

# **The role of the Port of Durban in Strengthening the Platform for growth in eThekwin**



**By**

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## TABLE OF CONTENTS

<b>CHAPTER ONE: INTRODUCTION</b>	<b>1</b>
1.1 Why this topic?	1
1.2 Aims and objectives	2
1.3 Background to the eThekweni Metropolitan area	3
1.4 Current economic trends in the EMA	5
1.5 Key challenges facing the EMA	8
1.6 Meeting the Challenge	10
1.7 The Port of Durban as a platform for growth	13
1.8 Conclusions	15
<b>CHAPTER TWO: METHODOLOGICAL FRAMEWORK</b>	<b>16</b>
2.1 Historical overview of the Port	16
2.2 Research problem	18
2.3 Research Questions	22
2.4 Hypothesis	23
2.5 Points of departure and assumptions	23

<b>2.6 Research Methodology</b>	<b>24</b>
2.6.1 Scope and limits	24
2.6.2 Secondary source information	24
2.6.3 Primary source	25
<b>2.7 Structure of enquiry</b>	<b>26</b>
<b>2.8 Conclusions</b>	<b>27</b>

<b>CHAPTER THREE: CONTEMPORARY GLOBAL TRENDS IN PORT-CITY RELATIONSHIPS AND PORT DEVELOPMENT TRENDS</b>	<b>28</b>
3.1 Generic role of ports	28
3.2 The Port and the City relationship	31
3.2.1 Spatial dynamics of the port and city	32
3.2.2 Socio-economic benefits	35
3.2.3 Benefits of ports to local economies	36
3.2.4 The increasing pressure on local resources	39
<b>3.3 The need for port infrastructure and services</b>	<b>40</b>
3.3.1 Port infrastructure	40
3.3.2 Port services	41
<b>3.4 Port reform in the 21<sup>st</sup> century</b>	<b>44</b>
3.4.1 The competitive landscape	46
3.4.1.1 Rivalry within and between ports in a region	46



<b>3.4.1.2 Threat of new competitors</b>	<b>48</b>
<b>3.4.1.3 Potential for global substitutes</b>	<b>49</b>
<b>3.4.2 The benefits of private participation in infrastructure development and service delivery</b>	<b>50</b>
<b>3.4.2.1 Broad summary of benefits to stakeholders</b>	<b>50</b>
<b>3.4.2.2 Forms of private participation at ports</b>	<b>51</b>
<b>3.4.3 The diversification and globalization of investors and operators in the port industry</b>	<b>52</b>
<b>3.4.3.1 The development of containerization</b>	<b>53</b>
<b>3.4.3.2 Multimodalism</b>	<b>54</b>
<b>3.4.3.3 Modern cargo-handling equipment, facilities and services</b>	<b>54</b>
<b>3.4.3.4 One-stop shipping centers</b>	<b>54</b>
<b>3.4.3.5 Free Trade Zones</b>	<b>55</b>
<b>3.4.3.6 High volatility and declining profitability of shipping industry</b>	<b>55</b>
<b>3.4.3.7 Environmental safety and standards in international shipping</b>	<b>55</b>

3.4.3.8	The ‘US Terrorism Act’ and implications for shipping	56
3.4.3.9	Economic recession and shifting global trade patterns	56
3.4.3.10	Shipping fleets become more niche-oriented	57
3.4.3.11	Expansion and multi-polarity of global trade	57
3.4.3.12	Separation of Port Authority and Port Operator	57
3.4.3.13	Emergence of global port developers and operators	58
3.4.3.14	Growing influence of port users	58
3.4.3.15	Integration of ports in logistics value chain	58
3.4.4	Port Management	59
3.4.4.1	Port Management Models	59
3.4.4.1.1	Landlord Port	59
3.4.4.1.2	Service Port Model	60
3.4.4.1.3	Tool Port	60
3.4.4.1.4	Fully Privatized Port	61
3.5	Conclusions	61

<b>CHAPTER FOUR: IDENTIFICATION AND ANALYSIS OF KEY ISSUES</b>	
<b>FACING THE PORT OF DURBAN</b>	<b>62</b>
4.1 Setting the context for analysis	62
4.2 S.W.O.T analysis of the Port of Durban	64
4.2.1 Strengths	65
4.2.2 Weaknesses	65
4.2.3 Opportunities	66
4.2.4 Threats	66

