in the customs trade dataset according to a series of units of measurements, a series of products appear important in terms of the quantities exported by South Africa.
- Amongst the products captured in kgs, large volumes exported are citrus (ranking 11 products specified in kgs in 2004), sugar, and one product from the chemical industry (diphosphorus pentoxide; phosphoric acid and polyphosphoric acids). Ores dominate the composition of South Africa's exports in volume terms. Though coal is, by far, the major export (about 67 million tons), a variety of ores are also important (e.g. iron, manganese, chromium ores and concentrates and titanium oxides). Refined petroleum, unwrought

aluminium, ferro-alloys and goods from the iron and steel sector are amongst the top 25 products. It is interesting to note in the pattern that ranking 3 in volumes terms are low value by-products of the wood industry (e.g. wood chips and wood waste). It is not surprising that uncoated kraft paper and paperboard and chemical wood pulp have a high rank.

- Small products (e.g. electronic circuits, pens, razor blades, etc.) are typically specified in number of units exported. However, high numbers of T-shirts, centrifuges and medical instruments also figure amongst the top products exported by South Africa.

The figure below shows the origin of exports considered in quantitative rather than in value terms. The figure illustrates that KZN is important in the composition of SA exports for sugar, for forest and paper products as well as for chemicals. For these goods, at least 40% of national exports originates from KZN. The importance of KZN for sugar export is clearly visible in the data.



apparatus, of automatic data processing machines, of gold (unwrought) and of medicaments. A series of overlap emerge between KZN and South Africa insofar as original equipment components figure at all levels a key import sector. Motor vehicles also rank highly.

Imports that experienced high levels of traffic in 2004 included: artificial corundum and aluminium oxide and hydroxide, unmanufactured tobacco, oil cakes and machinery for the paper (paper pulp) industry.

Figure 10 below details the top 25 products imported in value terms from the greater Durban area over the 1998 to 2004 period. (The products have been regrouped within main product categories) The items listed in the table amount to 25.9% of all KZN imports for the period under consideration. The later share suggests that imports from the greater Durban areas are spread across a wide range of goods. Yet, the proportions given in the table indicate that a small number of key products dominate the composition of Durban's imports. The majority of top imports are "for" consumers located in Durban centre and in areas south of the city (an area labelled Durban 2 in the table). There are some exceptions however which are for products primarily imported by

consumers located in the western side of the city (e.g. Pinetown, Hammersdale) – the area labelled Durban 3 in the table. The fact that no main imports are destined to the northern side of the city (e.g. Phoenix, Umhalanga etc.) is an interesting aspect of the import data when considered in value terms.

Fig 10 - Main products imported by Durban (1998-2004)

Rank	Product group(s)	% of top 25 imported products	Dominant destination of imports
1	Petroleum oil (crude & refined) & Coal (in solid form)	14.0	Durban 2
2	Unmanufactured tobacco; tobacco refuse.	13.7	Durban 2
3	Original equipment components	11.1	Durban 2
4	Motor vehicles principally for the transport of persons & parts and accessories of motor vehicles	9.6	Durban 2 & 1
5	Machinery for making pulp of fibrous cellulosic material or for making or finishing paper or paperboard; Air or vacuum pumps, compressors & fans; ventilating or recycling hoods incorporating a fan; Metal-rolling mills and rolls therefore.	8.2	Durban 2
6	Oil-cake and other solid residues, whether or not ground or in the form of pellets, resulting from the extraction of soya-bean oil.	5.8	Durban 2
7	Rice & wheat and meslin.	5.7	Durban 2
8	Anti-knock preparations, inhibitors viscosity improvers, anti-corrosive preparations and other prepared additives for mineral oils (incl. gasoline) or for other liquids used for the same purposes as mineral oils	4.9	Durban 2
9	Paper & paperboard, coated on one or both sides with kaolin or other inorganic substances & paper, paperboard, cellulose wadding and webs of cellulose fibres, coated, impregnated, covered, surface-coloured, surface-decorated or printed, in rolls or sheets.	4.6	Durban 2 & 1
10	Transmission apparatus; television cameras; electrical apparatus for switching or protecting electrical circuits or for making connections to or in electrical circuits	4.1	Durban 1
11	Cotton, not carded or combed.	3.8	Durban 2
12	Palm oil and its fractions, whether or not refined, but not chemically modified.	3.8	Durban 2
13	Cotton sewing thread, whether or not put up for retail sale.	3.4	Durban 2
14	Polycarboxylic acids, their anhydrides, halides, peroxides and peroxyacids; their halogenated, sulphonated, nitrated or nitrosated derivatives.	2.0	Durban 2
15	Chemical wood pulp, soda or sulphate, other than dissolving grades.	1.8	Durban 2

16	Aluminium plates, sheets and strip, of a thickness exceeding 0.2 mm.	1.8	Durban 2
17	Tea, whether or not flavoured	1.8	Durban 2
Total		100	

Notes:

- Based on data in values at 2000 constant prices;
- The rank is defined over the value of imports for products groups (defined at the HS4 digit levels) over the 1998 and 2004. Several products have been aggregated if in similar product groups;
- Durban 2: central to South Durban (e.g. Amanzimtoti) and Durban 1: West Durban (e.g. including Hammersdale, Pinetown etc.).

Exports Trends

We next turn attention to exports from the greater Durban area. Figure 11 below reports the main products in value terms that were exported from the greater Durban area between 1998 and 2004. The information in the Table is based on the top 25 products exports. The products are diverse: some entail low levels of processing (e.g. articles of stones, plaster and cements) whilst others are high value goods (e.g. vehicles, machinery and appliances). These goods amount to 46% of the total value of KZN exports between 1998 and 2004.

The ranks of the products exported suggest that the export of certain goods are negotiated in Durban rather than originating from Durban. These goods (namely ores) are most likely shipped from Richards Bay. With the exception of work in natural stones the other products which appear in the table are those already discussed in various parts of Section 5. As for the shares reported column 3 of Figure 10, they illustrate the dominance, in value terms, of a handful of products. Finally, as can be observed from column 4 of the table, the products exported primarily originate (or are negotiated by companies based) from Durban centre and/or from areas south of the city. As with imports, there are some exceptions with transmission apparatus exports originating from the northern side of the city. Some vehicles are also exported from areas on the western of the city.

In volume terms, products which are important to South Africa also appear important to the greater Durban area (the products are in fact only somewhat distinct at a very disaggregated level). As can be seen from Table 3, chemical wood pulp, uncoated paper and paperboard, refined petroleum, sugar, etc. figure amongst the top 10 products. However, Durban exports are concentrated in a wide range of items from the iron and steel sector: eight of the top 15 products are from that particular sector. It is also interesting to observe that iron ores are also exported

from Durban. About 85% of South Africa's export of iron ores would be initiated from the greater Durban area. Again, one aspect of the data is that these products are primarily exported by companies or agents located in the central to Southern Durban area. (No pattern emerges when individual number of pieces exported are considered for specific product categories).

