# TABLE OF CONTENTS

1. INTRODUCTION....................................................................................................................... 5
  1.1 Durban Port in the South African Context ............................................................................... 5
  1.2 The intentions of this study.................................................................................................. 5
2. TERMS OF REFERENCE............................................................................................................. 6
3. METHODOLOGY....................................................................................................................... 6
  3.1 Scoping .................................................................................................................................. 6
  3.2 The Value Chain approach .................................................................................................. 8
  3.3 Participative Value Chain .................................................................................................... 10
4. DURBAN’S MARITIME INDUSTRY ......................................................................................... 10
  4.1 THE PORT AND ITS SERVICES.......................................................................................... 10
    4.1.1 National Port Authority (NPA) ....................................................................................... 10
    4.1.2. SA Port Operations and Cargo Terminals .................................................................... 11
    4.1.3 Terminal Status – Key Contributing Factors ................................................................. 12
  4.2 THE SHIPPING SECTOR ...................................................................................................... 14
    4.2.1 Shipping Movements .................................................................................................... 14
    4.2.2 Pattern Changes ........................................................................................................... 15
    4.2.3 Local Companies and Representation ......................................................................... 15
    4.2.4 Support Facilities ......................................................................................................... 16
  4.3 THE CARGO / LOGISTICS SECTOR ................................................................................... 17
    4.3.1 Cargo Movements and Pattern Changes ....................................................................... 17
    4.3.2. Terminal Interfaces .................................................................................................... 20
    4.3.3 Structure and State of the Cargo / Logistics Industry ..................................................... 22
5. ANALYSIS OF SHIPPING AND CARGO/LOGISTICS VALUE CHAINS ............................... 23
  5.1 General Overview .............................................................................................................. 23
  5.2 Shipping Sector Interview Responses ................................................................................ 23
    5.2.1 Shipping Sector V-C Primary Activities ....................................................................... 24
    5.2.2 Shipping Sector V_C Support Activities ....................................................................... 24
  5.3 Cargo / Logistics Sector Interview Responses ..................................................................... 26
    5.3.1 Cargo/Logistics Sector V-C Primary Activities ............................................................. 27
      5.3.1.1 Inbound Logistics ................................................................................................... 27
      5.3.1.3 Out-bound logistics ............................................................................................... 28
    5.3.2 Cargo/Logistics Sector V-C Support Activities ............................................................... 30
      5.3.2.1 Infrastructure ......................................................................................................... 30
6.0 ANALYSIS OF SMME OPPORTUNITIES ............................................................................... 35
  6.1 SMME Opportunities in the Shipping Sector ....................................................................... 35
  6.2 SMME Opportunities in the Cargo/Logistics Sector ............................................................ 35
7.0 ASSESSMENT OF THE PORT AND MARITIME SECTORS .................................................. 36
7.1 Efficiency Indicators ........................................................................................................ 36
7.2 SWOTS Analysis of Shipping and Cargo/Logistics Sectors .............................................. 42
7.2.1 Shipping Sector SWOTS ................................................................................................. 42
7.2.2 Cargo/Logistics Sector SWOTS .................................................................................... 42
7.3 Port Layout and Capacity ................................................................................................. 43
7.4 Other Strategic Issues ......................................................................................................... 44
7.4.3 Cargo Growth Projections ............................................................................................. 44
7.5 Porter’s Diamond ............................................................................................................ 47
8. MUNICIPAL INTERVENTION OPPORTUNITIES ................................................................. 48
8.1 Urgently Required ............................................................................................................ 48
8.2 Further Opportunities ....................................................................................................... 50
8.3 Stakeholder Co-operation ............................................................................................... 53
8.4 A Maritime Institute – will it add value? ........................................................................... 54
8.5 Urban Upgrading and Planning ....................................................................................... 54
8.5.8 Point Waterfront .......................................................................................................... 56
9. FUTURE OF THE PORT .................................................................................................... 56
9.1 City Growth and Gateway Status ..................................................................................... 56
9.2 Role of the Port in South Africa’s Economy ..................................................................... 57
9.3 Co-operation and Communication Structures ............................................................... 57
9.4 Port Planning and Capacity Expansion ............................................................................ 58
10. CONTRIBUTION TO THE ETHEKWINI ECONOMY ................................................... 59
10.1 Shipping Sector ............................................................................................................... 59
10.2 Cargo Sector Contribution ............................................................................................... 61
11 SUMMARY AND CONCLUSION ...................................................................................... 62

TABLE OF FIGURES

Table 1. Cargo Handled and Vessel Arrivals, SA Ports (Jan-Dec 2006) .................................... 5
Table 2. Location of Shipping and Cargo / Logistics Firms within the EMA ............................ 7
Table 3. South Durban Basin – Maritime Firms .................................................................... 8
Diagram 1. Porter’s Value Chain ......................................................................................... 9
Table 4. Interview sample ....................................................................................................... 10
Diagram 2. The Port of Durban with Cargo Terminals ........................................................ 11
Table 5 VESSEL ARRIVALS – Durban Port (Fin. Yr. 2005/06). ........................................ 11
Table 6. Change Pattern of Shipping Arrivals — Durban Port (2003 to 2006) ....................... 15
Table 7. Average Gross Tonnage per vessel ......................................................................... 15
Diagram 3 Container TEUs Handled (1997 – 2007*) ............................................................. 17
Diagram 4. Empty TEUs Handled ....................................................................................... 17
Table 8. Total Container TEUs handled (Imported and Shipped) ......................................... 18
Table 9. Break & Breakbulk Cargo handled through Durban Port ........................................ 18
Table 10. Bulk Imports and Exports
Table 11. Breakbulk Imports and Exports
Table 12. Cargo Movements – 2005/6 compared to 1996/7
Diagram 5. Shipping Value-Chain Linkages
Table 13. Shipping Sector Employment Estimate
Table 14. Port Terminals User Activity
Table 15. Cargo Sector Activity Spread
Table 16. Transport and Logistics sub-sector spread
Table 17. Warehousing sub-sector spread
Table 18. Areas of Operational Competitiveness
Table 19. Cato Ridge as a Distribution Centre – views of the Cargo Sector
Table 20. Types of building required to operate satisfactorily
Table 21. Space availability
Table 22. Satisfaction with present location (5 = very satisfied, 1 = very dissatisfied)
Table 23. Skills Requirements
Table 24. Training and Development Sources
Table 25. SMME Opportunities
Table 26. Container-handling Rates at Various Ports
Table 27. Three growth scenarios – Bulk & Breakbulk
Table 28. Annual % Change – 4 year moving average
Diagram 6. Alternate Projections of Full TEUs handled
Diagram 7. Porter’s Diamond
Table 29. Durban Maritime Industry Competitive Attributes (Porter’s Diamond Format)
Table 30. Rating of Utility Services (Scale: 5 = Very good, 1 = Very poor)
Table 31 Utility Importance Ranking (1 = Most important, 9 = Least important)
ANNEXURE A – SHIPPING FLOWCHART
ANNEXURE B – CARGO FLOWCHART
ANNEXURE C - KEY COMPONENTS OF THE MARITIME SECTOR VALUE-CHAIN
1. **INTRODUCTION**

1.1 Durban Port in the South African Context

Durban Port is the largest in Southern Africa in terms of value of cargo handled per annum and second largest in terms of cargo tons handled. For calendar year 2006 Durban compared as follows to South Africa's other ports in terms of activity levels.

<table>
<thead>
<tr>
<th>Port</th>
<th>Cargo Handled ('000 M. Tons)</th>
<th>Vessel Arrivals ('000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cape Town</td>
<td>4,135</td>
<td>2.3</td>
</tr>
<tr>
<td>Durban</td>
<td>43,861</td>
<td>24.4</td>
</tr>
<tr>
<td>East London</td>
<td>1,506</td>
<td>0.8</td>
</tr>
<tr>
<td>Mossel Bay</td>
<td>1,519</td>
<td>0.8</td>
</tr>
<tr>
<td>Port Elizabeth</td>
<td>4,871</td>
<td>2.7</td>
</tr>
<tr>
<td>Richards Bay</td>
<td>86,319</td>
<td>48.0</td>
</tr>
<tr>
<td>Saldanha</td>
<td>37,773</td>
<td>21.0</td>
</tr>
<tr>
<td>Total</td>
<td>179,984</td>
<td>100.0</td>
</tr>
</tbody>
</table>

The volume measurement can be misleading in that high volume ports such as Richards Bay and Saldanha tend to be focused on low value-added bulk commodities, whereas a port such as Durban has a mix of cargo, which includes a substantial proportion of high value-added consumer and intermediate products, e.g. motor vehicles, specialised components and and other fully manufactured products. A comparison of the gross tonnage of vessel arrivals in Table 1, where Durban is by far the highest, confirms this point.

1.2 The intentions of this study

The Port of Durban and related activities of the Maritime Sector encompass probably the largest and most important economic cluster in the local economy, in terms of its economic facilitation role and multiplier effect. The Maritime cluster is viewed here in its broadest sense, i.e. encompassing all Port activities, shipping, boating, cargo profiles, cargo movements including all types of handling, storage, transport and logistics. It also includes all support services such as ship repairs, revictualling, bunkering, communication support, pilotage, customs clearing, inspection services, marine insurance, etc.
This study addresses a number of key aspects of the industry and its role in the eThekwini economy. It also aims to provide the City authorities with a better understanding of the workings of the sector and its many linkages into the workings of the port and to inform them where to focus their support role. In this respect it identifies specific interventions that would enable the City to fulfil its role effectively. The study describes the industry and all its inter-linkages comprehensively and where possible, provides pointers towards an assessment of economic multiplier effects derived from marine activity throughout the local economy. In the terms-of-reference it was specified that the analysis of the sector be formulated around the well-established economic analytical technique known as Value-Chain-Analysis.

It was furthermore a requirement that opportunities for SMMEs and where they could best integrate into the various supply and service chains, be identified. The report highlights areas of opportunity for sub-contracting and other outsourcing and partnership arrangements, especially in the cargo handling and transport sub-sectors.

2. TERMS OF REFERENCE

The following issues should be covered by the research and analysed with the above objectives in mind.

- Identify the key components of the Maritime Sector and describe their inter-relationships and linkage patterns. (See Sections 3.2, 3.3, 4.1, 4.2, 4.3, 0)
- Separate the primary activities from the support activities and illustrate the position of each in the overall industry value-chain. (See Sections 5.2 and 5.3)
- Analyse the value-chains of each of the sub-sectors to assess their inherent strengths and weaknesses. Ascertain the level of co-operation amongst the sub-sectors and the degree to which it contributes to the overall competitiveness of the Port and Back-of-Port activities in terms of business efficiency. Identify areas where greater co-operation will further enhance the efficiency of the industry value-chains, with a view to improving overall competitive advantage. In particular the flows of information, goods and services should be assessed as well as systems for adjusting activities. (See Chapter 5, and Sections 8.3, 9.3)
- Assess the quality of the current infrastructure and technology from a user point of view in enabling all users to carry out their functions effectively, efficiently and competitively. (See Sections 4.3.2 and 5.2.2)
- Identify bottlenecks in the process of delivering cargoes of all types into and out of the port precinct, including the ability of the Port and the City to respond to the needs of both the shipping fraternity and the cargo-logistics fraternity. (See Sections 5.2.1, 5.3.1, 7.1)
- Assess the human resource component of the support activities and general satisfaction with the availability of skills and other HR aspects, which may impact on the overall effectiveness of the system. (See Sections 5.2.2.2, 5.3.2.2)
- Assess the role of local government in the value-chain of the sector and identify areas where a greater role would be beneficial or where particular interventions would enhance the competitive advantage of the system. (See Chapter 8)
- Identify areas of opportunity for SMMEs and where their greater involvement would enhance the overall efficiency and cost structure, through effective outsourcing, subcontracting or service support. (See Chapter 6 and Section 8.6)

3. METHODOLOGY

3.1 Scoping

The analysis of the sector has been based on the use of the latest Braby’s database of Business and Institutional organisations whose classifications fall within the sub-sectors of the Maritime Industry as outlined in the two industry structure charts (see Annexures A & B). The Brabys Maritime Database has been made available to the Consultants via the City’s Economic Development Unit (EDU). This has provided the consultants with a comprehensive list of the businesses concerned and formed the basis of the interview programme. Interviewing was divided between the Shipping and Cargo/Logistics sectors and each was managed separately. The two sectors were also sub-divided into primary and support activities.
Braby's database:

Brabys maintain a comprehensive database of all current businesses in the eThekwini Municipal Area (EMA) as well as schools, training institutions, government offices, churches and professional offices (Accounting, Medical etc.). Information provided includes location details, contact numbers, SIC codes, type of business and core product and service types. Brabys are currently adding Geo Co-ordinates, Working Hours, Employment numbers and several other items of useful information for each organisation. For this study all those businesses, which could be identified directly with the shipping, transport and handling of marine cargo and which were located within the 031 telephone code area, were included. This encompasses virtually the entire eThekwini Municipal Area (EMA)

The suburbs were grouped into the following sub-areas:

1. City and Port  
2. Outer Centre  
3. Inner West  
4. Outer West  
5. North Area  
6. South Durban Basin (SDB)  
7. South Area  

Table 2 below summarises the number of firms (Feb. 2007) in the shipping and cargo sectors, highlighting their main sub-sectors, and arranging them by location within the above sub-areas.

Table 2. Location of Shipping and Cargo / Logistics Firms within the EMA

(Data source: Brabys)
Approximately one-third of Maritime related companies are located in the City and Port sub-area. If the Outer Centre is added, the percentage moves up to 48%. Other closely related areas, each with a significant number of firms, are the SDB and the Inner West. These two together bring the percentage up to approximately 80%. The North area also has a significant number of such firms (15.3%), but the fact that they are widely spread throughout the sub-area with little sign of clustering indicates that many of them are probably concerned more with local movement and warehousing of goods, with minimal linkages to the port. The same argument probably applies to some firms in the Inner West, but to a lesser extent, i.e. their location in relation to the port is more favourable than most of those in the North and clustering is very strongly developed.

The Inner West suburbs of Pinetown/New Germany/ Westmead/Mahogany Ridge make up 60% of the sub-area's Cargo/Logistics/Shipping firms. Altogether there are approximately 40 suburbs within the Inner West, which have such firms in their areas, but 60% of the firms are clustered in only four of them.

The SDB by virtue of its large manufacturing concentration, e.g. Automotive, Chemicals, Food, Beverages, etc., has very strong inward and outward logistics linkages to the port, and it is therefore to be expected that the maritime logistics industry is well established in the area. The SDB forms a natural base for the growth of back-of-port logistics structures and this is clearly evident from the clusters of such firms already to be found in the Clairwood, Jacobs, Mobeni and Prospecton townships. Current numbers for these townships are as follows:

Table 3. South Durban Basin – Maritime Firms

<table>
<thead>
<tr>
<th>Sub-Area</th>
<th>Cargo</th>
<th>Shipping</th>
<th>Mixed</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clairwood</td>
<td>37</td>
<td>1</td>
<td>1</td>
<td>39</td>
</tr>
<tr>
<td>Jacobs</td>
<td>52</td>
<td>25</td>
<td>11</td>
<td>88</td>
</tr>
<tr>
<td>Mobeni</td>
<td>16</td>
<td>2</td>
<td>1</td>
<td>19</td>
</tr>
<tr>
<td>Prospecton</td>
<td>29</td>
<td>4</td>
<td>7</td>
<td>40</td>
</tr>
<tr>
<td>Total</td>
<td>134</td>
<td>32</td>
<td>20</td>
<td>186</td>
</tr>
</tbody>
</table>

% of SDB = 69%

3.2 The Value Chain approach

<table>
<thead>
<tr>
<th>Sub-Sector</th>
<th>Firms</th>
<th>Interviews</th>
</tr>
</thead>
<tbody>
<tr>
<td>Line Functions:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cargo Handling &amp; Container Services</td>
<td>21</td>
<td>6</td>
</tr>
<tr>
<td>Cartage Contractors</td>
<td>54</td>
<td>6</td>
</tr>
<tr>
<td>Customs Clearing &amp; Forwarding</td>
<td>141</td>
<td>8</td>
</tr>
<tr>
<td>Export &amp; Import Services</td>
<td>77</td>
<td>7</td>
</tr>
<tr>
<td>Freight Services &amp; Warehousing</td>
<td>86</td>
<td>9</td>
</tr>
<tr>
<td>Stevedores</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Storage &amp; Warehousing</td>
<td>32</td>
<td>4</td>
</tr>
<tr>
<td>Tanker Services</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Transportation Companies</td>
<td>114</td>
<td>8</td>
</tr>
<tr>
<td>Warehousing &amp; Logistics</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td><strong>Sub-Total</strong></td>
<td>539</td>
<td><strong>55</strong></td>
</tr>
<tr>
<td>Service Functions:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Commercial &amp; Industrial Refrigeration</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Harbours, Ports &amp; Railways</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>Marine Insurance Assessors</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Security &amp; Surveillance Consultants</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td><strong>Sub-Total</strong></td>
<td>15</td>
<td><strong>6</strong></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>554</td>
<td>61</td>
</tr>
</tbody>
</table>
Prof. Michael Porter of Harvard University first introduced the term Value Chain in his book “ Competitive Advantage: Creating and Sustaining Superior Performance” published in 1985. The system describes a firm and its activities and how it combines these activities to achieve a competitive advantage over its competitors. Operating systems and the processing of goods or the delivery of services are not mixed together in a random manner, but are arranged with the specific objective of offering the customer something unique or special. The market generally determines the price a customer is willing to pay, and the extent of differentiation of one firm’s offering compared to its competitors determines the extent of any price premium it is able to achieve. The efficiency with which it procures its supplies and converts these into product determines the extent of its profit margin. Some aspects of its cost structure are determined outside its area of influence, e.g. utility services.

According to Porter in his book The Competitive Advantage of Nations, “Firms gain competitive advantage from conceiving of new ways to conduct activities, employing new procedures, new technologies, or different inputs.” “A firm is more than the sum of its activities. A firm’s value-chain is an independent system or network of activities, connected by linkages. Linkages occur when the way in which one activity is performed affects the cost or effectiveness of other activities.” “Linkages also require activities to be co-ordinated. On-time delivery requires that operations, outbound logistics, and service activities such as installation, should function smoothly together.”

Porter also distinguishes between primary and support activities (ref. Dagmar Recklies, 2001). Primary activities are directly concerned with creation or delivery of goods or services and can be grouped into five main areas, viz. inbound logistics, operations, outbound logistics, marketing and sales, and service. There are four main areas of support activities, viz. Procurement, technology development, human resource management, and infrastructure.

The basic model of **Porter's Value Chain** is as follows:

**Diagram 1. Porter's Value Chain**

```
<table>
<thead>
<tr>
<th>Infrastructure</th>
<th>Human Resource Development</th>
<th>Technology Development</th>
</tr>
</thead>
<tbody>
<tr>
<td>Procurement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inbound Logistics</td>
<td>Operations</td>
<td>Outbound Logistics</td>
</tr>
</tbody>
</table>
```

Source: Dagmar Recklies, 2001

The word “MARGIN” means the profit margin, which the firm is able to realise by its management of all the linkages between all the activities of the value chain.
Based on the above model a practical questionnaire was developed for applying the technique to the shipping and cargo sectors. Detailed quantitative calculations are not possible as this would amount to a mammoth task, but inherent strengths and weaknesses have been assessed, as well as their relative importance in the overall value chain, how the value chain linkages are structured and the level and nature of co-operation of sub-sectors.

3.3 Participative Value Chain

Due to the large number of firms involved in the industry, it was necessary to conduct interviews on a sample basis. Table 4 below outlines how the cargo sample was selected from the City, Port and SDB sub-areas. As there are a large number of small firms (mostly close corporations) active, the sample was slanted towards the larger firms. Nevertheless a number of CCs were also interviewed.

Table 4. Interview sample

The majority of firms and in particular the larger ones, co-operated fully and although a number of practical difficulties were encountered, it was possible to obtain a comprehensive assessment of the cargo and shipping value chains. Only a small minority were unco-operative, by either not making themselves available or not keeping appointments. Alternative firms were interviewed in these cases.

4. DURBAN'S MARITIME INDUSTRY

4.1 THE PORT AND ITS SERVICES

4.1.1 National Port Authority (NPA)

(See also flow diagram for Shipping Sector – Annexure A)

The Port is basically the responsibility of the National Port Authority, which is in turn a division of Transnet and part of their core business. The NPA has two main business responsibilities, viz. (i) being the Port landlord, and (ii) providing a range of maritime services such as tugs, pilots, dredging, berthing, radar, lighthouses, dry-dock facilities, etc. as well as harbour master functions such as port control, vessel traffic, port security, etc.

The land around the Port is owned by the NPA and large sections of it are leased to independent operators for cargo terminals, ship repairs and other activities. This is where its role as port landlord comes into play. Dues earned from these leases (rentals, port and cargo dues) form a large portion of the NPA revenue. The main lessee is SA Port Operations (SAPO - also a Transnet subsidiary), which operates the major terminals. There are also a number of private sector lessees who operate specialised terminals such as the Sugar Terminal, Bulk Liquid Terminals or conduct specialised operations such as Ship-building and Repair, or Cargo Logistics processes of some kind. These are predominantly the types of operation that are best located close to the waterfront.

Decisions regarding capital development projects and infrastructure programmes for the port, are taken at national level and besides Transnet, also involve the Department of Public Enterprises and the Department of Transport Services.

Infrastructure, which interfaces between the port and the city has sometimes been an area of conflict as to who pays for what etc., but more formal co-operative structures have recently been put in place to deal with these issues. Areas of responsibility are more clearly defined and joint decisions taken to enable the NPA and the municipality to work together for the general betterment of the port. The TEMPI project is an example of this closer liaison.

The focus for the NPA’s landlord responsibilities are;

- Infrastructure provision, maintenance and planning;
Preparing and regularly updating the port development framework plan;
Managing land-use including lease negotiations and administration within the port precinct.  
(Source NPA)

4.1.2. SA Port Operations and Cargo Terminals

(See also flow diagram of Cargo/Logistics Sector – Annexure B)

The diagram below provides a current layout of Durban Port showing the location of the various SAPO and privately operated cargo terminals.

Diagram 2. The Port of Durban with Cargo Terminals

![Diagram of the Port of Durban with Cargo Terminals](source: Econ. Dev. Unit, eThekwini Municipality)

**SAPO Terminals:**

<table>
<thead>
<tr>
<th>Number</th>
<th>Terminal</th>
<th>Berths</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Passenger</td>
<td>A (proposed Point Waterfront)</td>
</tr>
<tr>
<td>2 &amp; 3.</td>
<td>Multi-Purpose (MPT)</td>
<td>B-G</td>
</tr>
<tr>
<td>4.</td>
<td>Rice Terminal</td>
<td>L,M (handled by MPT)</td>
</tr>
<tr>
<td>6.</td>
<td>Citrus</td>
<td>O,P (handled by MPT)</td>
</tr>
<tr>
<td>7.</td>
<td>Vehicle</td>
<td>Q,R</td>
</tr>
<tr>
<td>17.</td>
<td>Durban Container Terminal</td>
<td>200-205 Pier No.2</td>
</tr>
<tr>
<td>18.</td>
<td>Coastal Terminal</td>
<td>108 &amp; 109</td>
</tr>
<tr>
<td>19.</td>
<td>Multi-Purpose Terminal</td>
<td>101-107 Pier No.1</td>
</tr>
</tbody>
</table>

**Private Terminals:**

<table>
<thead>
<tr>
<th>Number</th>
<th>Terminal</th>
<th>Berths</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.</td>
<td>Sugar Terminal*</td>
<td>2 (SA Sugar Association)</td>
</tr>
<tr>
<td>10.</td>
<td>Unilever*</td>
<td>3 &amp; 4 (Bulk Tanks operated by IVS)</td>
</tr>
<tr>
<td>11.</td>
<td>Multi-Purpose Bulk*</td>
<td>5 (Rennies)</td>
</tr>
<tr>
<td>12.</td>
<td>Pure Cane Molasses*</td>
<td>9 (Tate &amp; Lyle)</td>
</tr>
</tbody>
</table>
13. Agriport Grain Terminal*  Specialist Facility
14. Forest Products*  13 & 15 (Bidvest & Grindrod)
15. Bulk Soda Ash*  14 (Brunner Mond)
20. Bulk Malt  100 (SA Breweries)
22. Bulk Liquids**  4 & 5 (IVS & van Ommeren bulk liquids)
23. Bulk Handling Terminal**  3 (Durban Bulk Shipping)
24. Coal Terminal**  1-4 (Rennies for Bulk Connections)

* Maydon Wharf  ** Island View

Other Port Facilities:

<table>
<thead>
<tr>
<th>Number</th>
<th>Facility</th>
<th>Berths</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.</td>
<td>Wilson’s Wharf</td>
<td>Entertainment &amp; Shopping</td>
</tr>
<tr>
<td>—</td>
<td>Yacht Mole</td>
<td>East of Wilson’s Wharf</td>
</tr>
<tr>
<td>21.</td>
<td>Salisbury Island</td>
<td>SA Navy</td>
</tr>
<tr>
<td>—</td>
<td>Ship Repair Sites</td>
<td>West Embankment of Silt Canal</td>
</tr>
</tbody>
</table>

4.1.3 Terminal Status – Key Contributing Factors

As a company might offer a range of different products or services, so Durban Port offers Importers, Exporters and the Shipping Companies a range of different terminals, each structured to handle a particular form or type of cargo. As to be expected, the mix of cargo volumes through these different terminals is forever changing in line with the dynamics of international trade. Over the last decade or so Durban Port has found its capacity to handle several of its traditional cargo types coming increasingly under pressure.