<b>4.3 Key issues</b>	<b>67</b>
<b>4.3.1 Level One issues: planning and development issues</b>	<b>67</b>
4.3.1.1 The port needs to be a major competitor in the world container trade otherwise it would be relegated to secondary spoke status	67
4.3.1.2 Improvements in vessels technology places pressure on cargo handling operations at the port	68
4.3.1.3 There are capacity constraints at the Durban container terminal. (Future growth in industry vs. design capacity and operational performance issues)	71
4.3.1.4 The Durban Container Terminal is functioning below its operational potential mainly due to Management issues	77
4.3.1.5 The potential to improve container capacity will impact on break-bulk/neo-bulk and multi-purpose cargo handling facilities at the port	79
4.3.1.6 The provision of increased capacity requires extensive land that is currently unavailable at the port	81
4.3.1.6.1 Options within the city	81
4.3.1.6.2 Options beyond the city	82
<b>4.3.2 Level Two issues: value-adding and back-of-port logistic issues</b>	<b>83</b>
4.3.2.1 The Maydon Wharf area has facilities and businesses that potentially obstruct the capability of the port to respond to new challenges	85
4.3.2.2 The Bayhead area is currently under utilized and consequently sliding into neglect	86
4.3.2.3 Overland transport infrastructure investments are critical to the success of the port	88
4.3.2.3.1 Overview of Rail Infrastructure and capacity	88

<b>4.3.2.3.1.1 Rail Infrastructure serving the port is under utilized</b>	<b>89</b>
<b>4.3.2.3.2 Overview of Road infrastructure and capacity</b>	<b>90</b>
<b>4.3.2.3.2.1 Road Infrastructure could face capacity constraints in serving the port in the future</b>	<b>90</b>
<b>4.3.3 Level Three issues: port and city issues</b>	<b>91</b>
<b>4.3.3.1 The natural environment could be compromised as proposals to improve capacity are implemented</b>	<b>92</b>
<b>4.3.3.2 An increase in port activity could affect the appearance of the port-city interface (waterfront) and thereby impact on the public accessibility to the waters edge</b>	<b>92</b>
<b>4.3.3.3 Formal structures for Port-City collaboration has been non-existent to the detriment of both entities</b>	<b>93</b>
<b>4.4 Conclusions</b>	<b>94</b>

<b>CHAPTER FIVE: KEY PROPOSALS PUT FORWARD TO ADDRESS ISSUES FACING THE PORT IN THE 21<sup>ST</sup> CENTURY</b>	<b>95</b>
<b>5.1 Port improvement plans to improve container-handling capacity</b>	<b>95</b>
<b>5.2 Plans to concession the Durban Container Terminal to improvement management and efficiency</b>	<b>98</b>
<b>5.2.1 The Concessioning agreement</b>	<b>100</b>
<b>5.3 Formation of ‘National Ports Policy’ to remove barriers for competition</b>	<b>102</b>
<b>5.4 Formulation of National Ports Authority Bill to regulate port competition</b>	<b>104</b>
<b>5.5 Conclusions</b>	<b>105</b>

<b>CHAPTER SIX: THE PORT OF DURBAN AND THE EMA</b>	<b>106</b>
6.1 The Port and the natural environment	106
6.2 The Port as a provider of social development and interaction	109
6.2.1 The Port-City interface waterfront developments	110
6.2.1.1 Victoria Embankment	110
6.2.1.2 Point Waterfront Development	114
6.3 The Port as a provider of employment	118
6.3.1 Directly port-dependant ancillary industries	118
6.3.2 Indirectly port-related industries	121
6.4 The Port as a facilitator of competitiveness for firms in the EMA	123
6.4.1 Competition in property market	125
6.4.2 Competition for business activity	126
6.5 The Port and the Industrial Development Zone	126
6.6 Communicating for the ‘Future’	130
6.7 Conclusions	134

<b>CHAPTER SEVEN: CONCLUSIONS AND RECOMMENDATIONS</b>	<b>136</b>
7 Synopsis	136
7.1 The Port of Durban as the “premier container-handling facility in Africa”	138
7.3 Strengthening the “ <i>platform for growth</i> ”	140
7.4 Conclusions	141
7.5 Some recommendations for moving forward	148
<b>BIBLIOGRAPHY</b>	<b>153</b>