Figure 11- Main products exported from Durban (1998-2004)

Rank	Product group(s)	% of top 25 exported products	Dominant origin of exports
1	Iron ores and concentrates, including roasted iron pyrites.	26.0	Durban 2
2	Iron or non-alloy steel: semi-finished products of ; flat-rolled products of iron or non- alloy steel (of a width of 600 mm or more); bars & rods, hot-rolled, in irregularly wound coils; angles, shapes and sections	23.3	Durban 2
3	Chemical wood pulp, soda or sulphate	13.3	Durban 2
4	Petroleum oils and oils obtained from bituminous minerals, other than crude; preparations not elsewhere specified or included, containing by mass 70 per cent or more of petroleum oils or of oils obtained from bituminous minerals	9.8	Durban 2
5	Newsprint, in rolls or sheets; Uncoated paper and paperboard, of a kind used for writing, printing or other graphic purposes & other paper, paperboard, cellulose wadding and webs of cellulose fibres, cut to size or shape; other articles of paper pulp, paper, paperboard, cellulose wadding or webs of cellulose fibres.	9.7	Durban 2
6	Cane or beet sugar and chemically pure sucrose, in solid form.	4.0	Durban 2
7	Transmission & reception apparatus for radio-telephony, radio-telegraphy, radio-broadcasting or television; television cameras, video monitors and video projectors	2.7	Durban 3
8	Motor vehicles principally for the transport of persons (< 10 people) & parts and accessories of the motor vehicles	2.4	Durban 2 but a fair proportion from Durban 1
9	Ketones and quinones & their halogenated, sulphonated, nitrated or nitrosated derivatives.	1.7	Durban 2
10	Centrifuges, incl. centrifugal dryers; filtering or purifying machinery & apparatus, for liquids or gases.	1.7	Durban 2
11	Insecticides, rodenticides, fungicides, herbicides, anti-sprouting products & plant-growth regulators, disinfectants & similar products	1.6	Durban 2
12	Undenatured ethyl alcohol of an alcoholic strength by volume of 80 % vol. or higher; ethyl alcohol and other spirits, denatured, of any strength.	1.3	Durban 2
13	Tubes, pipes and hollow profiles, seamless, of iron (excl. cast iron) or steel.	1.3	Durban 2
14	Worked monumental or building stone (excl. slate); mosaic cubes and the like, of natural stone (incl. slate), whether or not on a backing; artificially coloured granules, chipping of natural stone (incl. slate).	1.2	Durban 2
Total		100	

Notes:

- Based on data in values at 2000 constant prices;
- The rank is defined over the value of exports of products groups (defined at the HS4 digit levels) between 1998 and 2004;
- Several products have been aggregated if they fall in a similar product group.
- Durban 2: central to South Durban (e.g. Amanzimtoti); Durban 1: West Durban (e.g. including Hammersdale, Pinetown etc.) and Durban 3: areas north of the city.

Fig 12 -Main products exported from the greater Durban area (2004)

Rank	Product	Origin of export (Durban area)
1	Iron ores and concentrates, including roasted iron pyrites.	Durban 2
2	Flat-rolled products of iron or non- alloy steel, of a width of 600 mm or more, hot-rolled, not clad, plated or coated.	Durban 2
3	Cane or beet sugar and chemically pure sucrose, in solid form.	Durban 3
4	Petroleum oils and oils obtained from bituminous minerals, other than crude; preparations not elsewhere specified or included, containing by mass 70 per cent or more of petroleum oils or of oils obtained from bituminous minerals, these oils being the basic constituents of the preparations *** schedule 1 part 2a : 105.10/2710 *** (included in duty at specified rate)	Durban 2
5	Semi-finished products of iron or non- alloy steel.	Durban 2
6	Chemical wood pulp, dissolving grades.	Durban 2
7	Bars and rods, hot-rolled, in irregularly wound coils, of iron or non-alloy steel.	Durban 2
8	Ferrous waste and scrap; remelting scrap ingots of iron or steel.	Durban 2
9	Flat-rolled products of iron or non-alloy steel, of a width of 600 mm or more, cold-rolled (cold-reduced), not clad, plated or coated.	Durban 2
10	Worked monumental or building stone (excl. slate) and articles thereof (excl. goods of heading no. 68.01); mosaic cubes and the like, of natural stone (incl. slate), whether or not on a backing; artificially coloured granules, chipping of natural stone (incl. slate).	Durban 2
11	Other bars and rods of other alloy steel; angles, shapes and sections, of other alloy steel; hollow drill bars and rods, of alloy or non-alloy steel.	Durban 2
12	Uncoated paper and paperboard, of a kind used for writing, printing or other graphic purposes, in rolls or sheets, other than paper of heading no.48.01 or 48.03;	Durban 2
13	Angles, shapes and sections of iron or non-alloy steel.	Durban 2
14	Tubes, pipes and hollow profiles, seamless, of iron (excluding cast iron) or steel.	Durban 2
15	Residual lyes from the manufacture of wood pulp, whether or not concentrated, desugared or chemically treated, including lignin sulphonates, but excluding tall oil of heading no.38.03.	Durban 2

Note: Only based on quantities provided in kgs.

Returning to Imports

Distinct products emerge in volumes terms. Figure 12 reports the products which were important in the composition of Durban imports defined in volume terms for 2004.

As can be seen from the Table, coal ranks number one. The volumes imported by Durban (that is by companies or agents based in Durban) amount to the about 92% of South Africa's imports of coal. Another interesting aspect of the data is that many goods imported by Durban are dry food items – e.g. wheat, maize and rice. Durban is also in this regard a substantial import centre for these products. For instance, in the case of rice, 33% of South Africa's imports were with Durban in 2004. In the case of maize, the equivalent figure was 61.5%. Other products with high ranks are those related to the farming sector. For instance, oil-cake, used to feed livestock has a high rank. High volumes of fertilisers are also imported by Durban. Palm oil is, instead, used by the agro-industry. One particular food item, meat offals (primarily of fowls and frozen) appear amongst the top 15 products imported. In fact KZN absorbed 43% of all offals imported by South Africa in 2004. Durban then absorbed about 78% of KZN imports.

One chemical product as well as refined petroleum also figure in the table of the top 15 import products. The absence of crude oil in the table simply reflects the fact that 67% of the nation's imports of such oil is from the Western Cape. By contrast, and as can be seen by referring to the discussion of petroleum products of Section 5, though the importing agents and companies are based in the Western Cape, crude oil enters the country via the port of Durban.