These pressures have been brought about by several factors. Domestically it has been largely due to the constitutional change to a full democracy, which has seen the lifting of international sanctions, the lowering of import tariffs, a steadily increasing domestic economic growth rate, a significant increase in the establishment of small businesses and substantial growth in consumer spending power.

<table>
<thead>
<tr>
<th>Vessel Type</th>
<th>2003</th>
<th>2006</th>
<th>% Change 2003 to 2006</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>Ocean Going:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- General Cargo</td>
<td>723</td>
<td>16.5</td>
<td>811</td>
</tr>
<tr>
<td>- Bulk, Dry</td>
<td>692</td>
<td>15.8</td>
<td>694</td>
</tr>
<tr>
<td>- Bulk, Liquid</td>
<td>81</td>
<td>1.9</td>
<td>11</td>
</tr>
<tr>
<td>- Container Vessels</td>
<td>839</td>
<td>19.2</td>
<td>1551</td>
</tr>
<tr>
<td>- Tankers</td>
<td>534</td>
<td>12.2</td>
<td>635</td>
</tr>
<tr>
<td>- Passenger</td>
<td>44</td>
<td>1.0</td>
<td>61</td>
</tr>
<tr>
<td>- Vehicle Carriers</td>
<td>142</td>
<td>3.2</td>
<td>288</td>
</tr>
<tr>
<td>- Ro-Ro Vessels</td>
<td>129</td>
<td>3.0</td>
<td>68</td>
</tr>
<tr>
<td>- Other (Livestock, etc.)</td>
<td>844</td>
<td>19.3</td>
<td>42</td>
</tr>
<tr>
<td>Total Ocean Going</td>
<td>4028</td>
<td>92.2</td>
<td>4161</td>
</tr>
</tbody>
</table>

Coastwise:

<table>
<thead>
<tr>
<th></th>
<th>No.</th>
<th>%</th>
<th>No.</th>
<th>%</th>
<th>% Change 2003 to 2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Coasters (Gen. Cargo)</td>
<td>93</td>
<td>2.1</td>
<td>108</td>
<td>2.4</td>
<td>+ 16.1</td>
</tr>
<tr>
<td>- Foreign Fishing</td>
<td>149</td>
<td>3.4</td>
<td>174</td>
<td>3.8</td>
<td>+ 16.7</td>
</tr>
<tr>
<td>- SA Trawlers</td>
<td>28</td>
<td>0.6</td>
<td>53</td>
<td>1.2</td>
<td>+ 89.2</td>
</tr>
<tr>
<td>- Miscellaneous</td>
<td>72</td>
<td>1.6</td>
<td>70</td>
<td>1.5</td>
<td>- 2.8</td>
</tr>
<tr>
<td>Total Coastwise</td>
<td>342</td>
<td>7.8</td>
<td>405</td>
<td>8.9</td>
<td>+ 18.4</td>
</tr>
</tbody>
</table>

TOTAL | 4370 | 100.0 | 4566 | 100.0 | + 4.5

in the establishment of small businesses and substantial growth in consumer spending power.
Internationally it has been a combination of changing market circumstances and changing cargo logistics technology. Globalisation of trade and the greater participation of China, which has the world’s largest population, and other developing countries, is the main causal factor for the acceleration in cargo volumes. As a result of this, competition between shipping as well as logistics companies has intensified and such factors as transport and logistics costs, speed and reliability of delivery, communications, ease of documentation and customs formalities, etc. have become all important.

The first major technical change in cargo logistics was the introduction of containers. As everyone knows, this has revolutionised cargo handling methods and costs. Because of the rapid escalation in volumes and market demands for seamless processes for transporting goods between two points, shipping companies have been steadily increasing the size of their ships and have also been extending their area of influence in the transportation pipeline to the land end of the logistics processes. The net result has been that the large shipping companies have wrested most of the initiative from the individual ports and are able to dictate the infrastructure and service needs in the ports as well as the pricing levels of most of the processes in the chain.

Ships don’t like to make frequent stops, especially large ships, and it is not uncommon nowadays for one leg of cargo transportation to be completed overland between two ports so that the ship does not have to make two port calls. This is particularly the case where the quantity for the second call is smallish. Shipping lines, which have business extensions into the land-based operations, are generally able to offer a seamless service between points of origin and destination.

There have also been changes to international shipping legislation, which now allows more freedom for varied contractual arrangements to be established between carriers and shippers. This has enabled carriers to obtain better market advantage for their own expertise coupled with that of selected shippers. On the contra side however, the new legislation has weakened the traditional conference system between shipping lines. This has had the effect desired by the legislators of increasing competition and lowering shipping prices.

With the introduction of much larger ships (Panamax and Post-Panamax), it is natural that it is more cost efficient if these can sail longest possible distances between stops. This has fuelled the so-called “Hub and Spoke” thinking where large ships sail between East and West, only calling at the larger so-called Hub ports. From there smaller vessels carry out distribution to the smaller ports along the particular continental coastline. This has also opened the transhipment market, which appears to be growing rapidly. Another important logistics factor is the returning of empty containers to their port of origin. By controlling more of the shipping/logistics pipeline, container owners are able to rationalise empty container movements more efficiently.

There is therefore some motivation for well-located ports such as Durban to become hub ports for at least part of their cargo trade. However to achieve this status requires some major redesign of infrastructure, hence the current project to widen the port entrance and to dredge both the entrance and much of the internal port area to greater depths.

The changeover to containers for cargo transportation has altered the whole nature of cargo logistics, which has impacted on all areas of the chain, particularly on cargo handling technology, warehouse design, transport carrier design and spatial planning in and around cities and ports. So-called back-of-port operations are becoming more extensive and more complex. The need for open spaces for container terminals and parks and dedicated logistics townships is testing the ingenuity of urban planners. In many cases around the world the larger shipping conglomerates have found it advantageous to set up container terminals out of the cities. In all cases the objective is to achieve seamless logistics systems for moving cargo types between origin and destination.

Thus Durban Port, which has for the past century been Southern Africa’s major port and trade gateway, is suddenly facing a whole range of challenges, all of which require substantial funding to be able to meet their specifications. The answers are not straight forward and best options are seldom clear-cut. As always, time is of the essence and there is little spare for decision making.

From the cargo aspect, the highest growth has been in container numbers, motor vehicles, bulk liquid chemicals and bulk petroleum products. The growth rates in these products have been spectacular
over the past decade, with a sharp escalation since 2002. Thus at present the port finds itself under extreme pressure, particularly from shipping carriers, to provide substantial additional terminal capacity for each of these product areas. The shipping companies are also insisting on maintaining facilities for bulk and breakbulk cargo types traditionally handled through the port, as their organisations are structured around these cargo types and a move away would have major ramifications.

Building an additional vehicle terminal is the most urgent as SAPO, in spite of having a vehicle terminal completed as recently as 1998 with capacity for 90,000 vehicles per annum, is currently faced with more than double that number. As a result there are vehicles parked in every spare square metre of space in the port. Container volumes are up at over 2 million TEUs per annum which means Durban is in world-size class, and growing at between 8 and 10 percent per annum.

The difficulties are not only in the port. These rapidly rising volumes and changes in technology are placing pressures on the city infrastructure as well as the transport corridor inland to Gauteng and other parts of the hinterland.

4.2 THE SHIPPING SECTOR

4.2.1 Shipping Movements

Of the 7 South African Ports, Durban had the most vessel arrivals during the 2005/06 financial year (April-March). Altogether 4,551 vessels entered Durban harbour, which is 31.7% of the total arrivals of 14,335. Of these approximately 90% were ocean-going and 10% were coastal, fishing and miscellaneous. Table 5 below shows the details.

Container vessels (26.6%) were the highest number by type of vessel and constituted the most by gross tonnage (33.7%). If bulk and liquid bulk vessels are added together, they would have been highest in number (29.9%), as well as in terms of gross tonnage (36.3%). Coastal, Fishing and Miscellaneous (Naval, Yachts, Barges, Tugs, etc.) arrivals were small in number (9.9%) and very small in gross tonnage (2.4%). Only 64 passenger vessels docked throughout the entire year. There were 239 vehicle carriers, which is virtually two every three days. This figure will also grow substantially over the next three years with the Toyota export programme.

Durban is clearly a port, which has to cater for a wide variety of cargo types and is by no means predominantly a container port, although this may be the fastest growing sector.

Table 5  VESSEL ARRIVALS – Durban Port (Fin. Yr. 2005/06)

<table>
<thead>
<tr>
<th>VESSEL TYPE</th>
<th>TOTAL No.</th>
<th>%</th>
<th>Gross Tonnage ('000)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ocean Going:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General Cargo</td>
<td>1088</td>
<td>23.9</td>
<td>13,455</td>
<td>14.2</td>
</tr>
<tr>
<td>Bulk</td>
<td>762</td>
<td>16.7</td>
<td>16,767</td>
<td>17.7</td>
</tr>
<tr>
<td>Liquid Bulk</td>
<td>603</td>
<td>13.2</td>
<td>17,607</td>
<td>18.6</td>
</tr>
<tr>
<td>Container*</td>
<td>1,214</td>
<td>26.6</td>
<td>31,817</td>
<td>33.7</td>
</tr>
<tr>
<td>Passenger</td>
<td>64</td>
<td>1.4</td>
<td>1,009</td>
<td>1.1</td>
</tr>
<tr>
<td>Car/Vehicle Carriers</td>
<td>239</td>
<td>5.3</td>
<td>9,602</td>
<td>10.2</td>
</tr>
<tr>
<td>Other</td>
<td>132</td>
<td>2.9</td>
<td>2,024</td>
<td>2.1</td>
</tr>
<tr>
<td>Total Ocean Going</td>
<td>4,102</td>
<td>90.1</td>
<td>92,281</td>
<td>97.6</td>
</tr>
<tr>
<td>Coastwise</td>
<td>196</td>
<td>4.3</td>
<td>1,869</td>
<td>2.0</td>
</tr>
<tr>
<td>Fishing/Trawlers</td>
<td>176</td>
<td>3.9</td>
<td>95</td>
<td>0.1</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>77</td>
<td>1.7</td>
<td>298</td>
<td>0.3</td>
</tr>
<tr>
<td>Total Coastal/Fishing/Misc.</td>
<td>449</td>
<td>9.9</td>
<td>2,262</td>
<td>2.4</td>
</tr>
<tr>
<td>TOTAL Arrivals</td>
<td>4,551</td>
<td>100.0</td>
<td>94,543</td>
<td>100.0</td>
</tr>
</tbody>
</table>

* Container = Cellular + Non-Cellular
4.2.2 Pattern Changes

As can be expected from the foregoing, shipping patterns are changing fairly rapidly. Not only is there substantial growth in some product areas, but average tonnages per vessel are increasing, and there are noticeable changes in the cargo mix.

Table 6. Change Pattern of Shipping Arrivals — Durban Port (2003 to 2006)

The data of vessel arrivals in Table 6 confirm that there have been several significant changes in the ship arrival mix during the four years from 2003 to 2006. The most notable of these are:

(i) The number of container vessels has increased by 84.9%,
(ii) The number of vehicle carriers has more than doubled to 288,
(iii) The number of Tankers has increased by 18.9%,
(iv) General Cargo has increased by 12.2%,
(v) There has been a healthy increase of 16.1% in Coastwise general cargo vessels,
(vi) Overall Vessel Arrivals have increased by 4.5%.

There is a noticeable increase in Foreign Fishing Vessel arrivals and this suggests that the number operating off this coast has increased, which may be of concern to local environmentalists. There is also a marked increase in SA Trawler activity. Non-Tanker vessels carrying bulk liquids have declined to a negligible number (11), which suggests a shift away from Tank-tainers and Drums to using Tanker Vessels. This is in line with the general increase in bulk liquid cargo volumes. Ro-Ro vessels appear to be on their way out as cargo carriers. Overall the ratio of ocean going to coastwise of approximately 90% to 10% remains intact with a small shift of 1.1% in favour of coastwise.

From the above data it is clear why the Container Terminal as well as the Vehicle Terminal are experiencing capacity problems and the Tank Farms at Island View are also feeling some pressure.

The average gross tonnage per vessel has also increased, particularly for container vessels.

Table 7. Average Gross Tonnage per vessel

<table>
<thead>
<tr>
<th>Vessel Type</th>
<th>2003</th>
<th>2006</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Container</td>
<td>17939</td>
<td>24124</td>
<td>+ 34.5</td>
</tr>
<tr>
<td>Tankers</td>
<td>25485</td>
<td>27283</td>
<td>+ 7.1</td>
</tr>
<tr>
<td>Vehicle Carriers</td>
<td>38793</td>
<td>38994</td>
<td>+ 0.5</td>
</tr>
<tr>
<td>Overall</td>
<td>19910</td>
<td>21170</td>
<td>+ 6.3</td>
</tr>
</tbody>
</table>

This basically indicates that vessel capacities are on average more fully utilised at present, but also indicates an increase in the average size of container ship calling.

4.2.3 Local Companies and Representation

Because of the extensive forward and backward integration, which is prevalent amongst companies in the shipping pipeline, it is very difficult to separate shipping companies into clearcut categories. Brabys in their Maritime database for Durban, have placed shipping companies under three main categories, viz.

<table>
<thead>
<tr>
<th>Category</th>
<th>No. of Companies</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i) Shipping Lines</td>
<td>71</td>
</tr>
<tr>
<td>(ii) Shipping Companies</td>
<td>21</td>
</tr>
</tbody>
</table>
To these must be added “Shipping Agents” and “Shipping Brokers”. The term “Shipping” is used in a broad sense and can include both the physical operation of ships as well as the logistics of shipping cargo between two points. One of the larger local companies, which operates a fleet of 100 ships, also has subsidiary companies in Seafreight Logistics, Landfreight Logistics, Ships Agencies, Shipping Services, Bulk Product Trading, Financial Services and Travel Agencies.

Another of the Shipping Companies interviewed described their structure as follows – “We are a privately owned company with a turnover of between R100 and R250m per annum. We are agents and brokers for ships and also occasionally charter ships. While we outsource a large number of services such as bunkering, chandlers and marine supplies, we do provide marine services, cargo services and crew support services such as cash to masters, change of crew, and administration of salaries and wages for crew. Separate divisions handle bulk goods, logistics and warehousing, clearing and forwarding, and the provision of services as ship’s agents.” The company has terminal facilities for breakbulk and bulk liquid, as well as facilities for maintenance, storage and repairing/cleaning of containers.

Thus the larger ship owning companies, which are extensively integrated into all aspects of the shipping/cargo pipeline, dominate the structure of the shipping industry. The market is highly competitive, and demands seamless shipping/logistics/administrative processes, with most goods being treated as time-sensitive to a greater or lesser extent. Goods, whether they be bulk raw materials or finely engineered finished products, must be loaded on a designated vessel on a specific day and arrive in time and in perfect condition. The customer does not want to be bothered with extensive paperwork or having to fetch and carry. Delays are unacceptable as they want the goods as quickly as possible, and the cost of getting them transported from source must be as low as possible.

There are of course a host of smaller more specialised companies filling in the gaps between the majors, and the system is very dynamic and undergoing constant change. Each company endeavours to maximise opportunity around its strengths, and to create a niche or niches by controlling as much of the pipeline within which it operates as possible.

In the overall scheme of things customers, be they importers or exporters, have the greatest leverage, followed by the larger shipping companies who operate their own shipping fleets. Ports and the independent transport and logistics companies tend to have the least leverage and are expected to perform at high efficiency levels at all times. Thus when ships find themselves queuing up outside a port they soon impose surcharges in order to offset loss of business due to loss of operating time.

Durban has several larger shipping/logistics companies, two of which are listed on the JSE. Both are successful and both have wide participation and integration into the various cargo pipelines. The one has its own fleet of cargo ships, whereas the other is oriented more towards freight handling and organising shipping contracts on behalf of clients. There are both foreign and locally owned shipping companies with operations located in Durban. Sometimes it is the company’s own office and sometimes representation is via an appointed agent. The agent looks after all the ship’s needs while it is in port as well as acting as negotiator for shipping contracts on behalf of the ship owner.

4.2.4 Support Facilities

The following categories can be grouped as the main support facilities for the shipping sector. However, there are other service sectors which from time to time are called on to provide a specific service, although it may not be their main market. The catering sector is a typical example.

<table>
<thead>
<tr>
<th>All Port Services provided by the NPA</th>
<th>Marine Engineering</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ship Chandlers</td>
<td>Marine Engineering Components &amp; Spares</td>
</tr>
<tr>
<td>Oil &amp; Fuel Bunkering</td>
<td>Marine Engines &amp; Equipment Servicing, etc</td>
</tr>
<tr>
<td>Marine Services</td>
<td>Marine Servicing Materials</td>
</tr>
<tr>
<td>Marine Consultants &amp; Contractors</td>
<td>Ship Repair</td>
</tr>
</tbody>
</table>
The above list is not necessarily complete, but is sufficient to show that ship operations require a wide range of support services. The multiplier effect in terms of value added, jobs and local wealth creation from providing a full range of services to over 4500 ship arrivals a year, is huge. Being a substantial international-class port, the Port of Durban through these service linkages is in a position to offer a very wide range of services. There is for instance a large and excellent pool of ship building, repair and servicing skills in Durban. Of particular interest is that some of these overlap with other industries such as engineering, metal working and even the automotive sector. Durban is strong in this area and this competitive advantage should be maintained at a high level through skills development and support systems as it constitutes one of the port's main strengths.

The overall structure of the Shipping Sector together with its service linkages is encompassed in Annexure A.

4.3  THE CARGO / LOGISTICS SECTOR

4.3.1 Cargo Movements and Pattern Changes

As has been shown under the shipping sector, substantial changes have been experienced in recent years in terms of the types of cargo vessels calling at the port. As explained this signifies continual change dynamics in global markets and brings with it changes in cargo mix as well as cargo handling technology.

**Diagram 3  Container TEUs Handled (1997 – 2007*)**

(* 2007 Estimated)

The above graph, which focuses on containers, includes all containers imported and shipped, excluding empties. The time periods are for financial years. The numbers have been rising steadily since 1999 and there has been a sharp acceleration, particularly of imports, since 2002. The estimate for the current financial year (2006/2007) is 1,65 million full containers handled, of which approximately 57% will be imported and 43% exported.

The graph below shows the rapid escalation in empty containers handled. Unfortunately all containers have an owner somewhere and have to be returned. This is often as an empty where no return load is available. Container stocks tend to be balanced on an annual basis.

**Diagram 4. Empty TEUs Handled**
The very rapid escalation from 2003 relates directly to those empty containers shipped, which correlates directly with imports a year earlier. There doesn’t appear to be an easy answer to this phenomenon of having to ship empty containers until South Africa can add more value to its bulk exports in this country and then export more of the output as value-added products. However the forward integration of shipping lines into the cargo/logistics pipeline is helping to optimise this process to some extent. In the end though, it is an additional operating cost, which must be recovered in the cargo transportation charge. Thus there is a strong incentive to find ways to minimise this cost through new logistics initiatives.

Table 8 below summarises the data for full and empty containers handled. Note the rising percentage of empties.

Table 8. Total Container TEUs handled (Imported and Shipped)

Bulk and Breakbulk Cargo — These cargo types form important components of the port’s cargo handling activity. Table 9 below summarises imports and exports of these two types through Durban Port over the past ten years.

Table 9. Break & Breakbulk Cargo handled through Durban Port

<table>
<thead>
<tr>
<th>Million Tons</th>
<th>1996/7</th>
<th>1999/0</th>
<th>2002/3</th>
<th>2005/6</th>
<th>Ave. Growth pa 1996/7 to 2005/6</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMPORTED</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bulk</td>
<td>21.4</td>
<td>22.5</td>
<td>19.7</td>
<td>26.6</td>
<td>3.5 %</td>
</tr>
<tr>
<td>Breakbulk</td>
<td>2.8</td>
<td>1.7</td>
<td>2.0</td>
<td>3.7</td>
<td>4.0 %</td>
</tr>
<tr>
<td>Total</td>
<td>24.2</td>
<td>24.2</td>
<td>21.7</td>
<td>30.3</td>
<td>3.7 %</td>
</tr>
</tbody>
</table>
### The main Bulk Products imported and exported are shown in Table 10 below.

#### Table 10. Bulk Imports and Exports

<table>
<thead>
<tr>
<th>Imports/Exports</th>
<th>Imports %</th>
<th>Exports %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheat &amp; Products</td>
<td>3.75</td>
<td>4.18</td>
</tr>
<tr>
<td>Agric./Seaweed NES</td>
<td>1.65</td>
<td>10.37</td>
</tr>
<tr>
<td>Animal/Veg. Oils &amp; Fats</td>
<td>2.44</td>
<td>2.88</td>
</tr>
<tr>
<td>Petroleum % Petroleum Gas</td>
<td>84.55</td>
<td>45.28</td>
</tr>
<tr>
<td>Fertilizer</td>
<td>1.55</td>
<td>3.99</td>
</tr>
<tr>
<td>Chemicals</td>
<td>2.22</td>
<td>9.25</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>96.16</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Exports</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maize &amp; Products</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sugar</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fluorspar</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Petroleum % Petroleum Gas</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Woodchips</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chemicals</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td><strong>97.29</strong></td>
</tr>
</tbody>
</table>

Petroleum and Petroleum Gas dominate bulk imports and exports, with significant contributions on the export side from Coal, Sugar and Chemicals. As shown in Table 9, bulk exports have declined slightly over the past ten years. This has been mainly due to declining trends in coal, maize and sugar. Steel has behaved erratically and is also slightly down. Chemical exports have maintained their levels and Petroleum and Ferro-alloys are both up.

Bulk imports are dominated by Petroleum Products and have been rising steadily. Overall the year 2005/6 was 25% higher than the year 1996/7.

#### Table 11. Breakbulk Imports and Exports

<table>
<thead>
<tr>
<th>Imports/Exports</th>
<th>Imports %</th>
<th>Exports %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rice</td>
<td>12.04</td>
<td>11.37</td>
</tr>
<tr>
<td>Woodpulp</td>
<td>1.39</td>
<td>2.48</td>
</tr>
<tr>
<td>Timber Products</td>
<td>3.34</td>
<td>2.03</td>
</tr>
<tr>
<td>Steel</td>
<td>8.53</td>
<td>5.71</td>
</tr>
<tr>
<td>Electrical Appliances</td>
<td>1.14</td>
<td>19.74</td>
</tr>
<tr>
<td>Gypsum</td>
<td>1.02</td>
<td>54.61</td>
</tr>
<tr>
<td>Vehicle FBUs*</td>
<td>65.08</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>92.55</strong></td>
<td></td>
</tr>
</tbody>
</table>

*FBUs = Fully Built-up Units

Breakbulk exports have also shown a declining trend over the last ten years and this could be partly due to more products being handled in containerised form. Declines have been recorded for the following – coal, ferro-alloys, paper, woodpulp, granite, sugar and maize products. On the other hand, increases have been recorded for vehicles, timber products and citrus. Breakbulk export tonnages, which were around 4 million tons last year, are nevertheless substantial.