<b>LIST OF MAPS, FIGURES, TABLES</b>	
Map 1 Durban harbour layout	14
Map 2: Dube Trade Port (DTP)	128
Map 3: Detailed layout of Durban harbour	168
Figure 1: Z-shaped Pier 2 design Configuration	75
Figure 2: Concept Diagram of Dube Trade Port	129
Figure 3: Straddle carrier utilization in selected Ports compared with Durban	144
Table 1 Contribution of manufacturing sectors to total manufacturing output and employment	5
Table2: Annual and expected growth in container growth in Durban Container Terminal	19
Table 3: Perceptions of cargo owners on the increase in volumes of cargo handled at the Port	20
Table 4: Reasons for pursuing port reform	45
Table 5: Ships likely to visit the ports of South Africa and their draught requirements	164
Table 6: Vessels ordered as of February 2001	165
Table 7: Container supply chain times at South African Ports	73
Table 8: Performance variables quantified at the DCT	74
Table 9: Quay and Stacking Capacities of Container-handling	74
Table 10: Dimensions of future container cranes	166
Table 11: Facilities and Equipment at DCT	76
Table 12: Top ten countries with \$8000 in private port investment	167
Table 13: Transit Time in the Import/Export Chain	84
Table 14: Summary of expected cargo volumes in 2005 at the Port of Durban and possible job creation for the EMA	123
Table 15: Relationship between capital investments and growth	124

<b>APPENDICES</b>	
Appendix One: Container handling options for the port as indicated in the Integrated Environmental Management Study (IEM unpublished 1996)	161
Appendix Two: Options for Additional Breakbulk/Neo-bulk capacity and container handling capacity	168
Appendix Three: Options for Additional Bulk liquid capacity at Island View	172
Appendix Four: A brief description of ports in the same national supply chain that have the potential to absorb growth multipliers from the Port of Durban's collective hinterland, especially those of competing for container handling operations	175
Appendix Five: Conceptual plans for Waterfront Development	182
Appendix Six: Direct and port-related employment resulting from cargo throughput	187
Appendix Seven: Background of 'top five' terminal operators in the world	188
Appendix Eight: Description of Interviewees	189
Appendix Nine: Explanations of terminology	190
Appendix Ten: Newspaper clippings	192

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## **Acronyms**

EIA: Environmental Impact Assessments

EMS: Environmental Management Systems

DCT : Durban Container Terminal

GEAR: Growth, Employment and Redistribution strategy

IDP: Integrated Development Plan

IEM: Integrated Environmental Management

ITRUMP: Inner Thekwini Renewal and Urban Management programme

NDOT: National Department of Transport

NPA: National Ports Authority

SADC: Southern Africa Development Community

TEUs: twenty foot equivalent units (containers)

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## **CHAPTER ONE: INTRODUCTION**

### **1.1 Why this topic?**

Globalization of the world economy has created several challenges for the South African city. Accordingly, globalization has placed enormous pressure on city economies by forcing businesses to become globally competitive. The performance of the eThekweni Metropolitan economy is largely determined by the competitiveness of the city's export clusters.

It can be argued that an expanding export base is one of the keys to economic prosperity since the multiplier effects of increased activity brings new wealth and incomes. Simultaneously, when export led industries bring increased incomes into the city, local businesses create the vast majority of jobs. The quality, diversity and vitality of local businesses, therefore, are key to the city's overall economic and social well-being.

City strategies as a result, focuses increased attention on the key role played by export-oriented industries in a way that supports local businesses and strengthens the region's economic foundations to build a critical succession of economic growth. Accordingly, in the EMA, the foundation that supports both the export and local sectors of the economy is undoubtedly the Port of Durban. It can therefore be argued that the wealth of the city is determined by the health of the port.

Whilst this may be true, the decentralized power of local government in South Africa has created a plethora of decision-making authorities, consequently creating a lack of alignment and consensus among them. This trend is by no means exclusive within the eThekweni local municipality, especially evident in its relationship with the port authorities. This lack of alignment between the city and port has created a climate of growth uncertainty. Given the scarcity of resources within the EMA, to stabilize these concerns, there is a need to redress the imbalances of the past.

Accordingly, the city should develop its inherent natural resources, such as the Port, so that it can be geared into the new global economy. The future of planning in the EMA therefore should be well coordinated to achieve the desired vision for the region. This dissertation's area of interest focuses accordingly, on identifying the need to establish a comprehensive framework to guide and coordinate urban development policies of the city and Port. In doing so, the benefit would be the awareness of the significance of the role the Port has in the economic development of the city.