Original equipment components ranked 12, and is closely linked to the growth in the automotive cluster in Durban.

Finally, the table excludes asbestos. Though this particular product ranked number 11 in the volume data, the amounts imported according to the customs dataset are substantial out of line (higher) than that of the International Trade Center for the year under study. The origin of the discrepancy is unclear though the customs data are relatively consistent over time. Furthermore, asbestos in both cases primarily originate from Zimbabwe.

Recalling the caveat that the units of measurement in the customs trade dataset vary depending on the product considered, a series of goods appear important when number of items are considered instead. Four main categories of such products emerge in the data:

- Low value, small volume products (e.g. toys, pens, brooms and brushes);
- Specialised electronic equipment and/or inputs for the electronic machinery/vehicle sectors (e.g. electric filaments, electronic integrated circuits, electro-magnets, clutches, brakes, diodes and transmitters);
- Garments (e.g. T-shirts, dresses, trousers, underwear);

- A miscellaneous category entailing medical instruments and appliances, prepared media for sound recorded, gym equipment.

Fig 13 - Main products imported by the greater Durban area (2004)

Rank	Product	Source of import (Durban area)
1	Coal; briquettes, ovoids and similar solid fuels manufactured from coal.	Durban 2
2	Oil-cake and other solid residues, whether or not ground or in the form of pellets, resulting from the extraction of soya-bean oil.	Durban 2
3	Wheat and meslin	Durban 2
4	Maize (corn)	All zones of the greater Durban area
5	Rice	Durban 2
6	Mineral or chemical fertilisers, nitrogenous	Durban 2
7	Sodium hydroxide (caustic soda); potassium hydroxide (caustic potash); peroxides of sodium or potassium.	Durban 2
8	Palm oil and its fractions, whether or not refined, but not chemically modified.	Durban 2
9	Unmanufactured tobacco; tobacco refuse.	Durban 2
10	Oil-cake and other solid residues, whether or not ground or in the form of pellets, resulting from the extraction of vegetable fats or oils, other than those of heading no.23.04 or 23.05.	Durban 1
12	Original equipment components:	Durban 1
13	Meat and edible offal, of the poultry of heading no. 01.05, fresh, chilled or frozen	Durban 1
14	Polycarboxylic acids, their anhydrides, halides, peroxides and peroxyacids; their halogenated, sulphonated, nitrated or nitrosated derivatives.	Durban 2
15	Petroleum oils and oils obtained from bituminous minerals, other than crude; preparations not elsewhere specified or included, containing by mass 70 per cent or more of petroleum oils or of oils obtained from bituminous minerals, these oils being the basic constituents of the preparations *** schedule 1 part 2a : 105.10/2710 *** (included in duty at specified rate)	Durban 2
16	Paper and paperboard, coated on one or both sides with kaolin (china clay) or other inorganic substances, with or without a binder, and with no other coating, whether or not surface-coloured, surface-decorated or printed, in rolls or sheets:	Durban 2

Note: Durban 2: central to South Durban (e.g. Amanzimtoti); Durban 1: West Durban (e.g. including Hammersdale, Pinetown etc.) and Durban 3: areas north of the city.

4. Setting the context for local economy and port interactions

Based on analysis conducted for this project and on material sourced from other studies the following key points of departure can be identified as follows:

The growth in Durban's share of national exports (temporarily distorted at present by the rise in some commodity prices sourced from the hinterland) and Durban's growing share of national manufactured gross value added mean that the linkage between the prospects of city manufacturing businesses and the port is growing rather than declining. As the bulk of these businesses have relationships either directly or indirectly with the port – and more especially the container facilities – it is likely that Durban will grow its ability to capture the logistics gains from proximity to an expanding container handling facility. There is also evidence from interviews with logistics-related companies that the organisation of national distribution channels from the port (for imported product) is increasingly taking place with a Durban bias. Most major national FMCG chains have created substantial primary, secondary or staging dispatch facilities in Durban with linkages to packaging, transportation and related and supporting industries.

Durban has a relatively diversified manufacturing base. While this was not always the case in terms of concentration of employment in clothing and textiles, it is true in terms of the distribution of manufacturing sub-sector activities. The character of production and the products produced at these enterprises has some significant points of integration with the character of goods handled at the port. The most obvious point of connection is that Durban has a major share of South Africa's petro-chemical and chemical industrial activities. These firms both generate exports and drive growth in imports. It is noteworthy that in the past decade this sector has been the leading driver of output growth in the city. But products handled in the port, whether they be import or export, are also connected with many other manufacturing sub-sectors (paint production for automotive, paper plants, food and beverages). Many of Durban's sub-sectors also have a close connection with iron, steel and various alloy products that are traded through the port. The fact that Durban has the country's second largest metal engineering cluster is no coincidence and these business in turn supply the maritime sector, chemicals and the automotive sector to name but a few. In this regard maintaining the diversity of port handling capability, where appropriate, is an important issue. Elsewhere in this document key products will be identified. For example, the handling of growing volumes of chemical related products through liquid bulk facilities is important for Durban (although there are exceptions). A similar case can be made for some types of break-bulk cargoes and neo-bulks. These linkages are unpacked in the section that follows with Durban's trade volume trends plotted against international trends.

Other key economic nodes in KZN such as Pietermaritzburg and Richards Bay-Empangeni also have relatively strong ties with processes in the port. Pietermaritzburg has a number of

automotive-related firms and a large exporter in the form the Hulett's Aluminium plant. Richards Bay and Empangeni also have significant economic activity in the manufacturing category. While many firms in Richards Bay-Empangeni might export through the Port of Richards Bay, many still receive regular supplies through Durban and some export through Durban. As these economic nodes mature and develop it is likely that the interconnections between them and Durban will increase and their relationship with the port from a production, consumption and logistics perspective will intensify.

5.