Breakbulk imports are mainly Vehicle FBUs (65%), Rice (12%) and Steel (8.5%). Altogether breakbulk imports have increased by 34% from 1996/7 to 2005/6, reaching 3.7 million tons.

### Summary:
Comparing total cargo movements between the three main categories for 1996/7 and 2005/6, there are some interesting changes as shown in Table 12 below.

Table 12. Cargo Movements – 2005/6 compared to 1996/7

<table>
<thead>
<tr>
<th>Million Tons</th>
<th>Landed</th>
<th>Shipped</th>
<th>Total</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1996/7:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Containerised</td>
<td>8.8</td>
<td>8.1</td>
<td>16.9</td>
<td>29.9 %</td>
</tr>
<tr>
<td>Breakbulk</td>
<td>2.8</td>
<td>6.0</td>
<td>8.8</td>
<td>15.6 %</td>
</tr>
<tr>
<td>Bulk</td>
<td>21.4</td>
<td>9.4</td>
<td>30.8</td>
<td>54.5 %</td>
</tr>
<tr>
<td>Total</td>
<td>33.0</td>
<td>23.5</td>
<td>56.5</td>
<td>100.0 %</td>
</tr>
<tr>
<td>%</td>
<td>58.4 %</td>
<td>41.6 %</td>
<td>100.0 %</td>
<td></td>
</tr>
<tr>
<td>2005/6:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Containerised</td>
<td>16.4</td>
<td>13.2</td>
<td>29.6</td>
<td>41.0 %</td>
</tr>
<tr>
<td>Breakbulk</td>
<td>3.7</td>
<td>3.9</td>
<td>7.6</td>
<td>10.5 %</td>
</tr>
<tr>
<td>Bulk</td>
<td>26.6</td>
<td>8.4</td>
<td>35.0</td>
<td>48.5 %</td>
</tr>
<tr>
<td>Total</td>
<td>46.7</td>
<td>25.5</td>
<td>72.2</td>
<td>100.0 %</td>
</tr>
<tr>
<td>%</td>
<td>64.7 %</td>
<td>35.3 %</td>
<td>100.0 %</td>
<td></td>
</tr>
</tbody>
</table>

In terms of total tonnage handled, containerised cargo has increased from 29.9% of the total to 41% over the ten years, whereas breakbulk and bulk have declined from 15.6% and 54.5% respectively to 10.5% and 48.5% respectively. It is clear that containerised cargo in tonnage terms is growing faster than either of the other forms. On the import side both breakbulk and bulk tonnages have increased, whereas on the export side both have declined. Containerised has increased substantially on both sides.

During the 2005/6 financial year, Durban Port handled 62.9% of Container TEUs for all ports in South Africa and 23.8% of total cargo tonnage. Richards Bay was highest in the tonnage category, handling 49.7% of the total.

The above mix changes have serious implications for the mix and structure of the cargo handling industry in Durban. The overall logistics focus is shifting towards containers, and the balance in non-containerised is shifting in favour of imports. This import/export balance change is surprising as it does not reflect the effects of the weak Rand over the past ten years, which should have favoured exporters. Thus there must be other factors at play such as the increase in containerisation of former breakbulk goods and the shift of some bulk goods such as Granite, away from Durban Port. The general lowering of import tariffs since 1994 under South Africa’s membership of the World Trade Organisation (WTO) has also lowered the landed price of imports, particularly consumer and high value-added goods, causing imports to increase. The sharp increase in imports of Chinese textiles is a good example.

4.3.2. Terminal Interfaces

It is well known and understood that certain of the terminals, chiefly the core terminals operated by SAPO, are coming under increasing pressure. SAPO has already spent substantial capital sums to address these capacity bottlenecks, and there is much more to follow. Part of the process involves redesign and upgrading of berths and cargo handling areas. Briefly the state-of-play at each of the main terminals is as follows.

(i) Durban Container Terminal (DCT) – Total area of current DCT is approximately 102 ha. As noted earlier in this report (see page 14), container volumes are growing rapidly, having averaged over 12% per annum for the 4 financial years to March 2006, with further acceleration expected in the current year. Projected volume for 2006/07 is approximately 2.3m TEUs (full + empty).

The objective is to increase the capacity to in excess of 3.0m TEUs by end 2007. The main focus of the programme is a R2bn redesign of Pier 1 into a modern container
terminal (currently in progress, to commence operating by May 2007) with a handling capacity of 0.72m TEUs per annum. The balance of the capacity improvement will be achieved by acquisition of new handling equipment for DCT.

A new IT system is also to be introduced and a SAPO delegation is already in the US undergoing training on the system, with a view to training operational planners on their return. Efficiency at DCT is currently well below world benchmarks (See Section 7.1.3) and it is hoped that the acquisition of new container handling equipment will enable the terminal to operate at accepted international standards. Road access from Bayhead Road and Langeberg Road represent serious bottlenecks and is discussed in more detail under Sections 5.3.1 and 8.1.

In terms of equipment, it is planned that by end August 2007 Pier 1 will have 3 berths, 5 STS (Ship-to-Shore) cranes, and 6 RTGs (Rubber-Tyre-Gantries). An additional six RTGs and one STS crane are to be delivered by end 2007. The terminal has already received 33 Tractor Trailers, 2 Reach Stackers and 2 ECHs (Empty Container Haulers).

Source: [http://ports.co.za/sapo/article_2007_01_18_0415.html](http://ports.co.za/sapo/article_2007_01_18_0415.html)

The above expansion should raise the overall hourly throughput as well as making three additional berths available and significant extra space for container handling and stacking. Assuming the targeted annual capacity is achieved, this will address SAPO’s container volume problem in the short term. However, at the current and projected growth rates, further substantial capacity capability will have to be developed over the next decade. (See also Section 7.4.3, Cargo Growth Projections). SAPO and the NPA have already commenced planning for this additional capacity.

(ii) **Multi-Purpose Terminal** – Until very recently the port had two multi-purpose terminals (MPTs) handling breakbulk products, which include steel, ferro-alloys, forest products, fertilizer, fruit, salt and rice as well as some containers. Granite was also handled via the one MPT but has since been moved to Richards Bay. The first MPT, Durban Multi-Purpose Terminal, operated with 14 berths located across Pier 1, the Point and on the T-Jetty and handled both imports and exports. Pier 1 was closed very recently to undergo alterations to a container terminal. A new City Terminal was constructed at the Point with deeper berths (berths D to G) to accommodate the breakbulk from Pier 1. However the rapid rise in vehicle volumes has caused an overflow of vehicles from the adjacent Car Terminal, with the result that a large section of the MPT is currently being taken up by motor vehicles. Motor vehicles are also being parked on the T-Jetty. Other areas accommodating vehicles on a temporary basis are the Sugar Terminal and the ship repair area at Bayhead.

The second MPT is at Maydon Wharf operating principally from berths 8 to 13. Maydon Wharf handles a variety of commodities including semi-bulks such as fertilizer and salt, as well as scrap-metal, steel and forest products. Other private terminals also operate from Maydon Wharf (see Section 4.1.2). Maydon Wharf is an old terminal area and logistics park designed largely around rail transport. Today it is in serious need of redesign to accommodate the heavier road transport, which requires extra turning and parking space.

SAPO have recently installed a hi-tech weighbridge facility at Maydon Wharf. This will improve efficiency at this MPT and was installed with the objective of creating a 24-hour one-stop facility. Turnaround time is substantially improved and accurate weighing is guaranteed. The system is GCOS compliant and facilitates cargo tracking. Thus the terminal now offers a one-stop facility that includes weighing, storage, handling, and loading/offloading.

Source: [http://ports.co.za/sapo/article_2007_02_2_2635.html](http://ports.co.za/sapo/article_2007_02_2_2635.html)

(iii) **Durban Car Terminal** – Built in 1998, the car terminal has maintained a high level of efficiency since its inception. It has been awarded ISO9001:2000 accreditation and in
2004 it achieved a NOSCAR occupational safety rating. This places it in world class as a well managed operation. Due to the high growth rate in vehicle imports and exports it has been necessary to continue expanding its capacity, and it was recently able to offload a ship carrying over 5000 vehicles in one load. This is the biggest single shipment of vehicles ever to be offloaded at a South African Port.

However, as pointed out above, the terminal has run our of capacity and a new terminal phase is currently under consideration. At present the authorities have earmarked the SA Navy area at Salisbury Island for a new terminal, but discussions and negotiations are still in progress as there are more than one option to be considered.

(iv) The Private Terminals – There are a number of specialist private terminals located mostly at Maydon Wharf and Island View. Briefly the situation with these is as follows:

- **Sugar Terminal** – Operated by the SA Sugar Association, it handles approximately 900 000 tpa of bulk sugar and 300 000 tpa of bagged sugar. It also handles some small miscellaneous shipments for other parties. The terminal is efficiently managed and handles an average of 120 trucks per day during the main delivery period. Approximately 70% of sugar arrives by road transport and 30% by rail. Shipments are spread according to the state of the market, where price optimisation is a key factor. The terminal employs 125 people of which 40% are skilled and 60% are unskilled. Shift configurations vary from 1 to 4 depending on the workload.
- **Unilever Terminal** – This is a bulk liquid terminal for vegetable oils. Although serving the needs of the Unilever Group, the operation is totally outsourced to Island View Storage. The system operates efficiently.
- **Rennies Bulk Terminal** – This is a multi-product bulk handling facility dealing with agricultural and mineral products.
- **Agriport Grain** – This terminal also operates at Maydon Wharf and is a small specialist facility.
- **Bulk Soda Ash** – Another Maydon Wharf facility operated by Brunner Mond.
- **Bulk Malt** – Normally handled at berth 100 Salisbury Island, serves SA Breweries.
- **Bulk Chemicals** – Located at Island View, the terminal serves Island View Storage (IVS) and van Ommeren. Both facilities are substantial and handle predominantly Bulk Chemicals, as well as Vegetable Oils and Molasses. Although some of the Petroleum companies have tank farms at Island View, most of their stocks come via the pipelines from the Single Bouy Mooring (SBM) and the two Refineries. Both chemical tank farms operate efficiently but experience road transport delays along Bayhead Road. Apart from bulk storage of chemicals the two tank farms undertake blending and drumming off of chemicals, and offer weighbridge and tanker cleaning facilities. Both undertake Customs clearing and forwarding on behalf of importers, as well as shipping arrangements.
- **Along the wharfside from IVS towards the harbour mouth is Durban Bulk Shipping, which handles mostly grain and similar agricultural products. It has silo facilities for intermediate storage between rail and ship and vice versa. It also has bagging facilities available. It has storage of 69,000mt and can transfer between 5,000mt and 15,000mt per day, depending on the operation.
- **Near the harbour entrance is what was originally the Coal Terminal, which is now operated by Rennies Bulk Terminals (part of Bidfreight Group) as a general bulk terminal. The terminal targets difficult-to-handle bulk commodities including coal. Different types of material handling systems are available to accommodate the properties of different products. Storage is approximately 100,000mt for export and 20,000mt imported.

4.3.3 Structure and State of the Cargo / Logistics Industry

The cargo/logistics side of the local Maritime industry is well developed with a large pool of skills and experience. A schematic outline of the industry is shown in Annexure B and a summary of the main categories is shown in Table 2 on page 3. Altogether on the basis of the Braby's categorisation, there
are approximately 1400 firms from 40 business categories directly involved in the cargo/logistics pipeline in the eThekwini Municipal Area. The majority of these have a direct product/service relationship with the Maritime Sector whilst others are predominantly involved with landfreight and local distribution. Many are concerned with both types of freight.

The industry is reasonably efficient in that member firms are very competitive with each other, except where matters are beyond their control such as traffic bottlenecks and delays at the port. They are hard working and have over a century of local experience behind them. However the industry is expanding rapidly and there is a general shortage of land availability to meet their expansion needs. Traditional areas such as Maydon Wharf desperately need upgrading and redevelopment. There is little organisation in terms of an industry structure as all of the bigger firms have diversified into other sub-sectors of the pipeline. The two majors, the Grindrod Group and the Bidvest Group tend to dominate, but there are many other sizeable groups and individual companies operating at a high level in terms of turnover and throughput.

The switch from rail to road transport has brought a new set of challenges with it, particularly as the older industrial townships such as Maydon Wharf, Bayhead and Jacobs were all designed for rail compatibility. Although there is strong clustering of the industry close to the port, there is no modern logistics park to set the performance benchmarks. The industry is also somewhat traditional in the style of its industry associations. Communication with both the Port and the Municipality whilst improving, is not at the level it needs to be and inter-association communication could also be improved. There is clearly an opportunity through better teamwork between the port, the municipality and the two industry sectors to raise the general efficiency and competitiveness of the whole pipeline. The process requires the establishment of stronger co-operative structures, as well as the strengthening of formalised institutional co-operation within the two sectors, i.e. the Shipping Sector and the Cargo/Logistics Sector.

These issues are dealt with in more detail in the later chapters of the report (See Sections 8.3, 8.4, 9.3).

5. ANALYSIS OF SHIPPING AND CARGO/LOGISTICS VALUE CHAINS

5.1 General Overview

From the foregoing it is clear that the Port of Durban and its Maritime Sector are substantial by international standards in terms of the level of sophistication and the cargo volumes, both inward and outward, which are handled annually. These cargo volumes are rising rapidly and the prognosis is that this trend will continue for at least another decade or even more. Not only is the port’s capacity under extreme pressure in a number of areas, but the whole maritime logistics system is feeling the strain. The country of necessity is moving more and more into global trade and the need to be able to compete has never been more pronounced.

Thus this study is attempting to highlight those elements of the logistics pipeline which are not competitive and to suggest strategies which will bring about a general lowering of costs and set the industry up to remain competitive in the longer term. Sections 5.2 and 5.3 provide an analysis of the sector value chains through a series of interviews with a representative sample of well established firms. The Shipping and Cargo/Logistics sectors are treated separately, although in practice it was found that there is a good deal of overlap and that a number of the same issues are of concern to both.

5.2 Shipping Sector Interview Responses.

The value chain in the shipping sector is well illustrated in the diagram shown in Annexure A. Clearly, there are also linkages between the value chain of the shipping sector and the cargo sector.

Shipping lines, agents and brokers have linkages as shown in diagram 5 below.
5.2.1 Shipping Sector V-C Primary Activities

5.2.1.1 Inbound Logistics — Inbound logistics for shipping concerns the movement of cargo in all its forms from the exporter to the ship. A ship having unloaded its cargo does not want to leave the port empty. Ships agents and brokers must ensure new cargo is added and arrives at the dockside terminal in the right form for shipping and in a timely manner. Many of the shipping firms have diversified their investments into on-shore logistics activities in order to have better cost control over these activities so that their ships have full cargo loads by offering a comprehensive, competitive and seamless shipping service.

The main transport access required for these firms is a good road network, although some shipping companies mentioned the importance of a good rail service into the harbour area. Space problems related mainly to the shortage of parking for staff vehicles in the CBD, and to inadequate truck parking facilities in the Bayhead area.

5.2.1.2 Operations — The shipping lines and agencies regarded themselves as able to operate at an internationally competitive level, using state of the art technology, but serious problems arose with regard to port operations. These are covered in Chapter 7.

The current utilisation of equipment in the shipping sub-sectors was stated to be high, fluctuating between 85-100%.

Among the shipping companies and agents labour costs typically amounted to between 65-70% of operating costs. This ratio fell to about 50% in the case of ship’s chandlers and about 45% for some of the other service sub-sectors.

5.2.1.3 Outbound Logistics — This section of the questionnaire was found to be not applicable to the shipping sector.

5.2.2 Shipping Sector V-C Support Activities

5.2.2.1 Infrastructure — Most of the shipping companies occupied only office premises in Durban, but some also operated depots and warehouses. Service sub-sectors often undertook their work in specialist mechanical workshops. Much of the logistics work is outsourced.
5.2.2.2 Human Resources — The Shipping Sector employs a significant number of people and there are the long list of firms with partial linkages who regard shipping as one of the customer groups. Human resources is a key aspect of the sector as the skills requirement is often very specialised.

**Number Employed** - The total number of individuals employed in the shipping sector is difficult to estimate. A sample of firms was drawn from the sub-sectors listed by Brabys, but it was found during fieldwork that a number of these sub-sectors were not applicable to the industry and that some firms had either ceased to exist or had merged into larger entities. Some of the firms interviewed were part of larger groups that included activities, which would be listed under the cargo section of this study.

In most sub-sectors we were able to interview the largest company and, from employment figures provided by those companies, to attribute employment numbers to smaller companies. Total employment in the particular sub-sector was also discussed wherever possible with the firms interviewed.

**Table 13. Shipping Sector Employment Estimate**

<table>
<thead>
<tr>
<th>Sub-Sector</th>
<th>Employment Permanent</th>
<th>Employment Casual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipping</td>
<td>10,600</td>
<td>3,250</td>
</tr>
<tr>
<td>Port</td>
<td>3,500</td>
<td>1,000</td>
</tr>
<tr>
<td>Stevedoring</td>
<td>1,250</td>
<td>1,000</td>
</tr>
<tr>
<td>Shipping Lines, Operators, Agents</td>
<td>3,000</td>
<td>0</td>
</tr>
<tr>
<td>Marine Engineering</td>
<td>425</td>
<td>1,250</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>18,775</strong></td>
<td><strong>6,500</strong></td>
</tr>
</tbody>
</table>

**Education** - The proportion of staff who had received some tertiary education varied from 0-100%. For most of the shipping lines and agents the proportion of those with some tertiary education was between 15-20%, although it fell to as low as 5%. A small marine consultancy firm reflected a 100% figure and a marine engineering firm 60%. In cases where shipping agents only had offices, there tended to be no unskilled employees, but this proportion rose to about 15% in firms employing packers, sweepers and so on. Some firms stated that the only tertiary education required was for accountants. Overall the total of the firms interviewed in the shipping sector produced the following split in skills levels for their permanent employees:

- Skilled (Tertiary Educ.) 24%
- Skilled (Non-Tert. Educ.) 60%
- Unskilled 16%

Whilst these figures do not represent a statistically representative sample, they nevertheless show that skills are a prime requirement for employment in the sector. There is a high requirement for technical and IT skills, whereas the need for unskilled employees is relatively small.

**Key Skills** - In the case of shipping firms the skill requirements related mainly to maritime operations, trade, finance, accounting, management and IT. Communications with customers (through the medium of good English) was mentioned by some firms, as was a foreign language such as French and German. Cargo superintendents required a Master's Certificate. In the firms servicing the shipping companies, the key skills were engineering, computer literacy, diesel mechanics, welding and stevedoring.

**Training and Development** - Most shipping lines offered in-house, on-the-job training to staff. Most of these companies used the Institute of Chartered Ship Brokers, which provided training courses. At least two shipping firms ran their own training school, while one used an operating system on its global website.

**Skills Availability** - The availability of skills is a major problem for many shipping companies. The problem is especially acute at the middle management and supervisory levels. Employees with some type of qualification but with no experience were stated to be impatient for promotion. Artisan skills
are generally in short supply in the sub-sectors servicing the shipping lines. Some companies stated that they did not encounter any skills problems, but these were firms in which employment was almost entirely of the office administration or unskilled variety.

**Recruiting** - Most shipping companies operated a system of internal transfers within the group to which they belonged. International recruiting was stated to be difficult because of problems with the granting of work permits from the Department of Home Affairs. Whilst engineering skills can be sourced from tertiary institutions, the ship repair sector struggle to find skilled staff, especially in areas where training courses can take 4-5 years. Other methods of recruiting are advertising, the use of employment agencies, tertiary institutions, and poaching from other firms in the particular sector.

**Operating Shifts** - Those companies operating at port terminals or with depots tended to operate on a shift basis – either with three 8-hour shifts or two 12-hour shifts per day. Whether two or three shifts were worked in stevedoring depended on the cargo. Most offices worked on the basis of a five-day week but some also worked on Saturday mornings.

**Local Transport** - The mode of transport used by staff varied from own car (especially for management and senior and middle-level employees) to lift clubs (common among office staff) to metro rail and minibus taxies (commonly used by lower-level employees). Public transport for shift workers remains a problem.

**Residential Areas** - Information provided by the respondents showed that staff residences were widely scattered throughout the eThekweni Municipality. Whereas senior management tended to live in suburbs such as Durban North, Mt. Edgecombe, Westville and Kloof, middle-level management often lived on the Berea, Glenwood or on the Bluff. Many office workers and employees in the service firms resided in suburbs such as Phoenix, Chatsworth, Tongaat, Umlazi and Kwa Mashu.

5.2.2.3 **Technology** — As mentioned above, many shipping firms are part of an international group. These firms are usually linked into a global IT system developed by the group for its particular circumstances. IT is the most important area of technology required for operating these companies efficiently. These in-house international IT systems were stated to be sophisticated and conforming to international best-practice standards, enabling the companies to be highly competitive. One company had created a special system for South Africa because customs procedures are different in South Africa from the other countries in which the particular group operates. Most of these firms had substantial IT departments.

IT systems are regarded as being extremely capital intensive both in the shipping and the logistics and freight management sub-sectors. This is also the case with marine engineering. This kind of technology is usually imported rather than being created in South Africa.

In the support sectors, only basic IT systems are required in order to process orders, accounts and so on. Nonetheless, these companies felt that they were competitive and that their equipment met the highest standards of technology.

5.2.2.4 **Procurement of Materials and Services** — The source of materials and services used by the responding companies indicated that a high proportion are purchased in Durban or KwaZulu-Natal. This proportion appeared to be in the vicinity of about 80%, although some procurement is internal within the particular international group.

The main services procured in Durban include materials, bunker fuels, transport, warehousing, distribution and office supplies. A tendency among shipping companies is to sub-contract transport to specialist road hauliers, often owner-drivers. Logistics services are also outsourced. All these services are regarded as being readily available in Durban with the exception of haulage capacity during peak seasons, and spares for boat engines.

5.3 **Cargo / Logistics Sector Interview Responses**

**Company Profiles**
The cargo sector is dominated by a few large organisations each with operations in several areas of the value chain. Then there are a number of medium sized operations and many small organisations, mostly close corporations. The interview sample yielded the following ownership breakdown.

<table>
<thead>
<tr>
<th>Ownership Type</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overseas owned</td>
<td>3.4%</td>
</tr>
<tr>
<td>Public Companies</td>
<td>34.5%</td>
</tr>
<tr>
<td>Private Companies</td>
<td>24.1%</td>
</tr>
<tr>
<td>Close Corporations</td>
<td>37.9%</td>
</tr>
</tbody>
</table>

In questioning companies about their turnovers, it was emphasised that turnover should be for that specific operation for the Durban area. Where companies were part of a national or international group or of a public company listed on the Johannesburg Stock Exchange, it was important to focus purely on the Durban operation of that specific operation. Interviews yielded the following results.

<table>
<thead>
<tr>
<th>Turnover Group</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; R5m</td>
<td>31.0%</td>
</tr>
<tr>
<td>R5m – R10m</td>
<td>20.7%</td>
</tr>
<tr>
<td>R10m – R50m</td>
<td>17.2%</td>
</tr>
<tr>
<td>R50m – R100m</td>
<td>10.3%</td>
</tr>
<tr>
<td>R100m – R250m</td>
<td>3.4%</td>
</tr>
<tr>
<td>&gt; R250m</td>
<td>17.2%</td>
</tr>
</tbody>
</table>

As stated earlier, the sample was skewed in favour of the larger organisations and this can be seen by the percentage of companies who reported turnovers of over R250m. It is interesting to see the high percentage reporting less than R5m turnover, which indicates that this is an industry where small entrepreneurs can find a niche. Many of them act as sub-contractors to larger firms for specific services. In addition a number of the Transport companies sub-contract work to local cartage contractors who have only one or two trucks. In one case the transport company outsourced all their trucking but assisted the SMME contractors with servicing of their trucks and driver training.

### 5.3.1 Cargo/Logistics Sector V-C Primary Activities

The Primary Activities in the C/L sector focus primarily on Operations, In- and Outbound Logistics, with some general questions. Variable costs are primarily in these areas and are key to overall cost efficiency. Marketing, Sales and Service aspects, although part of the Primary Activities, were found not to encompass noticeable cost disadvantages and have therefore been omitted.