## 1.2 Aims and objectives

The primary aim of this research is to illustrate ***“the role of the Port of Durban in strengthening the platform for growth in the EMA”***. That is to say, an attempt is made in this dissertation to demonstrate how the port facilitates competitiveness not only in its own right, but also for the key economic role-players in the city in which it resides, namely, the eThekweni Metropolitan Area (EMA).

The objective for that reason is to *“identify the port improvements necessary to maintain the status of the ‘Port of Durban’ as the premier container-handling port in Africa”*. In doing so, this dissertation would show how *“the pursuit of these improvements (as an aggregate plan) might have a positive effect, which creates the greatest public and private benefit for the residents and businesses alike in the eThekweni Metropolitan Area”*.

The main argument of this dissertation however, is to create an awareness amongst planners in South Africa, but more importantly in the eThekweni Metropolitan Area, that the ***“continued separation of decision-making about the port and the city’s urban development policies will result in the port not achieving its potential as a global competitor and as a result the city’s economic base declining”***.

The dissertation follows with an outline of the city’s background and also the aims of the city for the future. This incorporates the current trends and key issues facing the city in general in order to set the context from which the port can be viewed to contribute to the local economy. This chapter (one) for that reason identifies the Port of Durban as a key to enhancing the eThekweni Metropolitan Area’s growth opportunities especially portraying the port as a *platform* from which the city can benefit from.

### ***Vision Statement for the city***

“ By 2020 the eThekweni Municipality will enjoy the reputation of being Africa’s most caring and liveable city, where all citizens live in harmony. This Vision will be achieved by growing its economy & meeting peoples needs so that all citizens enjoy a high quality of life with equal opportunities, in a city that they are truly proud of. ”

***As agreed at the Alpine Heath Workshop 13-15 May 2001(LTDF 2001)***

### **1.3 Background to the eThekwin Metropolitan area**

The eThekwin Metropolitan Area (previously Durban Metropolitan area) is located on the eastern seaboard of South Africa. The EMA's newly demarcated boundary (35% urban and accommodating over 80% of the total population) is a 68% extension of the previous Durban Metropolitan area, bringing a further 9% increase in population. Its immediate surrounding areas serve a population of approximately 3 million people. Being the economic heartland of KwaZulu-Natal, and the second (to the PWV complex in Gauteng) largest economic centre in South Africa. The eThekwin Metropolitan Area (1.4% of total provincial area) is also the financial centre of South Africa's eastern seaboard. Geographically, the eThekwin Metropolitan Area (EMA) is well positioned, with an established rail and road infrastructure connecting it to the hinterland of Gauteng. The N2 freeway runs parallel to the coast linking to the north of the province and the Cape region to the south as well as the N3 freeway, which enables the EMA to serve the heavily industrialized Gauteng region.

The EMA contributes to approximately 35 percent of KwaZulu-Natal's total employment, and close on 60 percent of the province's GGP. The EMA is more dependent on manufacturing (historically located to the south of the CBD, in the Southern Industrial Basin, but more recently being spread to the west and to a lesser extent to the north) than other major South African cities, simultaneously contributing to 12 percent of manufacturing output and 18 percent of the total manufactured exports (KwaZulu-Natal review 2001/2002). The other three major sectors of the EMA economy are tourism (adding 24% to the local economy, and located along the coast), finance and transport. This emphasis on manufacturing represents both strength and, potentially, a weakness in eThekwin's Metropolitan economy. A disproportionate reliance on primary products places any developing economy in a vulnerable position in relation to world markets, and eThekwin's relatively strong manufacturing base serves to diversify this risk (Morris et al 2002). Furthermore, industrial development is seen as key to rising employment and incomes (Hirsch 1997 in Morris et al 2002). However the milieu facing manufacturers, both internationally and locally, is changing rapidly, and it remains to be seen whether eThekwin's industries will respond to these changes.

An analysis of the background of the city may be understood at the national level in which it occurs. The South African economy is currently growing at 2.2 percent (revised 2003) per annum is not adequate for dealing with high levels of unemployment and poverty facing most of the South African communities. These national trends suggest reflections, to some extent, at the local level. The



economic policy (GEAR which *inter alia* focuses on the cut in expenditure on social services; privatization and rationalization of the public service) that drives the South African economy means that eThekweni Metropolitan may find it difficult to tackle social and economic challenges at the local level.