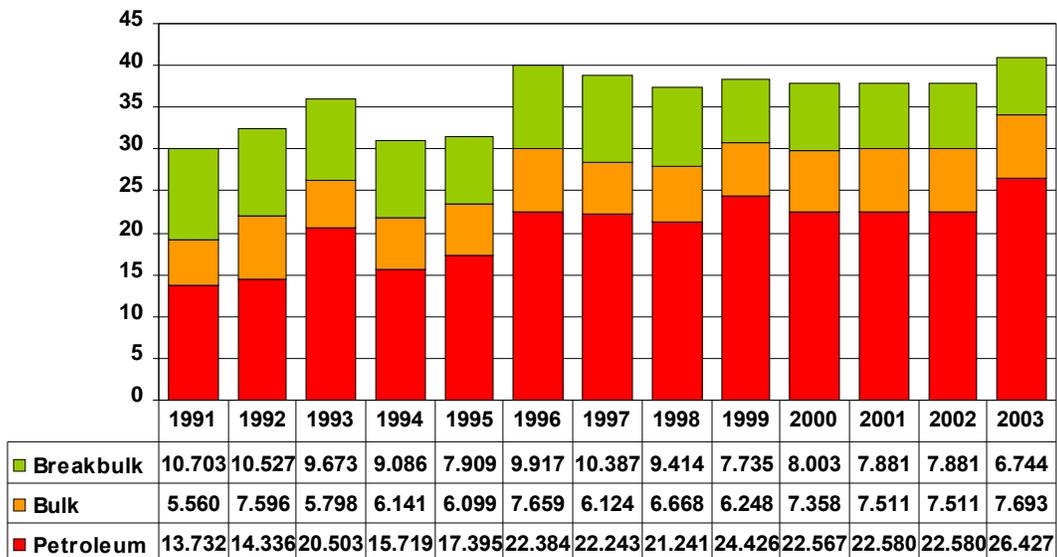
World Trends and Durban’s Response

The substantial increase of 4.1% (2004) in the world’s output (the highest in a decade) has had a significant impact on the growth of seaborne trade. The developed world grew at a rate of 3.2% while the developing world (including China) experienced growth on average recorded at 6.5%. This aggregated growth level is greater than that experienced in South Africa, which reflected a growth rate of 3.65 for 2004. However, despite a lower local growth rate the impact of the global trend has translated into an increase in port related traffic, as increased levels of international output translated into additional levels of trade. The Port of Durban plays an intrinsic role as a conduit of trade both into South Africa, and SADC. This is borne out in later chapters of this review, where the levels of port traffic are disaggregated.

World seaborne trade was reported at the highest levels ever recorded in 2004 (no finalised figures are available for 2005 yet), with an annual growth of 4.3% in excess of the increase in global output. In Durban, growth in traffic is reflected in the graphs which follow.

Fig 14 - No. of TEUs Landed, Shipped and Transhipped in the Port of Durban (1995 – 2003)

TEUS

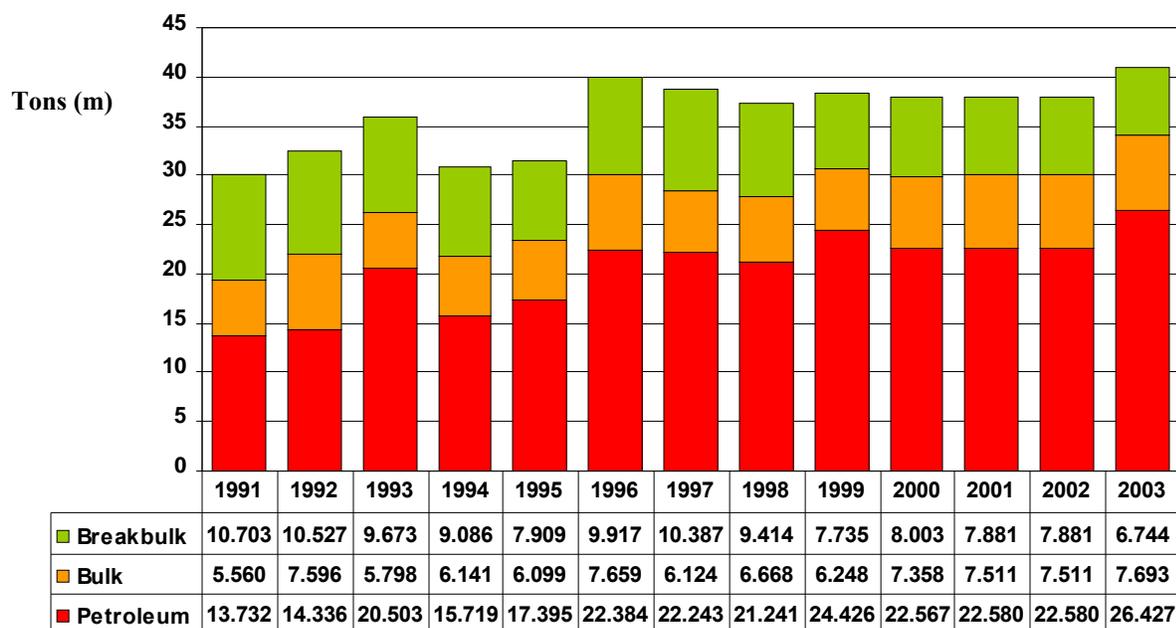


The growth in TEU figures is apparent from the graph above. What is also interesting is that this increase has more than been matched by the increase in bulk commodities handled at the port (indicated below). Breakbulk figures have been slowly diminishing since the late 1990’s, however Bulk and Petroleum trades have more than made up the ground lost. Petroleum bulk products

have close on double in the timeframe indicated, and increasing 17% in volume from 2002 to 2003.

The Port of Durban's growth over the last decade is certainly following the global growth trend in seaborne trade. If we attempt to disaggregate this growth, and examine what commodities are responsible for this continued growth it should be no surprise that crude oil and petroleum products are primary contributors to these figures, followed closely by steel, coal, chemicals and sugar and grains, figures for 2004 – 2005 indicate an identical trend.

Fig 15 - Bulk and Breakbulk Tonnage Handled at the Port of Durban (1991 – 2003)



6.

Container sea trade growth and port capacity

The various port layout options that were presented as part of the TEMPI exercise, and much of the discussion in the previous section, indicate that the Durban port and metropolitan community will be required to take some hard decisions as to the future orientation of the port. Some basic strategic questions that must be addressed by this community are:

- Is it appropriate that the port of Durban direct its expansion plans principally towards the provision of augmented container-handling capacity?
- If so, what is the ultimate container-handling capacity of the port, and hence at what level might future container traffic need to be “capped”? The alternative annual capacity “caps” associated with the port layouts deemed feasible would appear to be 5 million, 6.75 million and 8.25 million teus, respectively.
- What are the opportunity costs of planning to install a higher as opposed to a lower container capacity “cap”?

The growth of container sea trade since 1994, the periodic bouts of congestion that have beset Durban’s container-handling operations for more than a decade, the preference on the part of carrying lines to patronise Durban as opposed to other sub-regional ports of call, and the port’s position as the lowest-cost conduit for general cargo to Gauteng all suggest that the provision of increased container-handling capacity is the most urgent planning need for the port.