There are several key streams or pipelines of activity and these are linked to the different types of cargo and their logistics linkages towards final delivery at a specific port terminal. The industry tends to separate itself between Container cargo, Breakbulk cargo, Fresh Produce cargo, Bulk Liquid cargo, Fully Assembled Vehicle cargo, Bulk Metals and Minerals cargo and Bulk Grain cargo. Many of the smaller specialist service firms tend to focus on niche relationships within this structure.

(See also Annexures C,D,E,F for Cargo Sub-Type flow diagrams)

### 5.3.1.1 Inbound Logistics

Companies were asked which of the port terminals they dealt with on a regular basis and this produced some interesting results. The answers are summarised below.

**Table 14. Port Terminals User Activity**

<table>
<thead>
<tr>
<th>Container</th>
<th>Multi-Purpose</th>
<th>Bulk</th>
<th>Vehicle</th>
<th>Sugar</th>
<th>Grain</th>
<th>Fresh Prod.</th>
<th>Bulk Metal/Min</th>
<th>Bulk Liquid/ Petroleum</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>25.8%</td>
<td>15.7%</td>
<td>25.8%</td>
<td>10.1%</td>
<td>4.5%</td>
<td>3.4%</td>
<td>1.1%</td>
<td>7.9%</td>
<td>2.2%</td>
<td>3.4%</td>
</tr>
</tbody>
</table>

It is possible that the bulk liquid/petroleum terminal figure is understated because only two tanker companies were interviewed. However the balance appear to be a fair reflection of the spread of activity.
The spread of activities amongst the companies showed that there are a number of companies who are involved in more than one activity. On average companies were involved in up to three different activities. Table 15 below summarises the activity spread.

**Table 15. Cargo Sector Activity Spread**

<table>
<thead>
<tr>
<th>Container Storage/Maint.</th>
<th>Cargo Handling</th>
<th>Warehousing</th>
<th>Transport &amp; Logistics</th>
<th>Services</th>
<th>Trade</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.6%</td>
<td>12.6%</td>
<td>35.4%</td>
<td>34.3%</td>
<td>5.1%</td>
<td>8.0%</td>
</tr>
</tbody>
</table>

Warehousing, Transport and Logistics tend to dominate, as would be expected. Nevertheless there is a range of support services that link into the mainstream of activity. Stevedoring, and Crane and Equipment Hire are included under cargo handling. “Services” includes mainly security, marine insurance and marine surveys. Trade includes importers, exporters and import/export agents. There is also naturally because of forward integration, some overlap with the shipping sector.

Examining the warehousing, transport and logistics sub-sectors in more detail, further specialisation was found. This gives an indication of the level to which the industry is already developed.

**Table 16. Transport and Logistics sub-sector spread**

<table>
<thead>
<tr>
<th>Cartage Contractors</th>
<th>Bulk Liquid Carriers</th>
<th>Clearing &amp; Forwarding</th>
<th>Transport Carriers (long distance)</th>
<th>Cargo Agents</th>
<th>Logistics Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>21.7%</td>
<td>3.3%</td>
<td>20.0%</td>
<td>16.7%</td>
<td>16.7%</td>
<td>21.7%</td>
</tr>
</tbody>
</table>

The warehousing sector, which tends to be spread around the city in a variety of old buildings, has also developed a wide spread of specialist focus.

**Table 17. Warehousing sub-sector spread**

<table>
<thead>
<tr>
<th>General</th>
<th>State</th>
<th>Chemicals</th>
<th>Furniture</th>
<th>Steel</th>
<th>Br/Bulk</th>
<th>Refrigerated</th>
<th>Cloth, Fwr &amp; Text.</th>
<th>Bond Stores</th>
<th>Fresh Prod</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>21.0%</td>
<td>1.6%</td>
<td>4.8%</td>
<td>1.6%</td>
<td>11.3%</td>
<td>17.7%</td>
<td>1.6%</td>
<td>4.8%</td>
<td>21.0%</td>
<td>1.6%</td>
<td>12.9%</td>
</tr>
</tbody>
</table>

The “Other” category included vehicles, kitchenware, rice, paper & pulp and freestore. Generally warehouses are very dated in design, labour intensive and totally lacking in computerised conveyor systems as are common in Europe. Transport access and parking is a problem.

### 5.3.1.2 Operations — Table 18 indicates sub-sector views of the particular areas where they must maintain operational competitiveness.

**Table 18. Areas of Operational Competitiveness**

<table>
<thead>
<tr>
<th>Sub-sector</th>
<th>Operational Competitiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cargo Handling &amp; Container Services</td>
<td>Price, service, availability, various types of vehicles, well trained drivers &amp; conductors, knowledge of the industry, experienced staff.</td>
</tr>
<tr>
<td>Cartage Contractors</td>
<td>Service, price, state of the art equipment, deep draft berths, experienced work force.</td>
</tr>
<tr>
<td>Customs Clearing &amp; Forwarding</td>
<td>Professionalism, knowledge, service, price, communication, availability (24hrs), speed of documentation processing, availability of logistics solutions, funding.</td>
</tr>
<tr>
<td>Export &amp; Import Services</td>
<td>Service, price, knowledge.</td>
</tr>
<tr>
<td>Freight Services &amp; Warehousing</td>
<td>Good rates, service, only company with CCA software, overnight service, delivery within 36hrs, expertise.</td>
</tr>
<tr>
<td>Storage &amp; Warehousing</td>
<td>Position, efficiency of rail operations, public transport efficiency, smooth traffic flows for large vehicles in the harbour area, service, size of warehouse, rail facility.</td>
</tr>
<tr>
<td>Transportation Companies</td>
<td>Transport brokerage.</td>
</tr>
</tbody>
</table>

### 5.3.1.3 Out-bound logistics
The majority of the companies indicated that their current utilization percentage of their plant or service capacity ranges from 70 – 100%, and their labour cost as a percentage of main operational direct cost ranges from 30 to 90%.

Most of the companies having warehouses have up to 4000 square metres of floor space, catering for bulk or palletised or both.

There are no automated computerized materials handling or conveyor systems in operation.

Most have special access points to their premises, and use forklifts for truck loading and unloading.

They use both in-house trucking and outsourced carriers for distribution.

The main transport types used for distribution are road and air.

The main bottlenecks and cost inequities experienced in the Durban Cargo Handling System are delays at the Port/Container Terminal as well as traffic congestion.

Some of the companies offer after-sales service in the form of courtesy calls to get feedback from their customers. They feel this is important for maintaining sound customer relations and ensuring future business.

**General Questions** - Most companies indicated that Durban urgently needs more container parks. This will reduce congestion, improve traffic flows and enable a more efficient cargo-flow system.

The majority of the companies indicated that container parks should be located close to the port (Max. 5 Kms radius) and not be decentralized to more distant parts of the eThekwini Municipal Area. A second major distribution terminal is required.

Table 19 below shows findings of responses in support or otherwise of Cato Ridge as a major cargo distribution location.

<table>
<thead>
<tr>
<th>Sub-sector</th>
<th>Cato Ridge for cargo distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cargo Handling &amp; Container Services</td>
<td>No - out of route/cost factor</td>
</tr>
<tr>
<td>Cartage Contractors</td>
<td>No – too costly due to distance</td>
</tr>
<tr>
<td>Customs Clearing &amp; Forwarding</td>
<td>No – cost, distance, security.</td>
</tr>
<tr>
<td></td>
<td>Yes – will help avoid congestion</td>
</tr>
<tr>
<td>Export &amp; Import Services</td>
<td>No – too far, too costly</td>
</tr>
<tr>
<td>Freight Services &amp; Warehousing</td>
<td>Yes – avoid traffic congestion</td>
</tr>
<tr>
<td>Storage &amp; Warehousing</td>
<td>Yes – if it will address congestion</td>
</tr>
<tr>
<td>Transportation Companies</td>
<td>Yes – avoid traffic congestion</td>
</tr>
</tbody>
</table>

Those companies dealing with cargo movements up to Gauteng and the Free State were generally positive about Cato Ridge, also pointing out the need for a proper overnight fully serviced truck-stop. However there appeared to be little support for CR as a local distribution point.
5.3.2 Cargo/Logistics Sector V-C Support Activities

5.3.2.1 Infrastructure

Building and Spatial Requirements - Table 20 below indicates the building/spatial requirements of the different sub-sectors of the cargo industry.

<table>
<thead>
<tr>
<th>Sub-sector</th>
<th>Type of buildings required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cargo Handling &amp; Container Services</td>
<td>Offices, vehicle garages, boiler, material storage, own fuel supply point, service facility, transport access points.</td>
</tr>
<tr>
<td>Cartage Contractors</td>
<td>Offices, weighbridge, material storage, own fuel supply point, refrigerated storage, finished goods storage, warehouse, vehicle service unit.</td>
</tr>
<tr>
<td>Customs Clearing &amp; Forwarding</td>
<td>Offices, vehicle garages, material storage</td>
</tr>
<tr>
<td>Export &amp; Import Services</td>
<td>Offices, material storage, Warehouse</td>
</tr>
<tr>
<td>Freight Services &amp; Warehousing</td>
<td>Offices, vehicle garages, material storage, warehouse</td>
</tr>
<tr>
<td>Storage &amp; Warehousing</td>
<td>Offices, weighbridge, material storage, own fuel supply point, service facility, finished goods storage.</td>
</tr>
<tr>
<td>Bulk Liquid Storage</td>
<td>Raw Material Storage tanks, Refrigerated tanks, Finished Goods Storage Tanks, Weighbridge, Own Fuel Supply point, Boiler, Offices.</td>
</tr>
<tr>
<td>Transportation Companies</td>
<td>Offices, vehicle garages, material storage, own fuel supply point, vehicle service facility, finished goods storage.</td>
</tr>
</tbody>
</table>

- The main services that they outsource are generally available in Durban. They require Rail, Road; Ship & Air transport access for their operations.
- Table 21 below indicates the space availability at the moment.

<table>
<thead>
<tr>
<th>Sub-sector</th>
<th>Space availability at the moment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>VP</td>
</tr>
<tr>
<td>Cargo Handling &amp; Container Services</td>
<td>Y</td>
</tr>
<tr>
<td>Cartage Contractors</td>
<td>Y</td>
</tr>
<tr>
<td>Customs Clearing &amp; Forwarding</td>
<td>N</td>
</tr>
<tr>
<td>Export &amp; Import Services</td>
<td>Y</td>
</tr>
<tr>
<td>Freight Services &amp; Warehousing</td>
<td>N</td>
</tr>
<tr>
<td>Storage &amp; Warehousing</td>
<td>Y</td>
</tr>
<tr>
<td>Transportation Companies</td>
<td>Y</td>
</tr>
</tbody>
</table>

VP= Vehicle Parking; TPT= truck parking & turning; CPU= Container packing & unpacking; ITMG= Internal transfers of materials & goods

Responses: Y=Yes; N=No

Location - Most of the companies are satisfied with their present location but many would be interested in re-locating to a modern logistics park. This suggests that locations are not always ideal, nor are the buildings totally suitable for modern logistics operations. Table 22 below indicates the location rating of the different sub-sectors at the moment.

Table 22. Satisfaction with present location (5 = very satisfied, 1 = very dissatisfied)
Sub-sector | Location Rating | Relocating to a Modern logistics park?
--- | --- | ---
Cargo Handling & Container Services | 5 | No
Cartage Contractors | 1 & 3 | Yes
Customs Clearing & Forwarding | 3 & 4 | Yes
Export & Import Services | 3 & 4 | Yes
Freight Services & Warehousing | 2 & 4 | Yes
Storage & Warehousing | 3 & 5 | No
Transportation Companies | 4 | Yes

Low Rating Reasons for the above:

- Cartage Contractors, rating = 3 — reasons for their dissatisfaction: too far from the port; restricted by the city in most of their operations.
- Customs Clearing & Forwarding Services, rating = 3 — reasons for their dissatisfaction: they are not safe in present location and there is a lack of companies moving out of the CBD.
- Export & Import Services rating = 3 — reasons for their dissatisfaction: too much traffic congestion causing late work arrivals by staff.
- Freight Services & Warehousing rating = 2 — reasons for their dissatisfaction: poor accessibility to facilities due to inadequate parking space.
- Storage & Warehousing rating = 3 — reasons for their dissatisfaction: they need to have better access to Durban Container Terminal (DCT) or be located closer to the DCT/Port.

With the rapidly changing nature and culture of the CBD, there is a tendency to forget that the Maritime Industry has a major cluster of offices and other buildings in and around the CBD. As the city’s planners and urban developers re-plan the CBD, they should bear in mind the needs of the Maritime Sector, especially in terms of office space, parking and security. This is particularly important along the Victoria Embankment where covered parking is at a premium.

5.3.2.2 Human Resources – Altogether it is estimated that there are approximately 50,000 people employed in the full value chain of the Cargo Sector. This estimate is based on details obtained in the interviews. There are some big employers such as the public companies, which have a number of operations. They employ in excess of 4000 people each. There are a number in the 40 to 100 category, and there are many small companies employing less than 40 and sometimes as few 5 to 10. Each company was asked to divide their employment numbers into three skills categories. The breakdown is as follows.

<table>
<thead>
<tr>
<th>Tertiary Educated</th>
<th>Non-Tertiary</th>
<th>Unskilled</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skilled</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16.1%</td>
<td>49.3%</td>
<td>34.6%</td>
</tr>
</tbody>
</table>

Table 23 below gives an indication of key skills required by the different sub-sectors.

Table 23. Skills Requirements
In general skills required are not highly technical, but need to be well developed, especially in the driver, machine operator category. IT skills are an essential requisite and this aspect is growing rapidly in importance. The normal management, finance and administration skills are always required.

<table>
<thead>
<tr>
<th>Sub-sector</th>
<th>Key Skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cargo Handling &amp; Container Services</td>
<td>• Admin&lt;br&gt;• Gantry Driving&lt;br&gt;• Driving&lt;br&gt;• Engineering&lt;br&gt;• Forklift operators&lt;br&gt;• Information Technology&lt;br&gt;• Managerial Skills&lt;br&gt;• Computer Literacy&lt;br&gt;• Systems Operation&lt;br&gt;• Technical Skills&lt;br&gt;• Welding</td>
</tr>
<tr>
<td>Cartage Contractors</td>
<td>• Advance Driving&lt;br&gt;• Customs &amp; Excise&lt;br&gt;• Driving&lt;br&gt;• Finance &amp; Admin.&lt;br&gt;• Auto Mechanics&lt;br&gt;• Warehouse Management&lt;br&gt;• Hazchem Driving&lt;br&gt;• Pro Driving Tactics&lt;br&gt;• Fatigue Management&lt;br&gt;• Storemen</td>
</tr>
<tr>
<td>Customs Clearing &amp; Forwarding</td>
<td>• Customs &amp; Excise Tariffs&lt;br&gt;• Financial&lt;br&gt;• Transportation&lt;br&gt;• Import &amp; Export&lt;br&gt;• Business Management&lt;br&gt;• Computer Literacy&lt;br&gt;• Clearing &amp; Forwarding&lt;br&gt;• Shipment</td>
</tr>
<tr>
<td>Freight Services &amp; Warehousing</td>
<td>• Computer Literacy&lt;br&gt;• Geography&lt;br&gt;• Overseas Trading&lt;br&gt;• Driving&lt;br&gt;• Transport Links&lt;br&gt;• Commercial Business Administration&lt;br&gt;• Forklift &amp; Machine Operation</td>
</tr>
<tr>
<td>Export &amp; Import Services</td>
<td>• Computer literacy&lt;br&gt;• Pastel 5 skills&lt;br&gt;• Driving&lt;br&gt;• Clearing &amp; Forwarding&lt;br&gt;• Customs Legislation&lt;br&gt;• Warehousing&lt;br&gt;• Shipping&lt;br&gt;• Transport&lt;br&gt;• Freight</td>
</tr>
<tr>
<td>Storage &amp; Warehousing</td>
<td>• Administration&lt;br&gt;• Hyster Operation&lt;br&gt;• Warehouse Operation&lt;br&gt;• Forklift Operation&lt;br&gt;• Supervising&lt;br&gt;• Cargo Handling</td>
</tr>
<tr>
<td>Transportation Companies</td>
<td>• Driving&lt;br&gt;• Supervising&lt;br&gt;• Forklift &amp; Machine Operation&lt;br&gt;• Management&lt;br&gt;• Asset management&lt;br&gt;• Stock Management&lt;br&gt;• Stevedoring</td>
</tr>
</tbody>
</table>
Skills availability was good in some areas but often difficult at the tertiary and artisan level. This is especially noticeable in the IT area. Good drivers and machine operators are always fairly difficult to recruit and ongoing training is required in these areas. Companies generally use employment consultants/agencies to recruit but also advertise and use word-of-mouth or factory-gate applicants. The working hours (shifts, week-ends, etc.) are often a deterrent.

Training and Development - The following Table 24 provides a good summary of how firms go about their training.

Table 24. Training and Development Sources

<table>
<thead>
<tr>
<th>Sub-sector</th>
<th>Industry Support</th>
<th>Local Govt Support</th>
<th>Other Govt Support</th>
<th>Tertiary Institution</th>
<th>In-House</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cargo Handling &amp; container Services</td>
<td>✓ Skills Development</td>
<td>None</td>
<td>Support from Transnet</td>
<td>Univ. Exams, Staff study support</td>
<td>✓ Driving ✓ Welding ✓ Technical ✓ Supervisory ✓ Equipment Operation ✓ ABET</td>
</tr>
<tr>
<td>Cartage contractors</td>
<td>None</td>
<td>None</td>
<td>SETA (Limited)</td>
<td>None</td>
<td>✓ Hazchem Driving ✓ Pro Driving ✓ Techniques ✓ Fatigue ✓ Management ✓ Advanced Driving</td>
</tr>
<tr>
<td>Customs Clearing &amp; Forwarding</td>
<td>✓ Maritime Shipping ✓ Clearing &amp; Forwarding</td>
<td>None</td>
<td>None</td>
<td>✓ Maritime Shipping ✓ Clearing &amp; Forwarding ✓ IDP Programmes</td>
<td>✓ Basic Training ✓ In-depth Training on shipping matters ✓ AIDS awareness</td>
</tr>
<tr>
<td>Export &amp; Import Services</td>
<td>✓ Skills Development ✓ Maritime Institute</td>
<td>None</td>
<td>None</td>
<td>✓ Maritime Courses ✓ Forklift ✓ First Aid</td>
<td>✓ Computer ✓ Forklift</td>
</tr>
<tr>
<td>Freight Services &amp; Warehousing</td>
<td>✓ Skills Development ✓ Transport</td>
<td>None</td>
<td>✓ Shipping ✓ Forwarding ✓ Customs Procedures</td>
<td>✓ M/C Operators ✓ Greystones (accredited in-house)</td>
<td></td>
</tr>
<tr>
<td>Storage &amp; Warehousing</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>✓ Tally Clerks ✓ Supervising</td>
</tr>
<tr>
<td>Transportation Companies</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>✓ Forklift ✓ Loading &amp; unloading containers</td>
</tr>
</tbody>
</table>

Many of the companies, especially the larger employers, make ongoing use of such institutes as the
- The Institute of Chartered Shipbrokers,
- The Maritime School and Transport College
- School of Shipping.

The Grindrod Group provide an annual grant to the New Forest High School where they have a maritime subject in Grade 10. Greystones have their own accredited in-house training school.

The Institute of Chartered Shipbrokers is a UK based organisation, which has 23 branches in key maritime centres worldwide. Durban is fortunate have one of these branches located in the City. Their key objective is to provide education and training in the shipping field so that people employed in the industry, especially those who are shore based may achieve professional levels of competence. Through their head office in London they are able to award internationally recognised professional
qualifications in shipping. They also offer a foundation diploma, which is aimed principally at those who are new in the industry. Contact details: Tel.: (031) 266 1381, Website: www.icssa.co.za.

The Maritime School and Transport College was established in Durban in 1986 by a master mariner who was a veteran trainer in the shipping industry. They offer an accredited certificate in International Trade specialising either in Shipping Practice, Ports and Distribution, or Customs Clearing and Forwarding. They also offer learnerships and skills programmes. Courses run throughout the year. (Contact Details: Tel.: (031) 205 7041, Website: www.samaritime.co.za)

The School of Shipping is Cape Town based but target prospective clientele throughout Africa. They provide training for anyone who wishes to enter the world of shipping. They offer various courses and workshops specifically aimed at land-based shipping functions. There is flexibility in their approach in that they offer courses either tailor made to meet individual company requirements, or courses on a full-time or part-time basis. (Contact Details: Tel.: (021) 421 4649, Website: www.schoolofshipping.co.za)

New Forest High School offers a Grade 10 and 11 subject in “Maritime Economics” and works closely with the industry and with the Institute of Chartered Shipbrokers (ICS) in this regard. They offer the accredited ICS foundation course as a matric subject. (Contact Details: Tel.: (031) 462 6206 (Ms. Pat Brooker)).

Sithengile Secondary School in Claremont offers a subject Maritime Studies in its Matric Grades.

The University of KZN has a Unit for Maritime Studies, which falls under the Faculty of Management Studies and is associated with the School of Economics and Finance. It offers programmes at Diploma, MCom and PhD levels. Contact Details: Tel: (031) 260 2994, Website: http://fms.ukzn.ac.za.

The Durban University of Technology (DIT) has a Department of Maritime Studies, which offers a 3-semester course leading to a National Diploma. The requirements for the diploma are the successful completion of three semesters (Level I, II, III), studying six subjects per semester, plus twelve months working as a trainee in industry. (Contact Details: Tel.: (031) 204 2111, Website: www.dut.ac.za)

From the above it appears that training and education for land-based shipping activities is reasonably well catered for in Durban. There is however, a large demand for training in the field of truck driving, machine operation and other technical/artisan skills. Most of this is done in-house, but there is probably an opportunity for the industry to consolidate this under one or more accredited schemes. This appears to be a potential issue for discussion in the Port Liaison Committee, or within a Shipping Institute should one be formed.

5.3.2.3 Cargo Sector Technology - Most companies indicated that they are fairly competitive in terms of technology in their field when compared to international technology best-practice, with a few indicating that they are not as competitive as they would like to be. The main difficulty in maintaining competitiveness being shortage of relevant skills, and costs. The general level of competition was deemed to be high.

A key issue is that operations are very time sensitive and it is therefore important to be well equipped in terms of skills and technology.

In terms of technology, 44% said that their sector is not unduly complex, 32% said it is fairly complex and 24% felt it is very complex. Those responding very complex tended to refer to computer and IT systems, particularly when their company dealt in more than one stage of the value chain. In respect of capital intensity, 44% said very capital intensive and the balance fairly capital intensive, with two companies responding not capital intensive. Capital items are mostly in the transport sector, but cargo handling equipment such as cranes, forklifts and conveyor systems can be quite large capital items. Cranes, which are expensive are mostly leased or hired where required for short time periods. The main exception was the Export & Import Services sub-sector, which indicated that they find their business very capital intensive. The technology for most sub-sectors is available and obtained from both local and imported sources.
All materials sourced by all companies in the Durban Cargo Industry, are available and sourced locally in Durban, but are also available elsewhere in KwaZulu-Natal or South Africa.

Warehousing technology is generally outdated by international standards, but is compensated for in terms of operating costs by using labour intensive methods. Computerised conveyor and handling systems are unknown in Durban and warehouse layout designs are generally inefficient. Whilst some warehouses have drive-through loading and unloading procedures, many struggle with inadequate parking and turning space. This applies particularly to the large articulated trucks.

The Department of Customs were favourably viewed by all companies interviewed in terms of systems efficiency and co-operative attitudes by staff. The whole system of clearing and forwarding appears to be moving towards a fully electronic paperless system. Ideally companies would prefer the customs office to be located at Bayhead, but in view of the trend towards a paperless system, that could soon be irrelevant.

6.0 ANALYSIS OF SMME OPPORTUNITIES

6.1 SMME Opportunities in the Shipping Sector

Capital is the main barrier for entry for SMME operators. The shipping companies state that there are many opportunities for SMMEs along the whole supply chain when capital is not the major issue. However, many SMMEs are impatient and tend to want quick results. The following suggestions were put forward by some of the companies interviewed.