At the provincial level, KwaZulu Natal (KZN) is the site of the two busiest ports (located in Richards Bay and the eThekweni Metropolitan area), which play a crucial role in trade between the province, the rest of South Africa as well as the outside world. KZN also plays a crucial role in the national economy, especially concerning transport, manufacturing, tourism and communication sectors. Although the official urbanization level of KZN is 38% below that of the national figure (which is at 49%) there is however, especially recently, a trend to migrate towards eThekweni Metropolitan area as people seek employment opportunities. This state of affairs increases demand for areas for accommodation and puts pressure on the city's absorption capacity, thus calling for new urban management strategies. Of importance is that the economic growth of the province is highly concentrated in the eThekweni Metropolitan area.

Regionally (SADC), the EMA has one of the largest ports in Southern Africa and is located adjacent to the inner city thus giving the city an advantage in terms of trade interaction with the region. This comparative advantage of the city can be used to the benefit of both the province and the rest of South Africa. With the necessary improvement on logistics to avoid backlogs, the port can be one of the best in South Africa; this can help in facilitating trade between SA and the SADC region, and the rest of the world. Significantly, some challenges such as those regarding perceptions about the city are likely to be influenced by political issues at the international level such as South Africa's handling of the crisis in Zimbabwe.

Since the advent of democracy in 1994, South Africa has the added benefit of integration into the world economy. With the competition for investments brought about by globalization, the main challenge of most cities is to become excellent investment locations. It is important therefore that the city compares well with other cities in the world. The South African government's quick opening of the South African economy to the international market has resulted in certain sectors being exposed to competition from foreign producers: clothing, textiles, auto components and assembly, resulting in increased unemployment, as some of these sectors have lead to closure (Morris et al 2002). It can however be said that integration into the international market also brought some positive results such as the move to reform the tariff regime, for instance, resulted in sectors benefiting from the move.

These sectors include: trade, services, and aspects of metal work, industrial chemicals and food (Morris et al 2002).

Table 1 Contribution of manufacturing sectors to total manufacturing output and employment

OUTPUT		EMPLOYMENT	
Food	13.5%	Clothing	18.6%
Chemicals	13.3%	Food	10.5%
Paper	7.7%	Textiles	10.1%
Textiles	7.3%	Chemicals	6.5%
Clothing	6.8%	Metals	6.4%

\* Derived from 1993 CSS Census of Manufacturing statistics

Source: Adapted from Morris et al 2002 (table 1) p 4

1.4 Current economic trends in the EMA

The City has undergone many changes, particularly since the first democratic elections in 1994. Since then, certain trends have emerged from the various property sectors within the Unicity CBD. The rapidly changing socio-economic environment within the city has produced trends such as investment strategies of institutional landowners; changes in technology (specifically information technology); and global changes in space requirements, to the detriment of an increasing investment uncertainty in the city (iTRUMP Economic Profile, 2003, p 8). The most evident trend is decentralisation, which happens within the ambit of office property and retail sector. The other sectors such as tourism, light industry, service industry, informal economy, and the port are not exceptions in terms of the prevailing trends. Also evident in the city are large amounts of investment directed at strengthening the economy of the City. The most notable examples are, Point Waterfront Development, Gateway shopping centres, and so on.

According to the Report iTRUMP Economic Profile, (2003) prepared for Durban Unicity, continuing *decentralisation in the office market* is the most important trend influencing the office market sector. According to this report, decentralisation is mainly to the north of Durban (Umhlanga office park), with some also to the west (Westville and Hillcrest). Despite this evidence of office decentralisation, the city centre still accounts for more office space (62 %) than the decentralised areas (38%). According to these figures, the city is ‘far’ behind in term of decentralisation compared to other South

African cities. However, this phenomenon of office decentralisation in the EMA is expected to continue occurring in years to come.

High levels of *crime and violence* characterize the EMA, and in 1994 it had the second highest rate of criminal violence in the country after Johannesburg and Soweto. Crime and violence has resulted not only in human injury, suffering and insecurity but has also significantly reduced the EMA's attractiveness to both potential visitors and investors. Urgent action is needed to address crime. The EMA pioneered peace pacts and development negotiation and this experience needs to be built on (See Green Paper on Economic Development: *Commerce*).