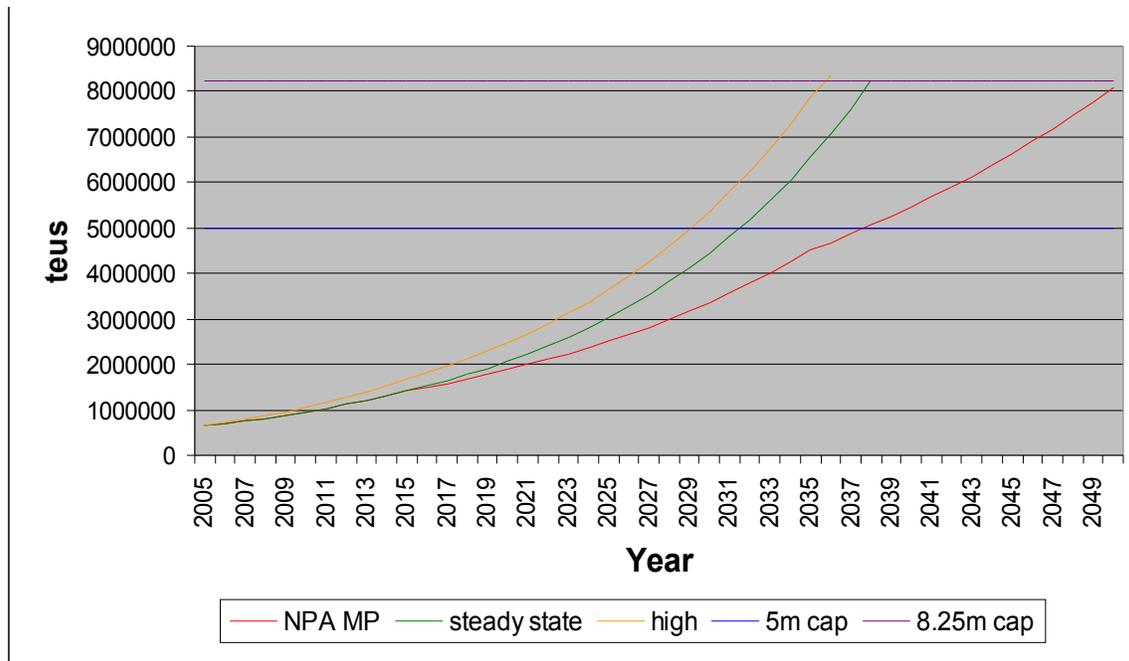
In a world without opportunity costs, the second and third questions would also be easily answered. An 8 million teu port would clearly confer greater benefits than a 5 million teu port, *ceteris paribus*, on the port-ancillary community (see Section 8 below), and would cement Durban’s position as a general cargo-handling hub and logistics platform for Southern Africa. In practice, however, neither the conduct of South African seaborne commerce, nor the disposition of commercial space in the eThekweni metropole operates in a world without opportunity costs. The question of urban space will be dealt with elsewhere in this report. The question of competing sea-trading activities was addressed in part in the previous section, and will be addressed further in a broader context of container demand here.

The South African National Ports Plan envisions national container sea trade growing at an annual average rate of 8% from 2005 to 2015; by 6% from 2016 to 2035, and by 4% from 2036 to 2050 (NPA, 2006, Section 4.2). Under these assumptions, container volumes reach 4.2 million teu by 2010, 9 million by 2020, 20.75 million by 2035 and 36.9 million by 2050 (*ibid*). On the basis that the eastern seaboard ports of KwaZulu-Natal retain their present share of some 63% of this national activity, capacity to handle some 23 million teus annually would need to be provided between the ports of Durban and Richards Bay by 2050. In the context of this demand outlook,

an inescapable conclusion is that the port of Durban cannot, in the longer run, continue to serve as the single dominant eastern seaboard container-handling hub; that role will be appropriated by Richards Bay well before the midpoint of the 21st Century. This conclusion in no way diminishes the urgency with which the problem of additional capacity needs to be addressed in Durban port in the short term, nor does it diminish the long-term and permanent importance of general cargo activities on the local economy. Rather, it indicates that the South African ports sector will ultimately follow the example of most other major sea-trading areas, such as Europe and south-east Asia, within which large, diversified ports compete for traffic in serving joint hinterlands, but prosper individually and collectively in doing so.

A decision regarding the ultimate container-handling capacity of Durban port consequently informs the time threshold of when rather than if Durban yields eastern seaboard dominance to Richards Bay. A different context within which to present these planning choices would be to return to one of the consistent themes of this paper; that is, that the first and principal permanent function of the port of Durban is to serve the trading needs of the eThekweni economic community. In terms of containerised general cargo demand, these trading needs are presented in a stylised fashion in Figure 12, below, which sets out forecasts of local container demand over the 2005-2050, period, under various growth assumptions.

Fig 16 - Local Durban Container Volumes (millions teu)



All three of the growth paths illustrated start with the assumption that cargo sources and sinks within the eThekweni metropole generate approximately one-third of the port's current container

traffic, or some 650,000 teus in 2005/6. Three growth paths are then presented: the most conservative follows the NPA Master Plan’s projection of phases of 8%, then 6% and then 4% annual average growth; the steady state path assumes a constant 8% compound growth over the full period; and the high road growth profile assumes 10% annual average growth (more in line with current experience) to 2015, 8% growth between 2016 and 2035; and 6% growth from 2036 to 2050. Container-handling capacity caps of 5 million and 8.25 million teus are also shown.

In terms of the three growth paths, which are illustrative than predictive, purely local cargo demand would reach the various planned capacity caps as follows:

Fig 17 - Capacity Caps

	5 million teu (Layouts 1aa, 1ab)	6.75 million teu (Layout 3ca)	8.25 million teu (Layout 3da)
High growth	2032	2033	2036
Steady state growth	2032	2035/6	2038
NPA growth path	2038	2042/3	2050

This not, of course, to suggest that a major regional port would ever cater solely for local demand. With carrying lines favouring a single “hub” port of call within a single trading region, it is almost certain that all ports would continue to serve local, other national and transshipment demand, but with some greater incidence of feeder and/or landside distribution of boxes, with the latter more likely in the case of ports in such close proximity as Durban and Richards Bay. What the growth profiles in Figure 13 do, however, suggest is that the *proportion* of local containerised cargo handled in Durban port is likely to rise steadily over time, and that the *proportion* of national and transshipment cargo will decrease. Since it is local cargo that generates the richest employment and expenditure linkages in the port-ancillary cluster, this observation is not ominous news for the Durban port community.