- Opportunities for SMMEs appear to result mainly from sub-contracting by the shipping operators and agents. These companies typically have assisted owner-drivers to provide transport services, helping them by including them in the company’s insurance cover as it is a problem for them to obtain insurance cover at the right price on their own.
- There is potential for SMMEs to be developed in the agency business, clearing and forwarding, and warehousing (providing services such as packing, unpacking, etc.).
- Some firms outsource security operations to SMMEs.
- One company uses 150 owner-drivers with their own trucks but supplies them with trailers (600 trailers in all). The owner-driver scheme provides secure work for truck owners, the shipping company does all the administrative work, and such SMME initiatives are regarded as having been very successful.
- It should be added that many supporting firms to the shipping lines and agencies are themselves small operators with fewer than 10-20 employees.

6.2 SMME Opportunities in the Cargo/Logistics Sector

The majority of the companies use SMME sub-contractors to support their production. A small minority indicated that they have SMME firms as their customers. Furthermore, many of the service support companies are themselves SMMEs, many having less than 10 employees. Table 25 below indicates areas of opportunity for SMMEs as recommended by different sub-sectors relating to their industry.

<table>
<thead>
<tr>
<th>Sub-sector</th>
<th>SMME Areas of opportunity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cargo Handling &amp; Container Services</td>
<td>Assistance to avoid delays at the terminal</td>
</tr>
<tr>
<td>Cartage Contractors</td>
<td>Unskilled labour, administration services, semi-skilled labour</td>
</tr>
<tr>
<td>Customs Clearing &amp; Forwarding</td>
<td>Transportation, courier services, warehousing, messenger services, clearing, forwarding, logistics services.</td>
</tr>
<tr>
<td>Export &amp; Import Services</td>
<td>Fumigation, manufacturing of special pallets, trade on imports &amp; exports, security, transport, property maintenance.</td>
</tr>
<tr>
<td>Sub-sector</td>
<td>SMME Areas of opportunity</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>---------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Freight Services &amp; Warehousing</td>
<td>Warehousing, courier services, messenger services, manufacturing &amp; export of agricultural products, transport, cargo repairs, tally. Also supply uniforms and act as labour brokers.</td>
</tr>
<tr>
<td>Storage &amp; Warehousing</td>
<td>Labour Broking, transport/logistics, mechanical services dealing with workshop parts &amp; equipment supply, punctures, etc.</td>
</tr>
<tr>
<td>Transportation Companies</td>
<td>JV Partners – outsource cartage to owner-drivers. In return company supplies admin, vehicle service facility and messenger service to trucks re next load, etc.</td>
</tr>
</tbody>
</table>

The Cargo Sector, by virtue of the variety of operations, many of which are not unduly complex in respect of technology, inevitably attracts small entrepreneurs who have limited start-up capital. Many of them set up close corporations and start by sub-contracting to the larger companies. In the interview sample taken from Braby’s database, approximately 38% were close corporations. The more successful SMMEs branch out on their own as soon as they have learnt the business and built up their contact network. Some of the transport companies have formalised agreements with individual truck owners to carry out their cartage requirements. In return they undertake all the administration, processing of orders, marketing of services and may even provide truck maintenance services in-house. Many of the interviewed firms confirmed that they outsource certain activities/services to SMMEs.

This is a fertile ground for entrepreneurial training and skills development. With very good growth prospects into the future, the industry would benefit substantially by having a more organised and cohesive approach to training and personnel development. The larger organisations such as the public companies are reasonably well organised in this respect but many of the medium and smaller sized firms do not have clear resource development programmes in place.

It is recommended that the City operated entrepreneurial support centres (ESCs) such as the Umkhumbane ESC in Cato Manor be approached with a view to include the maritime Sector as one of their main target sectors for business mentoring.

7.0 ASSESSMENT OF THE PORT AND MARITIME SECTORS

7.1 Efficiency Indicators

7.1.1 Ratings — In the Shipping interviews respondents were asked to rate the efficiency and cost-competitiveness of the port on a scale of 1 to 5 with 5 being the highest. The four aspects to be rated were: (i) general efficiency and cost competitiveness (ii) cargo loading and unloading, and (iii) availability of ship servicing facilities (bunkering, chandlers, crew support, in-port security and marine supplies). The ratings were made in relation to other ports throughout the world that were used by the particular company. Clearly, they were subjective, reflecting the gut feel of the respondents.

- Of the four aspects the availability of ship servicing received the highest approval rankings of 3 or 4 (median 3).
- The cargo loading aspect was rated 2 by all respondents.
- For both general efficiency and cost competitiveness the ratings ranged from 1-3 with a median of 2.

7.1.2 Ship Waiting Time — The interviews were conducted between late August and early October 2006. The average waiting time from ship arrival outside the port to berthing will clearly vary from month or month or week to week depending on factors such as weather conditions. The average time being experienced by the various shipping companies was given as between 12 hours and five days. Most replies were between 2-4 days. Although weather clearly plays a part (for example, in late October high winds disrupted shipping movements in the port for a period of over a week), the long waiting times were attributed mainly to low productivity in the port. This, in turn, is related to cargo loading and unloading, as will be discussed in Section 7.1.3.

7.1.3. Cargo Loading and Unloading Times — Productivity in the ports was regarded by shipping companies as low, particularly at the DCT where it was stated to be only 50% of the international
norm. This view appears to stem from figures relating to average number of TEUs moved per crane and per berth at a number of ports, as shown in Table 26.

### Table 26. Container-handling Rates at Various Ports

<table>
<thead>
<tr>
<th>Country</th>
<th>Port</th>
<th>No. TEUs per annum</th>
<th>Av. crane moves/hr.</th>
<th>Av. moves per berth/hr.</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colombia</td>
<td>Cartagena</td>
<td>n.a.</td>
<td>52.0</td>
<td>69.5</td>
<td>n.a.</td>
</tr>
<tr>
<td>USA</td>
<td>Virginia Terminals</td>
<td>1,980,000</td>
<td>40.0</td>
<td>78.1</td>
<td>2005</td>
</tr>
<tr>
<td>Guatemala</td>
<td>Santo Tomas</td>
<td>411,153</td>
<td>40.0</td>
<td>n.a.</td>
<td>2004</td>
</tr>
<tr>
<td>Japan</td>
<td>Yokohama</td>
<td>2,873,288</td>
<td>38.0</td>
<td>n.a.</td>
<td>2005</td>
</tr>
<tr>
<td>USA</td>
<td>Seagirt Terminal, Baltimore</td>
<td>n.a.</td>
<td>35.0</td>
<td>n.a.</td>
<td></td>
</tr>
<tr>
<td>China</td>
<td>Yantion Container Port</td>
<td>7,600,000</td>
<td>35.0</td>
<td>78.1</td>
<td>2005</td>
</tr>
<tr>
<td>Dominican Rep.</td>
<td>Caucedo</td>
<td>n.a.</td>
<td>35.0</td>
<td>n.a.</td>
<td></td>
</tr>
<tr>
<td>Malaysia</td>
<td>Westport</td>
<td>3,665,201</td>
<td>35.0</td>
<td>78.1</td>
<td>2006</td>
</tr>
<tr>
<td>Taiwan</td>
<td>Kaohsiung</td>
<td>9,774,670</td>
<td>35.0</td>
<td>78.1</td>
<td>2006</td>
</tr>
<tr>
<td>Malaysia</td>
<td>Tanjung Pelepas, K/Lampur</td>
<td>4,770,000</td>
<td>33.0</td>
<td>78.1</td>
<td>2007</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>Colombo</td>
<td>2,450,000</td>
<td>32.0</td>
<td>78.1</td>
<td>2005</td>
</tr>
<tr>
<td>Oman</td>
<td>Salalah</td>
<td>2,500,000</td>
<td>30.0</td>
<td>78.1</td>
<td>2005</td>
</tr>
<tr>
<td>New Zealand</td>
<td>Tauranga</td>
<td>423,138</td>
<td>30.0</td>
<td>78.1</td>
<td>2006</td>
</tr>
<tr>
<td>Spain</td>
<td>Algeciras</td>
<td>3,179,614</td>
<td>28.0</td>
<td>53.1</td>
<td>2005</td>
</tr>
<tr>
<td>Australia</td>
<td>Sydney</td>
<td>1,445,000</td>
<td>27.0</td>
<td>53.1</td>
<td>2005</td>
</tr>
<tr>
<td>Djibouti</td>
<td>Djibouti</td>
<td>241,122</td>
<td>25.0</td>
<td>53.1</td>
<td>2005</td>
</tr>
<tr>
<td>Malta</td>
<td>Malta Freeport</td>
<td>1,461,174</td>
<td>24.0</td>
<td>53.1</td>
<td>2005</td>
</tr>
<tr>
<td>UK</td>
<td>Southampton</td>
<td>1,380,000</td>
<td>22.0</td>
<td>60.6</td>
<td>2005</td>
</tr>
<tr>
<td>USA</td>
<td>Portland, Oregon</td>
<td>255,745</td>
<td>22.0</td>
<td>60.6</td>
<td>2002</td>
</tr>
<tr>
<td>USA</td>
<td>Conley Terminal, Boston</td>
<td>145,474</td>
<td>22.0</td>
<td>60.6</td>
<td>2002</td>
</tr>
<tr>
<td>Mauritius</td>
<td>Port Louis Container Termn</td>
<td>893,714</td>
<td>19.4</td>
<td>60.6</td>
<td>2001</td>
</tr>
<tr>
<td>South Africa</td>
<td>Durban</td>
<td>1,898,483</td>
<td>17.6</td>
<td>38.2</td>
<td>2005</td>
</tr>
<tr>
<td>Jamaica</td>
<td>Kingston</td>
<td>n.a.</td>
<td>17.0</td>
<td>n.a.</td>
<td></td>
</tr>
<tr>
<td>Gambia</td>
<td>Banjul</td>
<td>34,752</td>
<td>15.0</td>
<td>n.a.</td>
<td></td>
</tr>
</tbody>
</table>

**Source:** The source of this information is a table provided by two shipping companies for Durban from foreign ports, and various port websites. The companies were unable to provide a reference, and there appears to be no one central source of information on this aspect of port operations. The overseas head office of one line stated that there was no official publication containing comparative figures, and felt that it was difficult to compare ports because of different vessel sizes, traffic volumes, labour skills, work ethic, and port and terminal conditions. The point was also made that it is technically more difficult to work ships at a way port such as Durban than at a genuine terminal port such as Rotterdam, and that, therefore, comparisons would be unfair.

These caveats notwithstanding, Durban does not appear to feature well by international comparisons. In addition to the ports listed in the table, a number of other comparisons were made by respondents with reference to the average number of TEUs moved per crane per hour. The figures for Maputo, Walvis Bay and Dar es Salaam were given as 23, for the better West African ports such as Tema 22-24, for Rotterdam 35, and for Singapore and Hong Kong 45-50. An average of 30-35 was regarded as an internationally acceptable rate. It was acknowledged that productivity levels at the DCT have improved from 12 containers per crane per hour to 17-18 moves per hour, but it was felt that it could reach 30 – a level it has achieved at times for short periods.

Berth productivity refers to number of moves for the vessel call, and could involve more than one crane being used at the berth. Although Table 21 gives productivity at the DCT as 17.6 crane moves per hour, one major shipping line stated that its experience of current gross berth productivity was between 17 moves per hour for the smaller vessels calling at berths 200-201 (where there were older cranes with more frequent breakdowns) to 27 moves per hour for the larger vessels calling at berths 202-204. This company believed that DCT berth productivity should be able to achieve 40-50 moves per hour. It appears that Durban port’s productivity with regard to cargo loading and discharging is indeed lower than that of many ports overseas and of some African ports, especially those in West Africa where the servicing of ships was stated to be more efficient than in Durban.

It is clear that the quantity and quality of cranes and other handling equipment have a major effect on port productivity. Some shipping lines believe that cargo-handling facilities are obsolete, and that this factor is responsible for bottlenecks that are occurring alongside in the port. RTGs and high-reach stackers are required in order to more efficiently utilise space in the port. In order to move 30-40 TEUs per berth per hour, the DCT needs 3-5 gantry cranes per vessel. At present there are only two
per vessel and a berth moves 17-18 boxes per hour. The industry points out that Pier 1 in Durban does not have the correct equipment for a container port: it was handling only 6 TEUs per hour per crane. There were three cranes, making berth productivity 18 TEUs per hour. SAPO was criticised for not spending more on landside cranes in order to load trains: rail cranes load 14 TEUs per hour and there are only two such cranes.

Different equipment is also required to enable the DCT to increase the height of its stacks. Stacking height depends on the type of operations employed. The straddle carrier operations at the DCT are inefficient, enabling containers to be stacked only 2-3 high in rows one container wide. Rubber-tyred gantries or RTGs (such as are used in Singapore) would enable stacks to be 5-6 containers high and up to four wide.

(See Section 4.3.2 for latest developments at Pier 1 and DCT)

Apart from inappropriate equipment there is also a lack of adequate staff at the DCT, especially gantry crane drivers and experienced stevedores. SAPO has invested in new cranes and other equipment but has not increased the number of gangs. Thus, instead of being able to use all 19 cranes simultaneously, only 12 cranes can be worked each day because of shifts and absences. Productivity is low whereas this is not a problem at overseas ports. Within the European and US models the port entity operates autonomously under the control of the City. Ports are profitable with higher productivity than in South Africa, and port work is well paid and prestigious. In South Africa the salary structure is the same as that of the old South African Railways and Harbours. Today a crane driver’s job is a high-tech one and has changed considerably over the years without any adjustment in the salary scale. Crane drivers and straddle carrier drivers determine the productivity of a gang, and should be paid top salaries as they are in Europe and the US.

Poor productivity means that ships have to stay longer in port, thus increasing costs. The average time to unload and clear cargo from ships mainly given as 24-28 hours, but one company stated that the turnaround time for a large vessel in the port was 4.5 days and for a small vessel 2.5 days, whereas it should not be more than eight hours. In the case of vessels docking at Island View this was attributed in part to the poor electricity infrastructure there, which slowed the loading of vessels. Another reason advanced for poor productivity was the fact that DCT is a parastatal monopoly, and therefore did not have to operate in a competitive environment.

In summary, shipping companies believe that port productivity at the DCT is low by international comparison, and that it can be improved only by considerable investment in capital equipment (a different type of train, i.e., RTGs, and high-reach stackers), and by fundamentally altering the institutional structure of the port to allow a port authority to operate autonomously along US/European lines, ending the parastal monopoly at the DCT and enabling the port authority to introduce a modern salary structure and attract staff with greater skills. The infrastructure defect that needs to be remedied relates to the electricity supply at Island View. The municipality is responsible for this, and it could also push, together with port users, for the adoption of a port authority model as a partnership between the municipality and port users.

In response to the above criticisms from the shipping fraternity SAPO's CEO said on 15 September 2006, “Over the next three years, SAPO's human resource development will be a key focus area, including the completion of refining the container strategy, business model and port-rail integration. Cost containment within SAPO and reducing the costs of doing business in the economy are the cornerstone of SAPO's strategy. Our customers will benefit from the improved efficiency.”

(For more details see http://ports.co.za/sapo/article_2006_09_15_1850.html)

7.1.4 Offshore Services — Offshore services such as radar and radio communications in the main were regarded as being no problem, meeting acceptable standards and using modern equipment.

No particular issues were flagged as problems that needed to be addressed.

7.1.5 In-port Services — Most however, were critical of pilotage delays which were a particular problem during shift changes and when the helicopter is being serviced as there is apparently no provision for a rented replacement machine. Harbour pilots are reported to be increasingly inflexible
after hours. There was a shortage of pilots, and this leads to delays in the vessels entering port even if a berth is available; the average pilotage delay was given by a number of companies as two hours. The poor quality of pilots was also regarded as a serious problem. Private tugs and pilots are not available, and this shortage can see stevedores on standby for up to 24 hours awaiting the berthing of a vessel.

Dredging was regarded as the main problem. The depth at the DCT at the lowest tide is normally 12.2 metres but this has fallen over the last few years to 11.9 metres. Durban requires 12.5-13 metres at low tide, but the draft restriction at present is 11.6 metres including safety margins. By comparison, the average draught of a ship is 12.5 metres.

Thus, two main issues were identified. These were the critical shortage of pilots, their poor quality, and the lack of adequate dredging. The municipality’s scope for direct action is limited, apart from acting in concert with port users to put pressure on NPA to address these issues.

Note: It has since been announced that a major dredging programme will be undertaken in conjunction with the widening of the port entrance commencing later in 2007.

7.1.6 Port Costs — Durban was regarded by the shipping industry as a high-cost port. The SAPO tariff was on the high side by international comparison, equipment tariffs being 20-40% above the norm, while stevedoring was becoming expensive. The NPA’s docking charges are 3-4 times the prevailing world rates, which makes docking costly and lowers the incentive for ships to berth at Durban. The exchange rate also has a significant effect on the industry as costs are incurred in rands while invoices are submitted in dollars. The up and down movements of the Rand:$ exchange rate at any point in time impacts on costs and profit margins.

High costs were attributed by some companies to the existence of monopolies. Companies were critical of the change in state policy on privatisation, and felt that government operation of the DCT was an enormous disadvantage. They felt that it was critical to pursue privatisation as state-owned enterprises do not run efficient operations. At the multi-purpose terminal all SAPO operations are run at a loss whereas the private sector operates at a profit. The DCT is a monopoly and makes a huge profit, but would not survive if the private sector were allowed to compete. The car terminal is another monopoly operating at a profit. SAPO’s profits in 2005 were mostly contributed by the DCT and the car terminal. There is no connection between the provision of services by the SAPO and the charges levied. The iniquitous ad valorem wharfage charge has been changed to a cargo-due rate. Despite the poor service and the lack of investment, the NPA makes substantial profits.

The slow loading and unloading times in the port mean higher costs. Demurrage is paid direct to the shipowners in foreign exchange, and affects the freight rate and unit price. Demurrage could be $10,000-30,000 for a small vessel per day, increasing to $50,000 for the larger vessels. The average cost to the shipowner of a vessel is $30,000 per day, but ships carrying crude oil can cost as much as $60,000 per day. Ships stay in port for an average of two days. One company pays for fixed berthing windows, but most do not and they suffer financially because of the time delays.

The key issues that need to be addressed in relation to port costs are very similar to those summarised at the end of Section 7.1.3, i.e., the removal of the parastatal monopoly of the DCT, the privatisation of state-owned enterprises and, by implication, the establishment of an autonomous port authority for Durban. Similarly, the role for the municipality is along the lines of that set out at the end of Section 7.1.3.

The above views were put forward quite forcibly by some of the larger shipping companies and are reported in a fairly verbatim manner here. These are major strategic issues and it is recommended that they be placed on the agenda of the Port Liaison Committee so that consensus within the industry can be judged more objectively and the question of private sector involvement in the DCT be more intensely debated with the Port authorities. Clearly the industry is anxious to achieve greater involvement in certain key cargo handling activities, believing that it can raise efficiency and lower costs.
7.1.7 International Competitiveness — Mention has already been made of the fact that Durban is not regarded as internationally competitive in terms of servicing of ships or of costs. Generally, the international competitiveness of the port was regarded as poor or no better than average, but mainly poor. Durban is viewed as having deteriorated and, although it cannot be regarded as a second-class port, it could be turned into a first-class port, which it is not considered to be at present. It is not developing facilities in time, the work organisation is inefficient and performance poor. This was attributed to the fact that SAPO is a monopoly. In order to accommodate the rate of traffic growth, port operations need to be privatised. Transnet has been slow to understand the problem and organise itself sufficiently to improve this situation. Individual comments were that its human resources are poor, a small number of lines are trying to reduce their operations in Durban, there is too much pressure on the existing port, and one company is using Port Elizabeth not just as a port of call but as a turnaround port.

Although SAPO and the NPA are trying hard to address the problems, they are bureaucracies and monopolies. Low productivity is an important contributory factor to the declining international competitiveness. To reach a rate of 35 boxes per crane per hour, political, organisational and structural problems need to be overcome and middle management and skills at the terminals improved. The trade unions are considered a major problem, the DCT and the new Pier 1 having different unions with resulting problems. The work-to-rule approach of trade unions is a major stumbling block, and it was felt that Durban could reach 30 boxes per hour in a short period if there was a change attitudes at the terminal.

An increasing number of shipping agents, stevedoring companies and other port activities are opening offices in Maputo and Walvis Bay as the benefits of the Maputo Corridor and the Trans-Kalahari Corridor are becoming more attractive. A capital investment worth $70 million that had been earmarked for Durban has now been initiated in Walvis Bay because of NPA apathy in addressing issues central to the potential investment. Substantial investments are being made in Walvis Bay involving large companies such as Grindrod and Maersk, in order to increase traffic through the port to Johannesburg via the Trans-Kalahari highway. The Namibian port operator, Namport, is aiming to guarantee a 72-hour turnaround on cargo from portside to Johannesburg. In addition, Walvis Bay is six sailing days closer to Europe than is Durban (a total of 12 days saving per round trip). While capacity at Walvis Bay is currently limited to an estimated 150,000 containers per annum, investments in capacity could increase this figure significantly. There is also potential for further diversion of trade from Durban to Maputo.

The issues that need to be addressed in the context of international competitiveness are the same as those highlighted in Section 7.1.3 and 7.1.6 above, save for the threat to Durban now emerging from the Walvis Bay Corridor and, to a lesser extent, Maputo. Competition between ports is obviously increasing steadily. The municipality should possibly consider launching a marketing campaign to safeguard Durban’s port traffic from being diverted to other regional corridors, by promoting its various attributes through its website.

7.1.8 Port Authority — The prevalent view among shipping companies is that there should be an autonomous port authority in each port. The companies are in favour of inter-port and intra-port competition rather than the present policy of centralisation. Some companies believe that centrally operated ports cannot be successful. They point out that South Africa has good competition policy and legislation as well as good environmental legislation, and that there is no need for the state operation of ports. The business climate should determine what each port would do, and port, rail and road transport inefficiencies would be quickly shown up by the markets. A public-private partnership along the lines of the Port of New York Authority would be welcomed by the industry; this would involve the municipality and the maritime industry in the running of the port.

As pointed out in Section 7.1.3 above, the municipality could act with port users to influence the government to establish an autonomous port authority for Durban.

7.1.9 Cargo/Logistics Sector Assessment of the Port — The companies in the cargo sector were asked some specific questions relating to the port as it affects their operations. They were also asked for their views on the general competitiveness of the port.
**Question 1.** “Where do you find the main bottlenecks in the Durban cargo handling system to be?”

Maydon Wharf was singled out by those companies located there as having a dated township layout, which was originally designed for rail transport. Now that articulated trucks are the order of the day, severe traffic bottlenecks occur daily. There is insufficient truck parking and problems with lack of turning space. The properties are not designed for easy truck entry and exit. When there is a train shunting the entire road system seizes up causing lengthy delays. There are also serious problems with stormwater drainage and environmental maintenance. Vagrants and petty theft are a problem.

Container Depots – There are insufficient depots and the existing ones are crowded with poor access. There is a strong preference for proximity to the port within a maximum radius of 5 Kms. It would be more efficient if the different categories of containers could be separated into broad groups such as the following:

- Full Containers for local delivery
- Full Containers for inland delivery
- Full Containers for shipping
- Empty containers for each of the above destinations
- Transhipment containers

An additional Container terminal was also recommended. Difficulties are experienced in balancing up outbound and inbound container loads for the long distance hauliers. This is related to the imbalance in import and export cargo profiles, where the latter has a higher proportion of bulk cargo. There was significant support for a container depot at Cato Ridge amongst companies who do business with inland companies. The point was strongly made that it would make sense particularly when the rail transport service is upgraded.

**Question 2 – “What is your experience of the average time**

(i) To gain access to Durban Container Terminal (DCT)?

(ii) To unload and clear cargo from ships?”

Answers to Part (i) – Respondents said anywhere from 2 to 7 hrs, depending on the time of the day, with ± 4 hrs the norm. Trucks that arrive early are dealt with in less than half an hour but by mid-day there is a queue of at least 4 hrs.