As mentioned above, decentralization has also been evident in the *Retail sector*. According to the iTrump Economic Profile Report, the household consumption patterns (in South Africa as a whole) have not been consistent over time thereby resulting in the occurrence of slow growth between the period 1997 and 2000. The Economic Profile Report also states that the retail sector in the inner city (Warwick Junction; Core CBD and North Eastern CBD) has been influenced by the composition of demand for retail and wholesale goods. This suggests that the EMA is a mass consumer market with a high proportion of expenditure on food and clothing a profile, typical of lower income consumers. Long-term trends show that the EMA's sales share of the South African retail trade has been slipping over recent years especially since expenditure in the retail and wholesale sector within the eThekweni Metropolitan Council has increased (iTRUMP Economic Profile 2003). The eThekweni's retail sector is characterised by a range of enterprises which includes larger firms that can largely be classified as branch or subsidiary firms, a fast growing SMME component as well as thousands of individuals involved in informal sector economy (Morris et al 2002).

The *Tourism sector* has evolved in the last few years. Tourism also contributes significantly to growth in the city (every 30 tourists create one direct job and two indirect jobs) and is currently growing by 0,4% (iTRUMP Economic Profile 2003). The Durban Beachfront has historically been the tourism hub of KZN and the main tourism destination for the Gauteng middle-class (iTRUMP Economic Profile 2003). However, the tourism composition is changing - with the local government (and private sector) embarking on a number of capital-intensive tourism development projects. The most notable developments include the Suncoast Casino, and uShaka Island marine theme park on the Point waterfront (see Position Paper on Rates and Property values in the Durban Unicity, 2001, p 18). Suncoast Casino and Entertainment World for Durban, for example, is widely regarded as an essential element in the city's rejuvenation as a prime tourist destination. The tourist attraction in the beachfront

district has long been identified as viable tourist destination, but major impacts were noted since the late 1990s shortly after the establishment of International Convention Centre (ICC) and the Hilton Hotel in the north-eastern CBD. According to Economic Profile Report (p, 10-11) local trends have been impacted by the opening up of facilities to all races in the early 1990s, noticing an increase of day-trippers from the lower to middle income communities of the Unicity making use of the facilities at their disposal. The KwaZulu-Natal Tourism Development Strategy (2003-2005) reports that the main perceived weak point amongst international as well as domestic tourists remains the poor impression of personal safety as well as poor product development.

**Commercial services** such as banking, insurance and other financial activities are well developed in the CBD. Although there is some evidence of relocation to areas outside the CBD, the EMA has significant wholesale and retail activities with linkages into the substantial EMA informal economy. The City has played an important national role as a commercial hub as well as in servicing trading links between SA and other nations (Urban Strategy 1996).

The **Manufacturing sector** (mostly located south of the CBD in the South Durban Industrial Basin) is currently experiencing a negative growth rate but still accounts for roughly 30% of the EMA's employment opportunities (Urban Strategy 1996). While output growth has remained relatively stable, formal employment has dropped noticeably since the early 1990s (Urban Strategy 1996). Formal employment has consistently been based within the manufacturing, government, trade as well as catering sectors. Manufacturing's share in the EMA economy has declined over the last decade, reflecting the recession in the national economy (Urban strategy 1996). "Investment growth in the province has been at 0,1% compared to the national average of -0,1%. A substantial proportion of this has accrued to the EMA" (Urban Strategy 1996 p 11).

**Light Industrial activity** is limited in the inner city area and concentrated in the Umgeni Corridor where a number of clothing manufacturers and the Lion Match Factory are located. A noticeable trend which, poses as an encouraging opportunity for the city is the establishment of small and service industries as well as the growing trend of utilising the existing industrial spaces available for warehousing purposes, (Urban Strategy 1996). Through this growing trend, presumably such workshops and warehousing concerns will primarily take up Grade C type office space, which is unsuitable for office occupation. There is also a growing possibility that the redevelopment of other existing industrial areas linked to the city may increase the demand for retail and industrial space in the inner city (Economic Profile Report, 2003, p11).



**Transport** is another important sector (contributing 12,25% to GGP), reflecting the central role of the port in the local economy, as well as the connection between the EMA and other urban centers. The port has become Africa's busiest and one of the world's fastest growing transport centers. Through the operation of the port the EMA continues to play a crucial service role for the national economy, being a major access point not only for exports, but also for imports, which are crucial for South Africa's industrial development.