A final note of caution to be sounded when bandying around stylised growth profiles, is that capacity caps are unlikely to serve as hard and fast thresholds. The growth forecasts are made on the basis of given terminal productivity levels; increased productivity, arising either from positive technological progress or from capital deepening within a given terminal site will stretch time thresholds. That has certainly been the experience of the present Durban Container Terminal¹, where successive notional capacity thresholds have been exceeded with essentially the same marine infrastructure (number of berths), albeit with greater investment in

¹ In April 2006, the DCT handled over 200,000 teus in a single month for the first time, tantamount to an annual activity level of over 2.4 million teu, despite a notional capacity cap of 1.9-2.0 million teu.

superstructure, and with unacceptably high levels of berth occupancy and vessel waiting times (Bennathan & Wishart, 1983).

The purpose of setting out this containerised sea trade demand context, however stylised and hypothetical the exercise may be, is to reinforce the view that in a situation in which Durban port will inevitably cede dominance in the regional container-handling derby, it makes little sense to consign the port to one-dimensional container-handling status at this stage in the planning process, particularly if this is achieved at the cost of diversity in general, and particularly at the cost of an inability to serve the particular needs of the diversified industrial and commercial community in eThekweni, whose needs extend well those that can be stuffed into the ineluctable box.

7.

Economic activity in the port-ancillary cluster

When vessels call at a port, or when cargo passes across the wharf side, economic activity is energised in a myriad of areas. Different types of port activity (in the sense of different categories of vessel callers, different cargo types and different cargo-handling technologies) clearly also impact on the local economy in different ways, and in a situation where conflicting uses (within traditional port activities and across other uses) compete for scarce port space, it is useful to establish some form of benchmarks of expected economic activity linked to these competing uses. This paper concerns itself only with a range of fairly traditional port-related activities, by attempting to assess the economic impacts of calls by different types of typical port callers, and then by drawing out some comparisons between these and other obvious candidates for port space, such as shipbuilding and ship repair activities. The obvious economic indicators to focus on would be employment levels and expenditure levels.

Detailed estimates of employment levels in port-ancillary activities have not been attempted in this exercise, but a previous study indicated that the port supported approximately 25,000 jobs in the direct port-ancillary sector, and a further 8,000 in establishments supporting these directly port-dependent entities, at 1995 port activity levels (Jones, 1997). Port activity levels have clearly changed significantly over the last decade, not so much in terms of total port traffic, but notably in terms of the composition of that traffic, with substantial increases in containerised cargo and vehicles, less dramatic increases in palletised reefer cargo, small growth in the oil and petroleum trades, and decreases in dry-bulk and breakbulk traffic. All of these changes will have impacted on employment in the related service providing establishments, but a detailed audit of these changes was beyond the time scope of this study. Some very broad changes did, however, emerge in discussions with key entities. Port-related employment levels have fallen in what may broadly be termed the public sector port authority, following the unbundling of the former monolithic Portnet into a landlord (the National Ports Authority or the NPA) and a Transnet terminal operator (South African Port Operations or SAPO). In these areas, employment levels have fallen from an estimated 5,5000 in the mid-1990s to some 3,300 in 2006, largely as a result of structural changes in the operation of the container terminal, which have seen labour-intensive cartage activities shifting from Transnet monopoly to private road hauliers and cartage operators. These employment have been more than offset by gains in the private road haulage industry (employment levels estimated to be over 3,000 at present) and in the Clearing & Forwarding industry (4,500 to 5,000 persons employed in the eThekweni metropole) as well as in container depots and container logistics. Several respondents reported a tendency on the part of the clearing, forwarding, warehousing and logistics management fraternity to conglomerate their activities in the catchments area of Durban port, and clearly perceive Durban as an appropriate cargo management platform, even in the case of cargoes not originating in or destined for cargo owners in eThekweni. Braby's data show the port supporting a total of 849 locally-based

establishments, covering a wide gamut of activities from cargo terminal operators to yacht brokers and sailing schools. Significant numbers of service providers are reported in clearing & forwarding (124 firms – probably a conservative figure, below industry estimates of 160-180), cartage contractors and transportation companies (132 firms), freight services & warehousing (78 establishments), ships' agency (48 shipping lines & agents) and cargo agents (55 export and import service providers). These establishments are dispersed across a wide range of locations within the metropolitan area, but with the greatest clustering in the central business area (340 firms), the Jacobs (96), the Bayhead (92), Prospecion (46), Clairwood (45) and Umbilo (43).

Specific employment levels are difficult to pin down across such a diversity of activities, but a very rough estimate would put port-ancillary employment at some 40,000 in service providers directly dependent upon the port, or supporting these direct port players. This constitutes some 4.5% of the eThekweni workforce. It should be stressed that this relates solely to port-ancillary activities – that is, to economics activities that would not exist in the absence of a port of Durban – and do not include port-using cargo owners, however intimately many of these might be dependent upon the port.

In a dynamic context within which the impact of additional port traffic (one more container vessel, one more conventional breakbulk vessel, one more vessel repaired etc) is considered, detailed estimates of changing employment impacts are even more difficult to specify. The principal focus here will therefore be directed at the expenditure flows associated with additional port activity.

With regard to vessel callers, two typical cases are considered: a medium-sized container vessel (working 900-1000 teus per single port call), and a representative multi-purpose freighter (working 12-15,000 tons of breakbulk cargo by traditional stevedoring services over a 5-day visit). In each case, as in the employment discussion above, a conservative view is taken of expenditure flows, as these are limited to direct port-ancillary activities, without considering expenditure generated in the family of locally-based cargo owners (importers and exporters); and expenditure flows are expressed initially in direct, first-round terms, without taking account of multiplier effects. The port is consequently seen purely as a cargo-handling interface, or an *entrepôt*, without regard for the origins and destinations of cargo.

Figure 18 below, shows the major categories of expenditure by a typical container vessel working 950 boxes in a single 2-day call at the main container terminal of the port of Durban (early 2006 tariff levels, excluding cargo dues). Data were drawn principally from the disbursement accounts of ships' agents, from detailed bunker data, from quite detailed discussions with the clearing & forwarding fraternity, and from discussions with ship chandlers and the repair industry. Rail and container support (depots, logistics, etc) estimates are less robust and have been reflatd from a comparable 1995 study (Jones, 1997).