Answers to Part (ii) – There was substantial variation in the answers, with most respondents focusing on the delay from arrival of the ship in the bay. There were also differences between container unloading and bulk and breakbulk. In general they said it takes about 2 days from the time the vessel arrives in the bay but bulk ships are often delayed for longer. Once berthed the unloading proceeds at about 17 containers an hour. For bulk liquid the situation is similar, with 2 days delay after vessel arrival and approximately 2 hrs to load or unload a tanker truck.

There were some severe criticisms about worker attitudes at DCT such as protracted delays at change of shifts, work stoppages at tea time irrespective of the number of trucks waiting, and that there is much inefficiency in the operating system.

Of particular interest was the recommendation that SAPO consider introducing something similar to the PierPass system used in California. This system differentiates charges for trucks entering the wharfside area according to the time of the day. Attractive incentives are offered for night-time loading/unloading. Apparently California had serious congestion problems and the introduction of the PierPass system produced immediate improvements.

One operator provided the following estimates of typical costs to transport carriers:

- DCT presently handles approx. 2500 road gate moves per day. At peak periods a delay of up to 2-3 hrs extra can be incurred by road transport. This delay can affect approx. 600 trucks daily. At a cost of R300 standing time per hour, 600 trucks equates to R360 000 per day, or R100 million over a 280-day working year. These costs have to be built into the base-price of the transport.”

**Question 3 – “General comments on international competitiveness of Durban Port”**
Whilst some of the respondents conceded that there have been improvements during the past twelve months, the general view of the efficiency and competitiveness of port operations are that they are at best average. The following are some of the main viewpoints.

- Several cargo companies were in favour of privatising DCT and other port operations.
- Continuity of terminal management is seen as important and it is felt that management changes have been too frequent.
- Certain restrictions on the private sector tend to favour SAPO, i.e. the playing fields are not level between SAPO and private operators.
- Security is generally poor and crime management is lacking, e.g. theft off rail cars and parked trucks.

**Customs Clearing** – Very efficient but location of Customs offices not ideal for transport carriers. As system becomes more electronic this may solve problem.

**Traffic** – There are many serious bottleneck areas, e.g. Bayhead Road, Island View, Maydon Wharf, Esplanade, Point Road (heavy trucks, car terminal). The Bayhead congestion is a major issue and two improvements are seen as urgent priorities, viz. the construction of the Khangela Bridge from Bayhead Road to Sydney Road, and the construction of the link road from Langeberg Road to Edwin Swales Drive.

There are problems with truckers stopping in Edwin Swales Drive to purchase food, etc. Trucks regularly break traffic lights, stormwater drain covers, bollards and pavements. It is felt that there should be a permanent traffic police presence along Edwin Swales Drive, with pointsmen etc.

### 7.2 SWOTS Analysis of Shipping and Cargo/Logistics Sectors

#### 7.2.1 Shipping Sector SWOTS

**Strengths**
- Strong International Representation
- Strong local shipping companies
- Over a century of local experience
- Forward integration into cargo logistics
- Good pool of local skills

**Weaknesses**
- Distance from Head Offices
- Port’s inability to handle very large vessels
- High local costs
- Skills development structures

**Opportunities**
- Access for Post-Panamax vessels
- Durban’s potential as a hub port
- Southern African economic growth
- NPA/SAPO Capex programmes
- More privatisation of port cargo operations
- A more effective model for port management
- Better Industry Institutional co-operation

**Threats**
- Port inefficiency
- Port delays
- Too many port stops along SA coast

#### 7.2.2 Cargo/Logistics Sector SWOTS

**Strengths**
- High diversity of operations
- Over a century of local experience
- Good pool of local skills
- Diversification of larger groups

**Weaknesses**
- Dated warehousing designs
- Dated materials handling systems
- Insufficient container parks
- Lack of modern logistics parks
Lack of adequate truckstops  
Transport bottlenecks  
Weak rail system  
Port Delays  

**Opportunities**  
Redevelopment of Maydon Wharf  
Redevelopment of Clairwood & Jacobs  
Transnet Rail Capex programme  
Better Industry Institutional co-operation  

**Threats**  
Port Cargo handling inefficiency  
Inefficient road structures  
Competition from other ports (Walvis Bay, Ngqura, Maputo, Richards Bay)  
Skills development systems  

7.3 Port Layout and Capacity

The shipping industry is very concerned about the ability of Durban to continue to be a major container, bulk and breakbulk port. With container traffic growing at about 10% per annum and growth of about 8% forecast over the medium term, how to accommodate new traffic is a major issue. Some new traffic can be handled merely by efficiency gains but the provision of new berths is also required.

The question of productivity was dealt with in Section 7.1.3 above. If the DCT were able to reach the acceptable international rates of crane and berth moves per hour mentioned in that discussion, it could handle at least 40% more containers (and perhaps even double the number), and eradicate the congestion problem for the next five years or more, thus coping with the growth in trade for this period. One company pointed to the example of Hong Kong where there are six major terminals in close proximity, one of which, no bigger than berths 204-206, handles twice the DCT volume. A dramatic increase in productivity would go a long way to solving Durban’s congestion problems, and the port authorities tend to lose sight of the fact that the problem does not entirely revolve around a shortage of berths.

Nevertheless, this would not obviate the need to install additional berthing capacity by about 2012-2015.

As previously discussed, considerable work needs to be done in the port in order to accommodate the increase in ship size. The next generation of ships due to come into operation in 2008 will carry 5,500 TEUs. One shipping line calling at Durban is constructing post-Panamax vessels that are 40 metres wide, 272 metres long and carry 5,552 TEUs (internationally they exceed 300 metres). Safety limits in the entrance channel are currently inadequate for such vessels to be brought into the port of Durban and the NPA are currently busy with a major capital programme aimed at both widening and deepening of the entrance channel as well as deepening at berths. Deepening is generally regarded as the higher priority and has become very urgent.

In addition to access problems there are also environmental issues surrounding the expansion of the present port. Even if the number of berths is increased, the harbour deepened and the entrance widened, this would not be sufficient to cater for traffic growth beyond another 20 years. In planning expansion, however, it is regarded by the shipping industry as absolutely essential that it be consulted at all stages. The industry believes that top international consultants with experience of development of major ports elsewhere should be commissioned to assist in port planning. They argue that the planning processes employed at Rotterdam and Singapore should be benchmarks for Durban if costly mistakes such as the construction of the “slab” at the Point are to be averted, and that it is imperative that both the NPA and the city understand what internationally competitive ports will look like in 20 or 30 years time.

The situation has been aggravated by the rapid escalation in motor vehicle cargo volumes, both import and export. Volumes are expected to continue growing over the next 10 years. Urgent discussions are in progress between the city and Transnet as to the optimal location for an additional car terminal. The decision is a complex one as in the longer term the question of a possible dig-out port expansion also comes into the equation.
One of the dangers is that the Automotive industry is a highly fashion conscious industry and technological change is rapid. Alternative energy sources to oil are being seriously considered. It is virtually impossible to predict the global structure of the Auto industry beyond the next ten years. Durban might find itself in the pound seats, but our local plants may also find themselves technically out of step with new developments. Fashion can be a ruthless destroyer as General Motors have experienced in the US.

Dig-out Port Options – Talk about the siting of a dig-out port expansion is appropriate at present, but lack of consensus about the best format and location is creating a great deal of uncertainty amongst town planners and property developers, let alone business investors. Instead of postponing this decision to the eleventh hour, it would be much more helpful, particularly to the City, if the decision could be brought forward as it has very wide implications for the direction of Durban’s economic development.

7.4 Other Strategic Issues

7.4.1 Richards Bay Factor — There is a lobby of opinion, which advocates moving most of the breakbulk and bulk cargo to Richards Bay, and for Durban to focus on containers, bulk liquids and motor vehicles, with only small quantities of other cargo types. This is the so-called “easy” route, but the economic implications for Durban are very serious. As has been outlined in previous chapters, the cargo/logistics pipelines involve a large number of companies, which are collectively very substantial employers. A quick decision to rationalise Durban’s cargo mix by moving large chunks to Richards Bay would destroy hundreds of local jobs and severely impact on the city’s economy. Ships also find it economically unattractive to carry split cargos to two closely located ports. Thus strategic moves of this nature should be treated very circumspectly and at the very least, first discussed and negotiated with the local industry to quantify the full economic implications before any formal decision is taken.

It is possible that some of the cargo destined for Gauteng could be effectively routed through Richards Bay, but cargo for Durban, most of KwaZulu-Natal and the Free State is more cost efficiently routed through Durban. It is also very important to maintain reasonable diversity in the cargo mix as it is less risky than having too many eggs in one basket and many of Durban’s shipping firms are set up to handle cargo diversity.

7.4.2 Environment and Tourism — In addition to environmental issues regarding the expansion of the port and the provision of more berths, there are concerns regarding the polluting effects of some existing cargo handled. In particular, the handling of scrap steel at Maydon Wharf was mentioned as an error. Scrap, together with old vessels, which should not be allowed into the port, pollutes the water in the harbour.

Tourism is a central economic activity in the metropolitan region, and the bay has an important role to play in the further development of this sector. However, the international security aspects and the consequent need for control must be borne in mind. The shipping industry would prefer the south side of the bay to be devoted to commercial freight activities with the Esplanade and Point areas being the focal points of recreation, tourism and passenger facilities. It was pointed out that a working harbour such as Durban, sharing the bay with non-commercial activities, should be an added tourist attraction for the city, but that it needed to be properly planned, developed and marketed.

The bay is underdeveloped so far as facilities for long-shipping activities are concerned, the result being that it does not make the contribution to the city’s tourism sector of which it is capable. The municipality needs to accelerate upgrading of the Esplanade and Point areas, especially by controlling the volume of heavy-vehicle and hazardous goods traffic, and to invest in the improvement of facilities for sporting activities such as sailing and rowing.

In this respect and in light of the good progress being made with the Point development, the siting of a cruise-liner/passenger terminal linked closely with a waterfront entertainment and leisure area, is becoming important. International cruise-liners, including the QE2 have docked regularly at Durban in the past, and apart from the direct injection of spending, will generally enhance the local tourism image.

7.4.3 Cargo Growth Projections
7.4.3.1  Bulk & Breakbulk — It is difficult to forecast future volumes of bulk and breakbulk cargoes, and the total cargo handled in these two categories has averaged growth of only 1.6% pa over the past ten years. However there has been a great deal of uncertainty during that period due to the political changes, during which import tariff protection has been substantially reduced. The industrial sector has undergone a major restructuring process and China has become a major importer of basic resource-type raw materials and a major exporter of budget priced consumer goods.

For the purposes of looking into the future, three growth scenarios have been used to help assess the future needs of the port and especially the cargo/logistics sector of the City. The three growth rates selected are 2%, 3.5% and 5%, and the compounding effects of these three growth rates are shown in Table 27 below.

Table 27.  Three growth scenarios – Bulk & Breakbulk

<table>
<thead>
<tr>
<th>('000 Tons)</th>
<th>2006</th>
<th>2010</th>
<th>2015</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 Scenarios:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.0% pa</td>
<td>43,861</td>
<td>47,477</td>
<td>52,418</td>
<td>57,874</td>
</tr>
<tr>
<td>3.5% pa</td>
<td>43,861</td>
<td>50,332</td>
<td>59,778</td>
<td>70,998</td>
</tr>
<tr>
<td>5.0% pa</td>
<td>43,861</td>
<td>53,313</td>
<td>68,043</td>
<td>86,841</td>
</tr>
</tbody>
</table>

Effective Growth %:
<table>
<thead>
<tr>
<th></th>
<th>2.0% pa</th>
<th>3.5% pa</th>
<th>5.0% pa</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 Year Period</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2000 – 2003</td>
<td>-</td>
<td>8.2%</td>
<td>14.8%</td>
</tr>
<tr>
<td>2001 – 2004</td>
<td>-</td>
<td>21.5%</td>
<td>36.3%</td>
</tr>
<tr>
<td>2002 – 2005</td>
<td>-</td>
<td>14.8%</td>
<td>36.3%</td>
</tr>
<tr>
<td>2003 – 2006</td>
<td>-</td>
<td>21.5%</td>
<td>36.3%</td>
</tr>
<tr>
<td>2004 – 2007 est.</td>
<td>-</td>
<td>21.5%</td>
<td>36.3%</td>
</tr>
</tbody>
</table>

Thus if a compound growth rate of 2% pa is achieved, by 2020 the tonnage handled will have grown by almost 32% to around 58 million tons, and if the most optimistic scenario of 5% pa is achieved, cargo volumes will have more than doubled. Given the rate at which the SA economy is improving it is reasonable to expect volumes to be up by around 20% by 2015 and 30 – 35% by 2020.

7.4.3.2  Container TEUs — During the current financial year it is expected that approximately 2,3 million containers (full plus empty) will be handled through the port. Of these approximately 1,65 million will be full. In Table 28 below a four-year-moving-average of the annual per cent change in total TEUs handled has been calculated.

Table 28. Annual % Change – 4 year moving average

<table>
<thead>
<tr>
<th>4 Year Period</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>1998 – 2001</td>
<td>4.8</td>
</tr>
<tr>
<td>1999 – 2002</td>
<td>5.4</td>
</tr>
<tr>
<td>2000 – 2003</td>
<td>7.6</td>
</tr>
<tr>
<td>2001 – 2004</td>
<td>9.4</td>
</tr>
<tr>
<td>2002 – 2005</td>
<td>9.0</td>
</tr>
<tr>
<td>2003 – 2006</td>
<td>12.4</td>
</tr>
<tr>
<td>2004 – 2007 est.</td>
<td>14.3</td>
</tr>
</tbody>
</table>

The growth rate has accelerated continuously from 1998 and over the four years to March 2007 is expected to exceeded 14% pa on average. The question is at what rate will it increase over the next 15 to 20 years?

The SA economy is being well managed at present and its position in world trade is growing more secure each year. World Trade is on a long-term growth trend of around 5% pa at present and SA, because of the improving internal political situation and rapidly growing consumer spending power, can reasonably expect to exceed this figure by 3 or 4 %. Thus a growth rate of TEUs through the port averaging around 8-9 % pa from now until 2020 seems to be a realistic expectation.
The impact on containers handled from a starting point of 2.3 million TEUs in 2006/07, of four different growth rates is shown in the graph below.

**Diagram 6. Alternate Projections of Full TEUs handled**

From the projections shown above, it can be seen that by 2013 the 7.5% PA yellow line is at around 3.5 million TEUs and by 2020 it has reached 6 million TEUs. Present plans to increase container capacity in the port include the conversion of Pier 1 into a container terminal with a throughput of around 700 000 TEUs PA plus further productivity improvements to the existing Durban Container Terminal. That should take the port’s capacity to between 3 and 4 million TEUs PA, which should cope with its needs until around 2014. Additional capacity will need to become available by then to take the port through to 2020 and possibly beyond.

If that additional capacity should be created by means of a dig-out port on the present airport land, then a major rearrangement of the cargo logistics sector will be triggered off. Not only will the sector have to expand its capacity to handle the additional volumes, but traffic flows will change substantially and the pressure to reduce costs and become efficient will escalate. Even if extra capacity is created within the port e.g. by expanding the port into the Bayhead area, the above restructuring of the City’s logistics network will have to undergo substantial change and upgrading.

**7.4.4 The Ship Building and Repair Sector** — There has been much debate over the future role of this sub-sector. One of the key issues is that it is clustered in the Bayhead Marine Industrial Park between the Drydock and the Silt Canal. This area could be subject to major reconstruction should the Bayhead be dug out to provide additional container berths and handling areas.

The Industrial Park was funded through a development loan from the KZN Provincial Government and was aimed at creating a cluster of marine businesses, which, if the need arose, could co-operate and collectively complete a shipbuilding contract. There are a total of 42 companies now located within the Park, each specialising on a specific aspect of ship building, maintenance or repair.

In a port the size of Durban, it is critical to have a competent and versatile ship repair sector. This is also a natural source of income and employment. To the sector’s credit its members have a strong pool of marine engineering skills and enjoy a good reputation for the quality of their service. It is essential that this sector is encouraged and supported to ensure that they not only remain in place, but that they are able to grow with the rest of the maritime industry.
Ship building is a more difficult question. There is generally over supply of ship building yards in the world and countries such as China are able to offer very keen prices. Durban does have an excellent skills pool with much experience. Many of the smaller and specialised firms are flexible enough to be able operate in both repair and building of ships. However the large companies must choose one way or the other. There is a constant need around the Southern African coast for smaller vessels such as tugs, pilot boats, coastguard boats, etc. These are hardworking small vessels, which inevitably have to be replaced every so often. The lifespan of a tug is said to be around 10 years and the current replacement cost is between R50m and R65m.

Thus there is potentially an attractive smallish local market where a local ship builder could be in a position to supply. However, costings are tight and to be sure of being competitive would probably require some government support. It does create jobs and adds value to local materials such as steel, timber, furnishings, etc. Apart from the engines, most of the materials are available locally.

At face value the industry seems to have a reasonable case as there is no good reason why this business should be contracted to overseas builders, and it ensures that the local pool of skills, infrastructure and investments remains in place, in the event of the sudden need to tackle other strategic shipbuilding projects. The skills pool has the benefit that it is similar in many respects to those used in automotive manufacture and other metal and boat building sectors, so is fairly versatile and flexible. It would be a great pity to let this capability die, as it has a proud record and in the past has built some amazing ships. Having one or two ship builders also provides a wider platform for the smaller firms, which are normally involved in ship repairs, but have the versatility to participate in building as well. If the annual throughput can be developed to a good level, the need for a support subsidy will gradually lessen.

One area of support, which is needed is to revive the slipway, which was filled in some years ago for various reasons.

7.5 Porter’s Diamond

Prof. Michael Porter of the Harvard Business School, as one of his many concepts for measuring competitiveness in an economy, developed “Porter’s Diamond”. The Diamond is a simple system for assessing the competitive attributes of an economic entity such as a firm, an industry sector, a city, a region, a province or a country. Such a diamond has been compiled in Diagram 7 below, depicting the competitive attributes of Durban’s maritime sector.

Diagram 7. Porter’s Diamond
Table 29. Durban Maritime Industry Competitive Attributes (Porter’s Diamond Format)

<table>
<thead>
<tr>
<th>Sector Structure, Strategy and Rivalry</th>
<th>Factor Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ Core of large scale investments</td>
<td>+ Strong clustering around port</td>
</tr>
<tr>
<td>+ Well diversified, all services well covered</td>
<td>+ Large pool of skills experience</td>
</tr>
<tr>
<td>+ High levels of competition</td>
<td>+ Service and material requirements available locally</td>
</tr>
<tr>
<td>+ Good forward integration of large firms</td>
<td>+ Wide mix of state and private cargo terminals in port</td>
</tr>
<tr>
<td>+ Mix of local and international firms</td>
<td>- Weak skills development structures</td>
</tr>
<tr>
<td>+ Competent Shipping Agents pool</td>
<td>- High profile on labour issues</td>
</tr>
<tr>
<td>+ Weak inter-port rivalry</td>
<td>- Lack of container parks</td>
</tr>
<tr>
<td>+ Competent ship building &amp; repair cluster</td>
<td>- Lack of Truckstop</td>
</tr>
<tr>
<td>- Dated warehouse technology</td>
<td>- Serious transport bottlenecks (road system)</td>
</tr>
<tr>
<td>- Dated logistics parks (Maydon Wharf)</td>
<td></td>
</tr>
<tr>
<td>- Port capacity limitations</td>
<td></td>
</tr>
<tr>
<td>- Port inefficiency</td>
<td></td>
</tr>
<tr>
<td>- Port vessel size limitations</td>
<td></td>
</tr>
<tr>
<td>- Strong inter-company competition</td>
<td></td>
</tr>
<tr>
<td>- Weak organised Industry institutions</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Related &amp; Supporting Industries</th>
<th>Demand Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ Toyota Factory &amp; components sector</td>
<td>+ Buoyant international trade</td>
</tr>
<tr>
<td>+ Steele and Engineering Industry</td>
<td>+ Strong domestic economic growth</td>
</tr>
<tr>
<td>+ Local Timber &amp; Wood Products industry and sectors</td>
<td>+ Strong containerised cargo, automotive, bulk chemicals growth</td>
</tr>
<tr>
<td>+ Sasol and other Chemical exporters</td>
<td>+ Steady bulk &amp; breakbulk demand</td>
</tr>
<tr>
<td>Government Support</td>
<td>+ Increasing containerised exports</td>
</tr>
<tr>
<td>+ NPA and SAPO capex programmes</td>
<td>+ Increasing bulk &amp; breakbulk exports (China, et al)</td>
</tr>
<tr>
<td>+ MIDP automotive support programme</td>
<td>+ Increasing competition from other ports</td>
</tr>
<tr>
<td>- Weak rail service</td>
<td></td>
</tr>
<tr>
<td>- Protracted decision making</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MODERATE / WEAK</th>
<th>MODERATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOOD</td>
<td>GOOD</td>
</tr>
</tbody>
</table>

From the above it can be seen that although market demand conditions are good, the industry has several notable weaknesses. These are mainly in terms of its structure and lack of a comprehensive strategy, as well as certain of the factor conditions such as transport bottlenecks, dated logistics facilities, lack of a comprehensive approach to providing skills, and a weakly developed industry institutional structure. Port capacity limitations and low efficiencies are also negative competitive attributes.

8. MUNICIPAL INTERVENTION OPPORTUNITIES

8.1 Urgently Required

8.1.1 Roads and Traffic Congestion — There are serious problems with road access in and out of the port area, particularly to the Durban Container Terminal (DCT). The queue of heavy vehicles often stretches from the DCT to the dry dock and transport companies reported average waiting times during the day averaging around 4 hours. The main access problem is Langeberg Road at the Bayhead, and there is no provision for truck parking. Langeberg and Bayhead Roads are severely congested, causing problems with regard to deliveries to the DCT, while Maydon Road has also become clogged with heavy vehicles passing through en route to Bayhead Road. These vehicles park in Maydon Road because there are no vehicle parking facilities at the Bayhead, and there is a
strong view that Maydon Road should not be a through route. By contrast, it was pointed out that the
fruit industry had developed its own truck stop at Springfield Park from which fruit cargo is delivered
to the port.

There are two urgent projects which have been on the drawing board for some time, which when
implemented will have an immediate positive effect. These are

- Construction of the Khangela Bridge to Sydney Rd., which has become a priority;
- Construction of a link road connecting Langeberg Road to Edwin Swales Drive.

Neither of these projects is straightforward, as there are some substantial impediments which must
be dealt with. The link road to Edwin Swales Road for instance must deal with a spider's web of
railway lines running in and out of the old marshalling yards. Nevertheless these are seen by the
industry as key short-term projects. There is also a certain amount of open land between Bayhead
Road and the marshalling yards which could possibly be turned into a holding area for trucks instead
of having them blocking Bayhead Road while they wait to gain access to the DCT. This could be
viewed as a temporary solution while the optimal re-planning of the Bayhead area is under
consideration.

Investigate PierPass System – The PierPass System was developed in California where they
experienced serious truck congestion into the Los Angeles and Longbeach Ports. PierPass was an
industry solution, which was structured around incentives for cargo carriers to enter the port at non-
peak times on a 24 hour basis. The system was immediately successful. It needs a special
management and funding structure, which can be handled by the industry. The system could possibly
be advantageously adapted to Durban’s situation. There is knowledge of the system amongst certain
members of the local industry, who are interested in taking the matter further.

“DCT presently handles approx. 2500 road gate moves per day. At peak periods a delay of upto 2-3
hrs extra can be incurred by road transport. This delay can affect approx. 600 trucks daily. At a cost
of R300 standing time per hour, 600 trucks equates to R360 000 per day, or R100 million over a 280-
day working year. These costs have to be built into the base-price of the transport.”

Maydon Wharf – This logistics park is very dated in design and where it used to be a useful short cut
to the Bayhead area, it now frequently becomes congested during the day. The main problem is the
layout, which was designed around rail transport. With the major transfer to heavy road carriers the
large trucks have no parking space and struggle with turning and access to the various warehouses
and dockside terminals. When there is a train shunting rail trucks into the various sidings, the road
traffic comes to a complete standstill. A new management system for traffic is required, and through-
traffic probably needs to be curtailed during peak periods. Construction of the Khangela Bridge would
facilitate re-routing of through-traffic into the Bayhead and Edwin Swales areas.