Fig 18 - Profile of container vessel spending, 2006 tariff levels

Item/Service	Expenditure R	% total
NPA marine infrastructure & services ¹	135,000	4.6
SAPO Terminal charges	675,000	22.9
Stevedoring & Tallying ²	13,300	0.5
Ships Agency	33,000	1.1
Ship Chandlers	45,000	1.5
Clearing & Forwarding	616,000	21.0
Container depots, logistics etc	125,000	4.3
Road haulage ³	430,000	11.9
Rail charges ³	100,000	3.4
Ship repair services	77,000	2.6
Bunkers & fuel	772,000	26.2
TOTAL EXPENDITURE PER CALL	2,941,300	100.0

Notes:

- 1 The category of cargo dues, payable by cargo owners to the NPA has been excluded from these spending profiles. This charge is raised to finance the cargo-working infrastructure of the ports (replacing the old *Ad Valorem* Wharfage charge), but associated revenue has historically not been retained by the individual port communities in question. NPA charges are consequently limited to those to relate to tangible activities conducted on the land or on the water in the Durban port area.
- 2 Container carrying lines pay an all-in terminal charge that include stevedoring, with the latter in turn offering their services to SAPO. For the purposes of this exercise, these charges have been unbundled to separate out the (small) stevedoring component.
- 3 Based on a 70%/30% road/rail split of cargo distribution and 35%/65% split of container volumes across Durban/non-Durban cargo owners. Local cartage activities and 20% of Durban-inland transport is assumed to be controlled by service providers in the eThekweni metropole.

As indicated, a typical vessel is responsible for local spending of some R2.94 million per port call, with expenditure flowing to a range of recipients in the public sector (the NPA, SAPO and Spoornet, together absorbing approximately 31% of associated spending) and in the private port-ancillary cluster (69% of spending accruing to private service providers). This suggests that the port's container-handling activities, based on 2004 activity levels of 1254 callers, is responsible for an annual expenditure injection in the local economy of some R3,7 billion².

A typical multi-purpose vessel handling breakbulk cargo (in these instances a range of bagged import cargoes), generates a somewhat different expenditure pattern, with different beneficiaries,

² A simple exercise of multiplying boxes by numbers of callers will not yield the annual teu container traffic of the port, partly because boxes handled do not equate to teus (since many are 12-metre boxes), and partly because some containers are worked by multi-purpose vessels.

as shown in Figure 19 below. Data here are drawn from similar sources. A typical vessel working 12-15,000 tons of conventional cargo is shown to generate expenditure of some R1.75 million per port call if private/leasehold terminal facilities are used, or approximately R1.86 million if more costly SAPO terminals are patronised. A typical breakbulk caller consequently generates less expenditure than a typical container ship, occupies berth space for longer (on average five days as opposed to two), but is still responsible for major additional expenditure, notably for such labour-intensive recipients as private stevedores and road haulage enterprises. The loss of multi-purpose and/or breakbulk cargo-handling activity from the port of Durban would consequently deprive the wider port community of substantial expenditure benefits.

Fig 19 - Profile of typical multi-purpose/breakbulk vessel spending, 2006 tariff levels

Item/Service	Expenditure R	% total
NPA marine infrastructure & services ¹	99,550	5.7
DoT – SAMSA	4,000	0.2
Terminal charges – Private leasehold	42,000	2.4
(Terminal charges – if SAPO)	(150,000)	(8.1)
Stevedoring, Tallying & cleaning ²	96,500	5.5
Ships Agency	13,265	0.8
Ship Chandlers	45,000	2.6
Clearing & Forwarding	78,000	4.5
Road haulage	525,000	29.9
Ship repair services	77,000	4.4
Bunkers & fuel	772,000	44.0
TOTAL EXPENDITURE PER CALL at Private/Leasehold Terminal	1,752,315	100.0
TOTAL EXPENDITURE PER CALL at SAPO Breakbulk Terminal	1,860,315	100.0

- Notes:
- 1 The category of cargo dues, payable by cargo owners to the NPA has been excluded from these spending profiles. This charge is raised to finance the cargo-working infrastructure of the ports (replacing the old *Ad Valorem* Wharfage charge), but associated revenue has historically not been retained by the individual port communities in question. NPA charges are consequently limited to those to relate to tangible activities conducted on the land or on the water in the Durban port area.
 - 2 In these instances, cargo principals or carrying lines would deal directly with stevedores.

The spending magnitudes set out in Figures 20, and 21 are conservative estimates for a number of reasons, not only because a narrow view is taken what constitutes port-ancillary economic activity, but also because only first-round expenditure effects are considered. Spending that is injected into a local economy, in this case in a direct and obvious fashion via bursts of spending

from vessels and their cargoes that enter the local community from abroad, does not impact on the local community in a one-off fashion, but rather sets off cycles of re-spending that reverberate in the area in question. This phenomenon is referred to as the multiplier effect of a new spending injection. The basic sense of the multiplier process is easily understood through a simple example, such as payment that a container vessel makes to a ship chandler for various items of ships' stores. Some of this expenditure is absorbed by the wages and salaries of the employees in the ship chandling enterprise, some represents profit, and some (in this case a significant portion) would be absorbed by purchases of consumer goods from local butchers, grocers, wholesalers, specialist suppliers and the like. Some of the purchases would be effected from other South African enterprises outside the Durban area and some would be imports held in bond and subsequently supplied to the vessels concerned. First-round expenditures of this nature therefore represent streams of income to various recipients, who in turn spend a portion of that income or save a portion, while some expenditure flows haemorrhage away from the local Durban economy in the form of transfers to other national centres or in the form of imports. In this way, any new injection into the circular flow of economic activity has a multiplied impact on final income and output. The size of the local-community multiplier is determined by the consumption propensity of wage earners, the tax leakage factor, and the extent to which expenditure leaks out of the Durban area.

Some analysis was conducted in the 1994/95 study of the port of Durban and the Durban metropolitan economy, to yield an overall local spending multiplier of between 1.9 and 2.4 (Jones, 1997). Similar values (though tending towards the lower end of the Durban range) emerged from a study of the local-economy impacts of the activities of the port of Brisbane, using a rather different methodology based on input-output analysis of successive layers of port-related activity (Morison & Jensen, 1984?), while results emanating from an expenditure-based study of the port of Oakland in California yielded comparable values. Based on all these previous studies, a local-economy multiplier of approximately 1.9 appears to be reasonable if somewhat conservative. This suggests that an initial spending injection of, say, R10 million stemming from various payments from vessels or their cargoes as a result of a call at the port of Durban, would raise final income or output in the Durban area by R19 million.

If this multiplier concept is applied to the spending patterns set out above, then a representative container caller to the port would be responsible for first-round local spending of some R2.94 million per call, but this would ultimately raise local income by R5.6 million, while total annual calls by container vessels (at 2004 activity levels, but 2006 price/tariff levels) would generate first-round local spending of R3.7 billion, but would raise final local incomes by just over R7 billion. Similarly, a representative breakbulk caller is assumed here to spend roughly R1.8 million per port call in the first round or a multiplied expenditure of R3.4 million; if such a caller is indeed representative,

then the 800 general cargo callers to the port in 2004/5 would have generated R1.44 billion in terms of first-round effects, or R2.7 billion if multiplier effects are considered.

This approach might also be used, but probably with great circumspection, to tease out some very rough and ready spending “values” associated with notional container-handling caps for the port of 5, 6.75 and 8.25 million teus, respectively, in line with the proposed port layouts presented by the engineering consultants to the TEMPI initiative. With fixed expenditure coefficients (very dubious), constant vessel size (highly unlikely) and constant cargo volumes per port call (also highly questionable), the following spending levels would be generated, all at 2006 prices and tariff levels:

Fig 20 - Spending and Multiplied Spending Figures for Varying Volumes of Traffic

	Number of callers	First-round spending (R billion)	Multiplied spending (R billion)
Current	1154	3.3	6.3
5m teu cap	3205	9.2	17.4
6.75m teu cap	4327	12.4	23.5
8.25m teu cap	5289	15.1	28.7

This exercise, which could best be described as heroic, suggests that the port-ancillary cluster would forego annual first-round spending of R2.7 billion should capacity be capped at 6.75 million teu as opposed to 8.25 million teu, and a further R3.2 billion, should the port be constrained to the 5 million teu threshold. The assumptions that were used for this crude exercise are, however, open to serious question. More reasonable assumptions would be:

- The size of container vessels using the port will increase as port access is improved, and as container sea trade densities rise in the south hemisphere trades;
- Vessels will work more boxes per port call; and
- The mix of containerised cargo across local, national, overborder and transshipment cargo will change over time.

All of these changes will impact on local spending propensities, but not always in a monotonic fashion. Some broad observations of relevance are:

- As average vessel size rises, certain categories of cost and hence sources of spending, notably NPA marine costs and agency costs, will be slow to respond upwards, as all embody a fixed component. Certain categories of local spending will therefore rise less than proportionately as larger vessels are utilised;
- As vessels work more cargo per call (as they are doing already), some categories of spending will rise less than proportionately. The clearing & forwarding fraternity, in particular, builds volume-related dimensions into its charges, as do private terminal operators. This is a worthy practice in the sense that it rewards larger and more efficient vessels and larger and more consolidated cargo parcels, and therefore may also boost

overall trade activity, even though local spending may rise less than 'pari passu' with trade volumes; and

- Spending is highly sensitive to the composition of containerised cargo. Transshipment cargo confers the most limited spending benefits on the local community, as the cargo concerned does not impact on the c&f, cartage, warehousing and logistics industries, whereas cargo destined to or originating from local port users is richest in terms of spending linkages. As noted earlier in this report, the proportion of local cargo in the overall traffic mix is likely to rise as part of a secular trend if port capacity is ultimately capped, and as trade volumes push towards the elastic limits of that cap. Under these circumstances, local spending may be expected to rise faster than trade volumes.

The port-ancillary community associated with a large, diversified port involves itself in a great deal more than simple cargo handling, and port space is used for a wide gamut of other uses, ranging from commercial fishing, military bases, recreational use, heritage areas, shipbuilding and ship repair. The latter two activities, in particular, are serious contenders for port space in the Durban port complex, as Durban has developed a ship repair cluster of long standing, while shipbuilding activities have taken place sporadically over time. These latter areas consequently merit some attention, most notably if their expansion squeezes out, or is itself jeopardised by, expansion of cargo handling.

8. The impact of port expansion on the principal commodity trades of the port of Durban

Our analysis of the principal commodities handled in the port of Durban indicates that the principal classes of carrying vessels associated with these specific trades are not seriously constrained by the current marine parameters of the port, and would not consequently be immediate beneficiaries of deepened port access. An exception is the family of foodgrain imports and exports (maize, wheat, grain etc.), where a migration to larger bulk carriers in the Panamax-size range (60-85,000 dwt) would be in line with international norms, and would confer freight cost advantages on importers and exporters. More minor beneficiaries would include the petroleum product and chemical trades, where tidal movements of deeper-draughted vessels would be eliminated, with consequent cost savings.

The really powerful benefits of a widened and deepened port would be experienced in the containerised general cargo trades. Here, the present water-depth limitations of the port (-12,8 metres on chart datum in the entrance channel and alongside the deepest berths), effectively excludes a majority of container vessels with a carrying capacity of between 3500 and 4000 teu. A large majority of vessels in the 4000-4500 teu range, and virtually all vessels with carrying capacity greater than 4500 teu are similarly constrained. Since the order book (ISL, 2004) for new container vessel construction is heavily skewed towards these larger vessel sizes, without capital deepening, the port will be relegated to a shrinking residual of smaller, less capable vessels. While lower density southern hemisphere liner trade routes are not yet heavily populated by these larger vessels, their future deployment is certain as trade densities grow, and as vessels cascade from the high-capacity northern hemisphere routes.

The economic consequences of the deployment of larger container vessels are quite clear, and may be measured in terms of unit operating costs and ultimately user charges or freight rates. It may be shown that average vessel costs (in \$/teu/day) for a 2500 teu container vessel are approximately 30% higher than those associated with a 4500 teu vessel (Cariou & Haralambides, 1999 and 2003). In contestable transport markets, these cost advantages ultimately rebound to the benefit of transport users in the form of lower freight rates. Improved port access is also vital in terms of navigational safety in respect of port entry by beamier container vessels (and dry-bulk carriers).

In short, improvements in the marine infrastructure of the port of Durban are essential if the port is to continue to attract the most efficient and efficient vessels deployed on liner trade routes in the southern hemisphere. This development would also lower the

generalised cost of through transport to shippers, in the process serving what may be thought of as the principal economic function of a seaport (Goss, 1992; Suykens, 1987).

This point is particularly important in the light of strategic national concerns related to high costs of logistics in the national economy (as outlined in the national freight logistics strategy presented to Cabinet). It should also be of importance for Durban businesses who are increasingly integrated with global trade and would therefore want to reinforce their position as a cost effective production option in global supply chains.

Although a compelling case may be made for expansion of the marine and cargo-working infrastructure of the port to handle larger container vessels and larger volumes of containerised cargo, the particular expansion options that are chosen to achieve this expansion may not have a neutral impact on the port's principal trades.

9. Challenges facing the Port Growth

In closing, there are numerous challenges facing the growth and expansion of the port, among these are the following:

1. Integrating the City and Transnet's vision for the Port of Durban
2. Space constraints within the port
3. Forecasting demand and designing capacity in response
4. Adjacent rail and road network constraints
5. User perceptions of the port
6. Integration into the Provincial Development Strategy

This list is not exhaustive, rather it is intended as a starting point for examination of the challenges and the development of implementable solutions that will benefit both eThekweni Municipality and the wider port user community.