Victoria Embankment and Point Road – There is also congestion caused by heavy trucks up and
down the Victoria Embankment and Point Road. This is caused by the need to access the Car
terminal, the City Multi-Purpose Terminal and T-Jetty berths. The solution to this lies in the
rationalisation of the cargo mix and the transfer over time of most of the bulk and breakbulk to the
southern side of the port. Dedicated access roads through the lower end of the city centre may also
contribute to a solution. Ultimately the objective should be to eliminate all truck traffic in Point Road.

For Victoria Embankment there is a need to increase the percentage of cargo transported by train,
especially vehicles to and from the Car terminal. This will especially apply if the capacity of the car
terminal is further increased. It is a matter that needs attention. Victoria Embankment is becoming
one of the main cluster areas for shipping companies. Business parking and pedestrian security have
been raised as problem areas. The payment method for the parking meters is considered impractical
because people coming for meetings seldom carry sufficient high denomination coins to cover the
“no-change” charges, hence the low utilisation, especially on the port side..

8.1.2 Electricity — The electricity infrastructure at Island View was reported as being inadequate to
take the load required for the pumping of liquids, and thus the volumes pumped are restricted and
this affects logistical and port efficiency. Another complaint was that voltage variations arising from
peaks and troughs in the electricity supply damage equipment at Bayhead companies. The municipality should investigate the problems at Island View and take remedial steps.

8.1.3 Security — Security services are not provided by the municipality, but they were rated as a major problem by almost all respondents, and this is an area in which it was felt that the municipality could and should intervene with the responsible authority. Some companies in the CBD feel obliged to pay for off-street parking for staff as a security precaution. Some firms state that staff do not venture out of the office during the lunch hour for fear of being mugged in the streets.

Staff also feel insecure in the harbour area, and reference was made to a successful municipal programme in Barcelona where a dodgy area similar to the Point was cleaned up in 2-3 years. Women are reported to be loath to use boating facilities on the Bay because of insecurity. Mugging on the Esplanade deters customers from frequenting Bayside restaurant and club facilities, and visiting yachtsmen have suffered at the hands of criminals, thus leading to a perception that Durban is not a safe city for the yachting fraternity and to a consequent loss of custom to Cape Town. Parking is regarded as a problem for the yacht mole, pleasure cruise and restaurant areas.

It is clear that the security situation in the environs of the port leaves much to be desired, and the Durban economy as well as the welfare of people could gain from the overcoming of this problem. The municipality should convene a security task group to work with SAPS on this issue.

8.2 Further Opportunities

8.2.1 Rating of Utilities — In the interviews with respondents, they were asked to rate the efficiency of the municipality in respect of nine aspects of utilities on a scale of 1 to 5 with 5 being very good. The nine aspects were: dealing with environmental, waste and effluent issues; keeping industrial townships clean; maintaining roads, verges, walkways, green areas; maintaining efficient traffic flows; providing adequate turning space/areas for large trucks; providing adequate taxi and bus ranks for employees; providing adequate public transport for factory shift workers; providing electricity infrastructure; and providing water infrastructure.

The shipping sector exhibits considerable diversity, and it became apparent during the interviews that all these aspects did not apply to all respondents, but they were frequently not considered to be of particular significance, and that the few who attempted to rate were doing little more than hazarding a guess. Thus, there was no point in pursuing the ratings scale.

These nine aspects were then grouped into three major problem areas, namely, roads and traffic, public transport, and environmental issues. These are dealt with elsewhere in this chapter (see below) In addition, two aspects not listed and not necessarily provided by the municipality emerged as major problems. These were security and telecommunications.

Cargo/Logistics Sector – Tables 30 and 31 indicate the results from interviewed cargo/logistics companies as they rate and rank the municipality utilities services/infrastructure.

<table>
<thead>
<tr>
<th>Utilities</th>
<th>Utility Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CH&amp;CS</td>
</tr>
<tr>
<td>1. Dealing with environmental, waste and effluent issues</td>
<td>3.2</td>
</tr>
<tr>
<td>2. Keeping your industrial township clean</td>
<td>1.2</td>
</tr>
<tr>
<td>3. Maintaining roads, verges, walkways, green areas</td>
<td>2.2</td>
</tr>
<tr>
<td>4. Maintaining efficient traffic flows</td>
<td>1.6</td>
</tr>
<tr>
<td>5. Providing adequate turning space/areas for large trucks</td>
<td>2.4</td>
</tr>
<tr>
<td>6. Providing adequate taxi ranks, bus ranks for employees</td>
<td>1.0</td>
</tr>
<tr>
<td>7. Providing adequate public transport for factory shift workers</td>
<td>1.4</td>
</tr>
</tbody>
</table>
Apart from Electricity and Water infrastructure, which were both consistently rated above average (Average = 2.5), most of the scores were around average with some notable problem areas. Below average ratings were common throughout for (i) Maintaining efficient traffic flows, (ii) Providing adequate turning space/areas for large trucks, (iii) Providing adequate taxi and bus ranks for employees. Environmental waste and effluent issues scored above average, whilst cleaning of industrial townships and road/verge maintenance were approximately average. It is notable that the companies which are most sensitive to traffic movement scored those aspects lowest.

Ideally one would like to see scores in all areas reaching between 3 and 4 with some scoring over 4. The majority of the companies indicated that the only problems they have with the Municipality utilities/services/infrastructure are road maintenance, maintaining efficient traffic flows and providing adequate turning space/areas for large trucks. They believe the municipality can intervene and make a difference in the above needs/problem areas.

Table 31 Utility Importance Ranking (1 = Most important, 9 = Least important)

<table>
<thead>
<tr>
<th>Utilities</th>
<th>Ave. Utility Importance Ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CH&amp;CS</td>
</tr>
<tr>
<td>1. Dealing with environmental, waste and effluent issues</td>
<td>5.6</td>
</tr>
<tr>
<td>2. Keeping your industrial township clean</td>
<td>6.6</td>
</tr>
<tr>
<td>3. Maintaining roads, verges, walkways, green areas</td>
<td>5.2</td>
</tr>
<tr>
<td>4. Maintaining efficient traffic flows</td>
<td>4.2</td>
</tr>
<tr>
<td>5. Providing adequate turning space/areas for large trucks</td>
<td>4.6</td>
</tr>
<tr>
<td>6. Providing adequate taxi ranks, bus ranks for employees</td>
<td>3.0</td>
</tr>
<tr>
<td>7. Providing adequate public transport for factory shift workers</td>
<td>3.2</td>
</tr>
<tr>
<td>8. Providing electricity infrastructure</td>
<td>5.0</td>
</tr>
<tr>
<td>9. Providing water infrastructure</td>
<td>6.6</td>
</tr>
</tbody>
</table>

CH&CS = Cargo Handling & Container Services; CC= Cartage & Transport Carriers; CC&F=Customs Clearing & Forwarding Services; E&IS=Export & Import Services; FS&W=Freight Services, Storage & Warehousing.

(See also Annexure H)

The ranking exercise did not produce clear-cut preferences. The lowest scores (most important) were mostly around traffic and public transport issues. The Customs Clearing and Forwarding group placed much emphasis on electricity and water. This is because their operations have a heavy office worker bias and operating of computers is of paramount importance. On reflection, all of the nine items listed are important, hence the reluctance of the interviewees to score any of them negatively.

8.2.2 Public Transport — The poor public transport system in Durban was a major problem for companies because of the long commuting times and other difficulties experienced by staff in getting to and from work. Staff used a variety of transport arrangements ranging from private (own vehicles and lift clubs) to public (Metrorail, buses and taxis). It is mainly the lower echelons of the office staff as well as the unskilled and semi-skilled workers who use public transport. These individuals tend to live in areas such as KwaMashu, Phoenix, Chatsworth and Umlazi which are some distance from the CBD and the port areas. Their trips thus involve relatively long distances and travel times.
It is widely acknowledged, even by the government, that South Africa’s public transport system is poor, and Durban is not alone in this regard. One company stated that if Durban had a “half-decent” public transport system, it would not still have its offices in the CBD. Overseas shipping lines drew unfavourable comparisons between Durban and foreign cities in terms of public transport. The problem is particularly acute for shift workers; thus, for example, a stevedoring company collects its labourers at Dalbridge Station as there is no public transport direct to Bayhead.

As the exceptionally poor state of South Africa’s public transport system has been fully acknowledged within government, Durban and other major municipalities should press the central government on the adoption and implementation of a new public transport policy. This would necessitate massive investments in rapid, mass people-movers that are reliable, cheap and safe, and that offer a comprehensive grid of services across the metropolitan area. It is hoped that initiatives aimed at providing interim remedies in time for the 2010 Soccer World Cup will trigger off proper longer term solutions to this critical problem.

The municipality has indeed mooted a number of innovative systems for areas such as the beachfront to cater for tourists, but the real problem for those in employment is the trip from home to work. Within the municipal area this can involve trips of up to 50km or more, and clearly the present reliance on mini bus taxis satisfies none of the attributes mentioned above.

8.2.3 Telecommunications — A small number of respondents complained of the telecommunications system operated by Telkom. The speed in Durban is regarded as being slower than in East London or Port Elizabeth, and it was reported that it frequently takes more than 24 hours to respond when computers are down. Similar problems are not experienced in other ports, and there is a serious capacity problem in Durban. It was felt that lack of competition in the telecommunications sector exacerbated the problem. Because this problem was disadvantageous to Durban in the context of the South African port system, it was felt that some intervention from the municipality might help.

The municipality should request the Chamber of Commerce Infrastructure Committee to discuss these allegations with Telkom.

8.2.4 Container Parks and Logistics Parks — The interviews contained questions relating to company attitudes to container parks, the best location for such facilities, and the notion of Cato Ridge as a major cargo redistribution centre.

There are insufficient Container Parks and the existing ones are crowded with poor access. *(See page 38)*.

Some firms were satisfied with their existing warehousing and logistics facilities, and had no interest in container parks. Proximity to the port was a major consideration for most firms. Some were in favour of a logistics park somewhere between Bayhead and the present airport in order to replace what they had lost in the agency building at the DCT. The park should not be too far from the port offtake area, and should be close to business as proximity to clients is important for some operations. One company quoted the case of Australia where logistics parks operate as one-stop shops close to a port or airport.

Because of physical constraints to the expansion of the port, there was agreement that off-dock container-handling facilities were important. A logistics park could provide depot space, parking and motorway access, but most companies would retain their office space at their present locations.

An additional Container terminal was also recommended. *(See page 38)*.

Decentralising container parks was opposed by some because road haulers charge according to a distance radius measurement, and their charges would rise by 15-20% for each additional 5 km radius. An alternative cargo redistribution point at Cato Ridge would be assured of support only if it did not generate extra costs or delays for users. However, all containers moving through Cato Ridge or any other decentralised container park would be subject to double handling and therefore to higher charges. One firm believed that, for Cato Ridge to succeed, a dedicated railway line would have to be built, but double-handling fees would still be incurred.
Logistics Parks – One major company had examined the establishment of a logistics park to overcome access and activity constraints. Riverhorse Park was found not to be ideal, but Cato Ridge was well situated and the company felt it likely that it would open its operations there. The office, however, would remain in the CBD. Activities at the logistics park would include container packing and unpacking, automotive transport businesses (mainly carriers), warehousing and distribution, and truck stops. This company stated that it would like to operate a railway shuttle between Cato Ridge and the port with access to the Spoornet track, owning and operating its own locomotives. It argues that many railways operate on the basis of giving the private sector access to track, and that Spoornet should do the same. However, most firms regard Cato Ridge as too remote, pointing out that a major factor affecting competitiveness is distance from the port.

It is clear that there are divided views in the shipping industry with regard to the provision of specialised logistics parks as well as to the best locations. However, both Cato Ridge and the land between the Bayhead and DIA were mentioned by some companies as being suitable locations. The municipality should liaise with shipping companies in its plans for the south Durban Basin area. This is an area which seriously requires replanning, and a logistics park could well be a prime occupant of land released in such a process. The municipality, however, should monitor technical and organisational developments in the logistics chain worldwide so as to ensure that Durban remains abreast of international best practice.

8.3 Stakeholder Co-operation

In researching circumstances prevailing at successful ports in other parts of the world, it became clear that underlying their success was excellent communication and co-operation between the main stakeholders. In Durban's case the main stakeholders are broadly the Port, the Municipality, the Shipping Sector and the Cargo/Logistics Sector. However, each of these groups has a plethora of sub-sectors or sub-operations or departments, each of which makes an important contribution within their sphere of competence. It was also explained earlier in the report that the larger international shipping companies have diversified and integrated further and further along the shipping and cargo/logistics pipelines to the extent where they now have substantial leverage in terms of relationships with other stakeholders. The Ports are forced to do their best to meet the needs of these key players as ships are becoming more selective about which ports they stop at with the result that competition between ports is increasingly fierce. Furthermore, because the shipping companies often have their own logistics operations inland and throughout the pipeline, alternatives of overland and air transport between ports are becoming important options.

The dividing lines between the larger and smaller stakeholders are now more interlinked than ever before so it is virtually impossible to compartmentalise the different types of operation. Virtually all of the larger firms have investments in selected sub-sectors, and each group is unique. Physically, because of the importance of the port as the operating centre, there is a strong tendency for maritime firms to cluster around the port.

From the above it can be seen that for such a dynamic industry in one port city to be competitive against their counterparts in other cities, it is essential that they have sophisticated systems and structures of co-operation and communication within their industry.

Durban has moved along this path but at this stage the structures are still fairly unsophisticated and it is one of the main reasons why its port handling and logistics costs are regarded by industry as too high. Attempts to strengthen co-operation have been made in recent years and the Chamber of Commerce and Industry’s Port Liaison Committee is a good example. So is the recently formed Tempi Project between Transnet and the eThekwini Municipality. However, within the sub-sectors of the various industry associations many are finding it difficult at times to achieve their objectives.

There are many areas where firms have common interests and needs and by working together they would achieve much better results. Skills development is a good example. Strategic issues such as transport corridors, location of container parks, availability of truckstops, redevelopment of key urban areas, are just a few of the key areas of debate where organised co-operation would yield better results. In the interviews conducted when researching for this study, the same items came up again
and again in the discussions. It is clear that there is a great similarity of opinion, but progress has been abysmally slow.

This is a sizeable international gateway port, which has a major economic impact on the livelihoods of the local population. The time is ideal to consider the establishment of a Maritime Institute for Durban to bring all the stakeholders closer together with the objective through co-operation and communication of raising the quality of the local maritime industry to one of recognised international class. It is recommended that the matter be further investigated and feature as a strategic item on the Agenda of the Port Liaison Committee on which all the different Maritime Associations are represented. (See also Section 9.3)

8.4 A Maritime Institute – will it add value?

The strategic issues facing the local Maritime Industry and the importance of the industry to both the local and the national economies demand that the industry move positively towards operating as a unified force. It is of substantial size already and what is needed is a process which will ensure a state of greater unification and collective decision making. It is felt that the creation of a Maritime Institute could be the required catalyst. It is not possible to think through the whole process of establishing such an institute within this study, but a first look at some of the possible areas where it could add value to the industry are listed below.

- International Maritime Research and Benchmarking;
- Researching and publicising Developments in Marine and Shipping Technology;
- Similar for Materials Handling and Logistics Technology;
- Skills Development facilitation, structures and systems;
- Liaison with Tertiary Education and Research Organisations;
- Materials Testing;
- Industry Debate and Negotiation;
- Specialist Studies;
- Bridging the gap between Public and Private Sector Stakeholders;
- Port Expansion Planning and Debate;
- Negotiating the most effective Port Operating Model;
- Cataloguing and facilitating resolution of sub-sector issues;
- Supporting role in the development of national transport systems;
- Involvement in such strategic issues as promulgating Road Transport Corridors;
- Co-operation with Local Government re urban redevelopment affecting the industry;
- Generally providing a facility for the industry to address its common strategic needs.

It seems from the above list that there are many important strategic areas where the Institute would enable the industry to become a more efficient and formidable business force, and thereby add significant value to the Industry, the City, the Region and the Country.

8.5 Urban Upgrading and Planning

The question of a range of urban re-planning programmes related to the Port, its expansion and its support industries has been under debate for some time. The following are some of the key projects under debate and consideration:

8.5.1 Bayhead Area – This is the focal point of containerised cargo and the ship building and repair sector. It is also the location of the old railway marshalling yards and one of the main rail access points to the port. Bayhead Road is the main road transport entry point. There a large number of old back-of port buildings in the area close to the port, as well as many quite large buildings erected to serve the railway marshalling yards. There are also several areas of open land between Bayhead Road and the marshalling yards.

Redevelopment of the area has been on hold for some time pending the NPA’s decision on whether the area will be required for a dig-out expansion of the port. It will be some time before such a decision is taken (years maybe??) and in the meantime this very valuable and strategically important area is operating at way below its potential.
The road structure and network is the immediate focus area because of insufficient entry and exit points \(\text{(See Section 8.1).}\) A holding area for large trucks is also a priority. However there are other possibilities for interim usage of the land and much of it needs cleaning up and reutilised more productively than at present.

Facilities that are in very short supply at present which could be located on an interim basis at Bayhead, are container parks, bulk cargo holding areas, vehicle parks until a new car terminal is constructed, and such operations requiring space but with limited infrastructure construction.

8.5.2 Maydon Wharf – There has already been some discussion on the strategically located Maydon Wharf logistics park. As noted above, it is dated in design and urgently needs upgrading with street widening where possible, better traffic management, a better road/rail interface, truck parking, etc, Stormwater drainage and petty crime are also problems which can be dealt with without delay. The row of private and SAPO terminals are all focused on different specialist cargos and important to the local economy. There is sufficient berthing and ship access is reasonable except for the shallow draft, which for several of the berths is under 10 metres. This logistics township is an important component of the industry and seriously needs to be redeveloped.

8.5.3 Vehicles – Fully built-up vehicles have in recent years become a major component of the ports cargo throughput, both for import and export. Numbers are rising rapidly, and local vehicle manufacturer Toyota, has a major export programme planned for the next 5 years. To ensure that this activity is secured for the long term it is important to assist the process overcome a number of bottlenecks. At the moment parking space for vehicles is at a premium and it is critical that this problem is resolved. The area adjoining the existing car terminal, which was designed as a new City multi-purpose terminal is currently absorbing much of the overflow. Vehicles are probably a more suitable type of cargo for that area than brakebulk and bulk in that are environmentally fairly clean and can be transported in and out by rail if necessary. Resolving this issue is an urgent matter.

8.5.4 Container Parks – four or five new container parks within 5 Kms of Bayhead are urgently required (see Section 8.2.4 above)

8.5.5 Jacobs / Clairwood / Mobeni East – These three industrial townships date back to being at the forefront of Durban’s early industrial development. As was the pattern at the time, they were designed around rail transport. The roads are narrow, access is poor and the buildings are dated. By virtue of their location in relation to the Bayhead area, they would be ideal locations for future growth of back-of port operations and the cargo/logistics sector.

There are already approximately 150 firms in this category located there and many of the manufacturing companies have moved elsewhere for various reasons. The three townships have enjoyed some upgrading over the past few years, but there is an opportunity to convert them into Durban’s prime logistics area linked to the port. This will require substantial re-planning and expenditure on infrastructure, but the strategic value of such a facility close to the port is inestimable.

8.5.6 Cato Ridge – This has also been dealt with above (see Section 8.2.4). There is a body of opinion, which favours the establishment of an inland container terminal at Cato Ridge. This would serve as a redistribution point for imported cargo as well as locally manufactured goods destined for elsewhere in KZN, Gauteng and the Free State. It would also be the terminal offloading point for goods from Gauteng and other inland areas destined for the port or for the greater Durban and Coastal areas. It has a locational advantage in being alongside the railway line and the N3 highway to Gauteng. The station at Cato Ridge already has shunting lines in place and could be further upgraded.

For a freight redistribution to operate satisfactorily at Cato Ridge, it will be essential to institute a rail or road or combined hot-shot container delivery service between there and the port. Containers will naturally be carried in both directions. A hot-shot service can be tailormade in terms of truck size and design and a dedicated route can be established. Rail is theoretically better for this sort of service, but to upgrade the rail line to the required standard will be a substantial capital project. Therefore both the road and rail options must be investigated. It may also be possible to include some breakbulk cargo in the system as well.
Positive factors in favour are:
  o Heavy trucks from the interior would not have to drive through the City.
  o Truck arrivals at Bayhead could be scheduled over a full 24 hour period.
  o There is space to include a proper Truckstop with overnight facilities, truck servicing, restaurant, etc.
  o Transport linkages up and down the coast could be established, which do not have to enter the City.
  o Container distribution would be much more efficient.

Negative factors:
  o Double handling of freight might increase overall transport costs.
  o Additional capex for a hot-shot rail service.

On balance the scheme seems to have much merit and it should be thoroughly investigated.

8.5.7 Transport Corridors – Heavy trucks are causing havoc with ordinary daily traffic around the city. Recently a heavy truck from Gauteng entered the city via the M13 to avoid the tollgate. Crossing the bridge at Pinetown to join the N3 it burst a tyre, crashed into the railing, overturned and caught fire. Traffic was held up for several hours. Every day trucks damage pavements, knock over traffic lights, break manhole covers and cause endless traffic congestion. Truck accidents are frequent, often with fatalities involved.

This kind of traffic experience is unacceptable in a modern city and comprehensive remedies are called for as a matter of urgency. Waiting for the upgrading of the rail system under the current infrastructure programme is not going to make the problem go away. More innovative remedies are required and greater discipline exercised over the truck operators and drivers. The introduction of transport corridors for the heavy articulated trucks is one possibility. Trucks entering the municipal area from up country should have to stay on the N3 right up to the N2 intersection, and then be forced to take a specific route to the port or to an industrial township. Having articulated trucks travelling along M roads and through suburbs is undisciplined and unacceptable from both a safety and inconvenience aspect for local citizens. It is also onerous on the drivers to have to negotiate their route along narrow suburban roads. Establishing a container terminal at Cato Ridge is another possible answer to dealing with the problem.

The matter requires urgent attention and local bye-laws upgraded to address the situation, supported by appropriate city policing.

8.5.8 Point Waterfront

It is broadly planned that when the widening of the harbour mouth has been completed, a passenger liner pier leading into a waterfront entertainment area on the Point will be constructed. Passenger liner numbers into Durban Port are growing and this form of tourism is enjoying increasing popularity amongst the world’s affluent. A Port such as Durban with such a wide range of tourism attractions close at hand, should be able to attract its share of this type of tourist visitor. Having the waterfront will in itself be a great attraction. It is recommended that this project be supported and the NPA and the City are encouraged to “make it happen” at the earliest date possible.

9. FUTURE OF THE PORT

9.1 City Growth and Gateway Status

The economy of Durban is well balanced between Manufacturing, Services and Tourism. The port has become the heartbeat of the local economy, and its contribution is growing. It has a high multiplier effect and this can be seen by the large number of firms involved in port related activities. Durban’s main problem at present is a shortage of industrial land. This is largely due to the nature of its topography, where level tracts of land are hard to find. Over the next 20 years the local economy is likely to experience a high annual growth rate of 5% or more. How can this be accommodated physically? Much must surely come from redevelopment of older areas, particularly industrial areas
and the CBD. It is inevitable however that industrial development will expand beyond the eThekwini Municipal boundaries northwards up the coast and westwards towards Pietermaritzburg and even beyond.

The South African economy will also experience high growth rates and the cargo volumes through the port, both imports and exports will continue to escalate. There will be a need to rationalise the ports activities in order to cope with these rising cargo volumes and it is inevitable that there is some spillover to other ports such as Richards Bay and Ngqura. As pointed out in Section 7.4.1, care should be taken as to how any rationalisation of cargo is formulated, as attempts to streamline the mix could result in job losses in the Durban cargo/logistics sector.

What is most important however, is that port capacity, particularly in the high growth areas of containers, motor vehicles and components, petroleum products and bulk chemicals, should keep up with demand. Durban’s larger industries such as the Oil Refineries and the Automotive sector are here because of the port. As long as the port can handle their needs they will stay here and grow. Failure to do so will see them gradually relocate. Furthermore, with a successful port, other export oriented industries will be attracted to this area so as to eliminate the add-on costs of inland transport.

It is very important therefore that Durban does not lose sight of its main vision of the type of city it wants to be in the future when making decisions about the format of the port and its cargo mix. Achieving international recognition as Southern Africa’s international gateway for trade is critical to the city’s future.

9.2 Role of the Port in South Africa’s Economy

As discussed in Section 1.1, the Port of Durban is South Africa’s largest port in terms of value of cargo handled as well as number of vessel arrivals per annum. It is estimated that the port and its related industries contribute in excess of 20% of Durban’s GDP (See Section 10). Durban is approximately 55% of the KwaZulu-Natal GDP, which in turn is approximately 15% of the South African GDP. Thus, in round figures the Maritime Industry in Durban contributes between 1.5 and 2.0 percent of the national GDP. Depending on which sub-sectors are included in the estimate, this points towards a contribution to the local GDP of between R25bn and R35bn.

However, Durban Port’s strategic role is what is important. Due to its geographic location and being a natural deepwater port, it is the most accessible port with sufficient capacity to cater for the needs of the county’s industrial heartland in Gauteng. Growth in international trade will be a cornerstone of SA’s future economic success and Durban Port will play a key role in facilitating this success. It is geographically placed to fulfill this role more cost-efficiently than any other Southern African port. It is therefore essential that not only the port, but the entire transport/logistics corridor from the port to Gauteng operates at high efficiency levels.

9.3 Co-operation and Communication Structures

As mentioned under Section 8.3, the Durban Port Liaison Committee was established under the umbrella of the Durban Chamber of Commerce a few years ago on the initiative of the Chamber. All the individual Associations falling within the Maritime Sector are represented through their Chair Persons, as well as the Port, the Municipality and the Chamber. This Liaison Committee is very active, meeting once a month, and has achieved a number of successes in addressing port related issues.

The Associations represented on the Committee are the following:

- Association of Ships Agents and Brokers of South Africa (ASABOSA);
- Association of Shipping Lines (ASL);
- Container Lines Operating Forum (CLOF);
- Island View Lease Holders;
- Maritime Law Association of South Africa;
- Maydon Wharf Leaseholders;
- National Stevedoring Association of South Africa (NASASA);
- Perishable Products Export Control Board;
- South Association of Freight Forwarders;
  - Harbour carriers Division,
  - Clearing and Forwarding Division.
- South Ship Builders and Repairers;
- South African Shippers Council;
- National Port Authority (NPA);
- South African Port Operations (SAPO);
- ETHekwini Municipality;
- Durban Chamber of Commerce and Industries.

The formation of the Port Liaison Committee represents a solid, groundbreaking initiative to improve co-operation and communication within the maritime sector. However, in view of the challenges facing the sector and the port in particular, and because of the need for the industry to perform competitively by international standards, it seems the right time to take the process to a more comprehensive and sophisticated level. The development of a Maritime Institute could well be the route towards achieving this objective. It is important that there is more focus on thinking strategically as an industry in addition to the long list of operating issues, which must inevitably fill the agenda.

Thought should also be given as to how best to bring the industry's larger customers such as the Automotive Industry, the Forest Products Industry, the Petroleum Industry, the Chemical Industry, the Clothing, Footwear and Textiles Industry, etc. into the loop.

9.4 Port Planning and Capacity Expansion

Expansion of the port's capacity is dominated at present by pressing requirements for container handling and motor vehicle handling capacity, as well as the ability to allow Panamax and Post-Panamax vessels to enter the port. It is clear from the various cargo volume projections that the port has to make decisions now as to the route it will follow. The port widening and dredging programme to accommodate the extra large ships is already underway. Expenditure programmes for new modern equipment aimed at raising container handling throughput and efficiency is in the pipeline. The conversion of Pier 1 to add to container capacity is currently in progress. Urgent talks are in progress as to the best sight for another car terminal. But all of this will cater for another five years or so.

Several alternative options have been developed for adding new berths by digging out the Bayhead area and/or the land currently occupied by Durban International Airport (DIA). There are technical difficulties with each of these options and the environmental impact assessment processes are lengthy and require several years to complete. Ideally the Bayhead option should receive preference over the DIA option as this would release the airport land for industrial development and/or a second airport. However the impediments confronting this option point strongly towards the DIA dig-out route. It is clear from the cargo projections that the NPA does not have time in hand and needs to make a decision fairly soon. At the same time, the owners of the DIA land are under pressure to sell portions of the land immediately in order to accommodate urgent industrial expansion.

Therefore Durban needs to decide what kind of a port it wants and how large in terms of cargo capacity that port should be. Given the above it seems logical that Durban should focus on high value-added intermediate and end-product manufactured goods, as far as possible with good export and employment propensity, and gradually move away from bulk and possibly selected breakbulk cargo types. There are some obvious exceptions such as bulk petroleum and chemical products, where it is the main import entry point, and built-up vehicles, which are a key output of the local economy. However, caution should be excercised when contemplating transfer of cargo types, that such a move does not permanently destroy significant job numbers in the associated cargo handling and logistics sectors. These are sensitive issues and should be handled accordingly.

It is important for Durban to retain its status as the main entry point for crude oil and refined petroleum products, as that underpins its position as South Africa’s most important international trade gateway. In terms of capacity it needs to plan now for around 6 – 8 million TEUs per annum, with design structures available for capacity beyond that, if the high container growth rate continues beyond 2020.
Catering for the growth in cargo volumes does not mean that the focus should be only on the port. The entire logistics chain will grow with it and their expansion needs to be spatially planned and infrastructure requirements to be assessed. As mentioned earlier, land is at a premium and expansion and modernisation of the cargo/logistics sector will require substantial urban redevelopment. (See also Sections 8.1, 8.2, 8.5,8.7).

(Sections of the above discussion taken from a previous report by the authors titled “Decision Making Framework for Redevelopment of the Airport Site” – 27 November 2006)

The port is an integral part of the city, and the use of the entire Bay of Natal should be planned so as to blend in with the metropolitan area. There is support in the shipping industry for reserving the Esplanade and Point areas for recreation and passenger vessels, and Maydon Wharf and the southern side of the bay for freight vessels. This would entail moving all non-commercial activities – principally two rowing clubs which have boat houses there and a yacht club – from their present facilities on the Silt Canal to the Yacht Mole area on the Esplanade where the rowing clubs also have boat houses and two yacht clubs are located. This is not favoured by the clubs at King’s Rest on the Silt Canal – the rowing clubs point out that the most sheltered water conditions are found on the southern side of the bay, while the yacht clubs serves the south Durban area. One rowing club believes that a loss of the King’s Rest facilities might cause it to close. KZN Rowing is regarded by the National Olympic Association as one of the sporting codes that has made the most progress in transformation, and has been given a national lottery grant in recognition thereof, while the yacht mole’s location virtually in the CBD makes Durban a very attractive destination for foreign yachts which winter there in order to undergo outfitting.

There was unanimous support from the shipping industry for the continued use of the Bay for multi-purpose activities. There is no incompatibility, and no complaints from ships’ captains about the activities of sporting codes, pleasure cruises and fishing. In Sydney and Hong Kong recreational and sporting activities are allowed in designated areas, and the same should apply in Durban. There is sufficient water area for all activities, but Durban should not make the same mistake as Cape Town, which lost about one-half of its port to the Waterfront tourism development, reducing its ability to act as a seaport for international trade.

10. CONTRIBUTION TO THE ETHEKWINI ECONOMY

10.1 Shipping Sector

10.1.1. A Methodological Note — Assessing what the maritime industry in Durban is worth is extremely complicated, and there is no apparent way to simplify it. The reason is that shipping lines and agencies are structured in many different ways. The head office of a shipping line, for example, in Europe or Japan, may develop regional offices (to cover a particular geographic region of the line’s global operations) or national companies, and the national company in turn may have branch offices in each port and in Johannesburg. An agency in Durban, for example, could:

(i) operate on behalf of the head office – it collects freight revenue, the great bulk of which is remitted to head office, and it then retains only about 2.5-5% of this as its commissionable allowance, and collects ancillary service fees (for bills of lading, warehousing, stevedoring, cartage and inland transportation) to cover local overheads.

(ii) operate as its own revenue hub, retaining freight revenue to pay for the running of the ship, the office and certain depots, but nevertheless remitting the balance to the head office overseas.

(iii) not collect the freight revenue (which instead is all paid direct in US dollars by the customer to the principal overseas) but merely receive a percentage thereof to cover overheads.

Thus, most of the freight revenue collected by the Durban office ultimately is remitted to the head office overseas or to a regional office, e.g., a Japanese shipping line would have its head office in Japan but could have regional offices in Europe and North America, and the Durban office could fall within the jurisdiction of the European regional office.
Enormous sums are reflected on the manifest of vessels docking in the port of Durban. Take, for instance, a vessel with 3,000 TEUs at a fee of $800 per container; the revenue of $2.4 million (R17.76 million) could be paid either at the port where the ship is loaded or in Durban. If the ship leaves Durban having loaded another 3,000 TEUs, this would produce another R17.76 million of revenue. In the present survey, some shipping lines and agents in their responses clearly included revenue remitted while others limited their figures to commission and service fees.

In assessing the value of the maritime sector in Durban, the issue is how to treat the different arrangements: should turnover of the Durban office include freight revenue collected and then remitted abroad, or should it merely consist of commission and service fees? The former represents collections, the latter earnings.

Another difficulty is that, in some cases, all revenue generated by the South African operations of the shipping line appeared in the books of the Durban office (in cases where the South African head office was in Durban) even though transactions were entered into in Johannesburg and branch offices at other ports, while in other cases the South African head office was in Johannesburg and all transactions entered into by the Durban office were subsumed in the books of the Johannesburg office.

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Value added is defined as the contribution to total (i.e., national) output made by an industry or a firm. In the case of a firm it is calculated as sales minus purchases from other firms. These purchases consist of inputs (raw materials, services and components) and capital goods.

Revenue that is collected on behalf of a principal cannot be considered as the contribution to national output by a firm. The appropriate amount that may be so considered is the revenue earned by the firm from agency and other fees. Although very large sums pass through the books of shipping lines and agents in Durban, it appears that relatively little represents the earnings of the Durban offices themselves and is available to enter the metropolitan economy by way of the expenditure multiplier.

**10.1.2 Previous Estimates** — The first serious attempt to quantify the contribution of the port of Durban to the metropolitan economy was made by Jones (1997). His calculations were for 1995. He found that employment in directly port-related activities amounted to a minimum of 31,000. He used expenditure multipliers to calculate the effect on the metropolitan economy. This effect is determined by the consumption propensity of wage earners as well as by the leakage of tax and expenditure out of the economy. The result of these calculations was a multiplier of 2.4 which was applied to remuneration of employees, expenditure on procurement in Durban, and expenditure by typical vessel corers.

Jones revised his work in 2006 for the TEMPI projects. He alludes to an overall local spending multiplier of between 1.9-2.4, and points out that values tending towards the lower end of this range were found in comparative studies on ports in Australia and the US. Thus, he adopts a local expenditure multiplier of 1.9 as being reasonable but somewhat conservative. Expenditure for a port call for a typical container vessel in 2006 was estimated at R2.65 million and for a typical multi-purpose vessel handling breakbulk cargo R1.75 million at a private/leasehold terminal or R1.86 million at a SAPO breakbulk terminal. On this basis total annual calls by container vessels to the port in 2004 (but using 2006 prices) would have generated first-round local spending of R3.3 billion and raise final local incomes by R6.3 billion. For general cargo calls these figures would have been R1.44 billion and R2.7 billion respectively. Jones makes the caveat that these estimates are heroic at best, but the fact is that his is the only existing attempt at quantification. Thus, total calls by container and general cargo vessels would have led to first-round local spending of R4.74 billion and raised final local incomes by R9 billion. These figures cover both the shipping and cargo sectors.

**10.1.3 Survey Results** — The difficulty faced in estimating the turnover of the shipping lines/owners/operators/agents was that the companies, as mentioned in Section 11.1.1, are structured in many different ways. In the turnover figures disclosed to us, it was clear that some

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companies had disaggregated to the level of income **earned** by the Durban office but that others had referred to income **collected**. Those companies that had disaggregated produced much lower turnover figures than those that did not, the range being R15 million per annum to R1.8 billion per annum. Total turnover disclosed was R4.73 billion per annum but much of this is repatriated to head offices abroad. For example, one ship's agency stated that, excluding what is paid to State-owned enterprises (port, rail, SARS), a maximum of 5-10% of revenue collected remains in Durban and that retention in the shipping sector in Durban is very low. Payments to State-owned enterprises constituted 20%, ocean freight 65-70% and inland freight 10% of total expenditure. A large shipping line admitted that only a small proportion of revenue collected remained in Durban. An attempt was made to ascertain the views of some of the respondents as to the size of the port sector in the metropolitan economy; one company asked its senior executives for their estimates, but none felt able to provide a figure. Another company estimated that liner revenue for shipping lines and agents alone would amount to about R1 billion per annum and ancillary services (clearing and forwarding, road haulage, etc.), would contribute more than R1 billion per annum. Our figures indicate that these estimates are too low.

We compared our figures with those of Jones (2006) who arrived at total payments to ship's agents by vessels calling at the port of R52 million per annum. This appears to be too low. Applying the breakdown of expenditure given in the previous paragraph to the figures provided by the respondents, and taking a commission/agency fee rate of 5-10% of ocean freight, we obtain a figure for commission and agency fees earned by the shipping lines of between R171-276 million per annum. Taking an average of 7.5% as the rate, we arrive at a figure of about R224 million. We have adjusted Jones's figures accordingly.

In addition, other activities (boat and yacht building, maintenance and equipment; harbour cruises; catering; fishing; sailing schools; diving) have to be taken into account. Their combined revenue amounts to approximately R151 million per annum.

We then arrived at a figure of R3.48 billion per annum as the first-round effects; applying the multiplier of 1.9 the shipping sector would raise final local incomes in the metropolitan economy by an amount of R6.6 billion per annum.

To put this into perspective, Vancometrics (2005)\(^3\) estimated the gross geographic product (GGP) of the eThekweni metropolitan economy at R141.1 billion. This means that the shipping sector alone would contribute about 4.7% of the metropolitan economy’s GGP. To this must be added the contribution of the cargo sector in order to obtain the total contribution of the maritime industry.

### 10.2 Cargo Sector Contribution

As has been discussed in the foregoing chapters, the Cargo Sector is complex, with many inter-related operations, functions and services linked together in a dynamic network of businesses. This study has not attempted to undertake a detailed cost and value-added calculation at the individual firm level, but some of the data does provide a base for a broad estimate of the sector’s contribution to the local economy. As pointed out earlier, the interview sample yielded a good spread between firms, which are publically owned (34.5%), privately owned (24.1%) and close corporations (37.9%). The remaining 3.4% are overseas owned.

Using the turnover profile of the sample (see section 5.3) as a guide and applying it to the full list of cargo-related companies, it is estimated that the sector turnover is approximately R60.5bn at current prices. Employment costs vary widely as a proportion of total costs but in the majority of firms, employment appeared to make up between 40% and 50% of total costs. This is a very competitive industry and value-added can also vary from sub-sector to sub-sector. As a rough guide a figure of 50% of turnover has been used as an estimate of direct value-added. Thus value-added by the cargo sector in terms of firms involved only in the handling of cargo (including support services such as marine surveys, import/export agency fees, etc.), and excluding owners of the cargo, is estimated at around R30.3bn. Using the 2005 estimate of Durban’s GDP of R141.1bn (see page 26), this means

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that the Cargo Sector of the Maritime Industry contributes approximately 21% of Durban’s GDP. This is a substantial contribution and clearly underlines the importance of the port to Durban’s economy.

There is obviously some overlap in the above estimate with that estimated as expenditure by ships calling at Durban Port, but much of the revenue is generated from land-based companies involved in the physical handling aspects of importing and exporting. The local multiplier is unlikely to be as high as that of the shipping sector and a factor of around 1.4 to 1.6 seems to be more likely. Table 32 below summarises some of the key economic indicators of the contribution of the Cargo Sector to the Durban economy.

Table 32. Economic Profile of the Cargo Sector

<table>
<thead>
<tr>
<th>No. of Firms:</th>
<th>± 600</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ownership:</td>
<td></td>
</tr>
<tr>
<td>- Overseas</td>
<td>3.4 %</td>
</tr>
<tr>
<td>- Public Companies</td>
<td>34.5 %</td>
</tr>
<tr>
<td>- Private Companies</td>
<td>24.1 %</td>
</tr>
<tr>
<td>- Close Corporations</td>
<td>37.9 %</td>
</tr>
<tr>
<td>Direct Employment:</td>
<td>± 50 000 people</td>
</tr>
<tr>
<td>Turnover Group:</td>
<td></td>
</tr>
<tr>
<td>&lt; R5m</td>
<td>31.0 %</td>
</tr>
<tr>
<td>R5m – R10m</td>
<td>20.7 %</td>
</tr>
<tr>
<td>R10m – R50m</td>
<td>17.2 %</td>
</tr>
<tr>
<td>R50m – R100m</td>
<td>10.3 %</td>
</tr>
<tr>
<td>R100m – R250m</td>
<td>3.4 %</td>
</tr>
<tr>
<td>&gt; R250m</td>
<td>17.2 %</td>
</tr>
<tr>
<td>Estimated Sector Turnover</td>
<td>± R60.5bn</td>
</tr>
<tr>
<td>Estimated Value-Added</td>
<td>± R30.3bn</td>
</tr>
<tr>
<td>% of Durban GDP</td>
<td>21 %</td>
</tr>
</tbody>
</table>

11 SUMMARY AND CONCLUSION

The Port and Maritime Sector together unquestionably are the main economic drivers of the Durban economy. The eThekwini Municipal Area is highly dependent on the sector and its ability to compete internationally for its economic growth and well-being. It is critical that the port and the inter-related shipping and cargo sectors are efficiently capitalised and managed in order that their cost structures are competitive by international standards. The country is heavily dependent on international trade both inwards and outwards, and as such it is critical that Durban’s port is recognised as an international trade gateway. To achieve this recognition it must consistently operate at the better end of international standards.

It was encouraging to find that there are a large number of small businesses operating in the value chain and that it is a fertile area for young entrepreneurs. Outsourcing of certain services to SMMEs appears to be growing and sub-contracting of cartage to owner-drivers of trucks is common practice. There is strong demand for artisans, drivers, forklift and machine operators, storemen and computer literacy.
The City’s economy has entered a high growth phase, as has that of the SA mainstream economy. From the foregoing analysis it is clear that both the port and the two sectors are not operating competitively and are also rapidly running out of cargo handling capacity due to insufficient berthing and back-of-port space and facilities. Recommendations have been made in the foregoing chapters as to how the value-chains of the two sectors and certain elements of the port and the city infrastructure could be improved and made more competitive.

It is important that the extent of the Port/Maritime Sector contribution to the local economy be understood and recognised, as it will provide the main impetus for growing employment in the EMA. The large industrial sectors such as Automotive, Petroleum and Chemicals, Metal Processing, Food and Beverages, Paper and Pulp, and other Forest Products, are all heavily linked to the port and the maritime sector in both their inbound and outbound value-chains. Thus it is critical that the port and associated sectors operate efficiently. If Maritime value-chain costs continue to be above international levels, the larger manufacturing firms will gradually relocate away from Durban.

Bearing in mind the wide range of materials and products which pass through the port and their effect on the structure of the local cargo handling sector, it seems very important that the port continues to maintain its cargo diversity. When capacity is under pressure it is tempting to rationalise and narrow the focus, especially when there is the convenience of another large port up the coast. Becoming too focused in terms of the cargo profile would have a damaging effect on the local industry. The employment capacity of the Cargo sector in particular has been shown, and this employment should not be jeopardised by excessive rationalisation. The net effect of too much rationalisation would be to destroy a significant number of jobs in the private sector. A further point is that for a ship to make multiple calls is costly and raises the average cost of a port call. This is not to say that selective cargo types should not be moved to other ports such as Richards Bay over time, but the process should be handled carefully and the full impact on local employment evaluated. The transfers should be formulated together with the private sector during the process.

From the City’s perspective, there will be many difficult challenges in the form of re-planning and upgrading of industrial infrastructure and townships. The rate of economic growth is already putting severe strains on the system and bold decisions will be required to address the key issues. In this case it will be the growth in Back-of-Port operations, growth of the Cargo Logistics sector and the rapid escalation of transport volumes – sea, road, rail and air, which will create the challenges. The question of transport corridors and rerouting of heavy articulated trucks, establishment of an inland container terminal and re-planning for a revitalised and modernised rail service are just three of the major strategic issues, which have to be tackled. Finally, because of the expected high growth rate and the backlogs in infrastructure spending, the time for these decisions is right here.
ANNEXURE B – CARGO FLOWCHART

PUBLIC SECTOR

OTHER STATE SERVICES
- Transnet
- Petronet
- Customs & Excise
- Police/Security
- State Warehouses
- Inspection Services

PRIVATE SECTOR

PRIVATE TERMINALS
- Sugar
- Grain
- Bulk Coal, Metals & Minerals
- Bulk Liquids & Petroleum
- Fresh Produce
- Forest Products
- Soda Ash
- Brewery Malt

IMPORT / EXPORT
- Import/Export Agents
- Importers
  - Commercial
  - Manufacturing
- Exporters
  - Commercial
  - Manufacturing
- Trade Facilitators

PRIVATE SERVICES
- Containers
  - Container Cartage
  - Pvt. Container Terminals
  - Container Storage
  - Container Manufacturing & Maintenance
- Stevedoring
  - Cargo handling
  - Crane & Equipment Hire
  - Cargo Securing
- Shipping Agencies
  - Freight Services
- Clearing & Forwarding Agents
  - Documentation
  - Customs Clearance
- Financial Services
  - Banking
  - Foreign Exchange
  - Letters of Credit
  - Marine Insurance
- Warehousing
  - Warehousing
  - Refrigeration
  - Bond Stores
- Transport & Logistics
  - Transport Carriers
  - Local Cartage Contractors
  - Bulk Liquid Carriers
  - Logistics Services

PORT CARGO HANDLING FACILITIES:
- Container Terminals
- Multi Purpose Terminals
- Breakbulk Terminals
- Vehicle Terminal
- Liner Terminal

ANNEXURE C - KEY COMPONENTS OF THE MARITIME SECTOR VALUE-CHAIN
FLOWCHART 1 – BULK LIQUIDS

Tanker Vessels

Pipeline Network

Chemical Tank Farms:
- Liquid Chemicals
- Vegetable Oils
- Molasses

Petroleum Tank Farms:
- Refined Petroleum Products
- Refined Oils

Tank farm Services:
- Bulk Liquid warehousing
- Product Blending
- Customs Cleaning & Forwarding
- Truck Filling & Emptying
- Drumming Off
- Tanker Cleaning
- Weighbridge

Transport Tankers
Road & Rail

Industries:
- (Import & Export)
- Chemical
- Paint
- Food & Beverage
- Cosmetic
- Detergent
- Textile
- Automotive
- Foam
- Etc.

PETRONET Pipeline to Gauteng

Product Flows – Import and Export
FLOWCHART 2 – MOTOR VEHICLES

Product Flows – Import and Export

VEHICLE CARRIER VESSELS

CAR TERMINAL 1

Vehicle Transporters (Road & Rail)

CAR TERMINAL 2

TOYOTA MANUF. SA Durban Plant

GAUTENG AUTO MANUFACTURERS

KZN AUTOMOTIVE DISTRIBUTORS

INLAND AUTOMOTIVE DISTRIBUTORS

AUTOMOTIVE RETAILERS

USED VEHICLE IMPORT / EXPORT (Agents / Distributors)

USED VEHICLE DEALERS
FLOWCHART 3 – BULK AND BREAKBULK

PORT ACTIVITIES

BULK TERMINALS:
- Sugar
- Coal & Difficult Materials
- Grain
- Metals % Minerals
- Woodchips
- Ferro-Alloys
- Etc.

BREAKBULK & MULTI-PURPOSE TERMINALS:
- Rice
- Woodpulp
- Forest Products
- Steel
- Electrical Appliances
- Fresh Produce
- Soda Ash
- Brewery Malt
- Machinery
- Etc.

PRIVATE SECTOR ACTIVITIES

Local Distribution Points

Inland Distribution Points

Rail & Road Transport Carriers

Local Manufacturers

Road & Rail Transport Carriers

LOCAL:
- Warehouses
- Distributors
- Factories

INLAND:
- Warehouses
- Distributors
- Factories

Product Flows – Import and Export