The **Informal economy** plays an important role in the city. The size of the informal economy in the EMA is unknown but it is estimated nationally to contribute 6,7% of GDP. The sector is critical in providing livelihoods for a large number of people from the black population in the city. This economic diversity, with strongly developed manufacturing, trade, service and tourism sectors, is a major strength of the EMA, which needs to be developed and built-on to serve the informal economy.

Rapid urbanization and the breakdown of apartheid controls have led to increased proximity between contrasting sectors in the city and have produced a range of conflicts influencing the economy. These conflicts need to be mediated by local government, as well as economic opportunities, which need to be harnessed. For example, the establishment of informal traders in the CBD has led to conflict between formal and informal traders and a reduction in the attractiveness of the area for some people. However, this situation also creates significant opportunities. The expanding informal and small business-trading sector in the city core could be supported and developed as a significant provider of economic opportunities for historically disadvantaged residents. According to the document released by the EMA's Economic Development Department only 7% of new labour market entrants are able to obtain formal jobs. The presence of informal traders also has considerable potential to increase the tourist attractiveness of the CBD through the development of thriving colourful markets and the production and sale of traditional goods such as arts and crafts (Urban Strategy 1996).

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## **1.5 Key challenges facing the EMA**

The eThekweni Metropolitan Area has a vision to generate increased prosperity and quality of life for all of its citizens. The particular economic goals of the city which align with those of the province are:

- "Increasing per capita income (to a level comparable to other emerging middle income economies)
- Sustainable economic growth comparable to the highest growth rates



- Increased rate of sustainable job creation (leading to ‘full’ employment) in higher quality skilled jobs
- Better distribution of wealth, of both incomes and assets, demographically and by size of business
- Skilled entrepreneurial population” (Monitor Company 2000 p 6)

The key issues facing the city can be summarized as follows:

- Creating sufficient jobs and economic opportunities for the fast growing workforce
- Widening access to economic opportunities in order to address past inequities
- Extending services to areas of disadvantage, while also maintaining existing public investment infrastructure, within the scope of the Council’s limited resources
- Increasing levels of safety and security within the City
- Reshaping the spatial structure of the City to bring together economic and social opportunities
- Maintaining and enhancing the City’s environmental quality which has been severely degraded by urban and industrial development
- Meeting the rapidly increasing demand for transportation which includes a likely doubling of cars on the road over the next 25 years
- Reorienting arts, culture and recreation activities to support the range of cultures in the City
- Responding to health threats including AIDS/HIV and tuberculosis
- Transforming and strengthening the City’s institutional framework to enable effective local governance (Monitor Company 2000)

According to the Monitor Company’s report on Strategic choices for Durban (2000), the city is facing a significant challenge. In the next two decades. It needs to:

- “Increase per capita incomes to R33 000 per annum
- Create 650 000 jobs, in the most sustainable areas of the economy
- Increase its growth rate to 7.5% per annum
- Improve the standard of living of the poorest 50% of its population
- Empower the African population to own an increasing share of assets
- Improve income distribution
- Deliver improved services to all in the EMA
- Increase the contribution to GDP of small and micro businesses

- Train the best formally educated population in the country, ensure across-the-board literacy, numeracy and entrepreneurial skills; and align skills to sectoral growth need” (Monitor Company 2000 p 15)
- 

## **1.6 Meeting the Challenge**

If the city continues on its current path, it will slide toward real crisis in the next ten years. The city will continue to slide into poverty as per capita incomes will drop towards R19 000 (Monitor Company 2000). The consequence of which will be another 10 000 lost jobs and unemployment growing by 350000. If current trends continue the gap between rich and poor will increase as unemployment growth continues and skills will continue to drain out of the city. Service delivery will decline as revenues to the city decreases (Monitor Company 2000).

### **Strength's in the EMA's Economic System**

- ✓ As noted earlier, the City has excellent infrastructure and its position as a transport hub allows itself to be responsive to national, regional and international demand.
- ✓ The City enjoyed a 6.9% per annum growth rate in world export markets over the last decade and an increased SA market share of world trade (0.67%) to date.
- ✓ The strong presence in advanced sectors of the economy such as manufacturing transport and communication, financial services and tourism further amplifies the strength of the EMA economy.
- ✓ It is also noted that there exists a potential for industrial clustering particularly in chemicals, automotive, wood, and wood products, clothing and textiles transport and logistics in the EMA. There is a strong geographical clustering in areas such as Southern Industrial Basin (manufacturing) as well as tourism clustering in the Northern and Central areas.
- ✓ The city also boasts an efficient network of related and supporting industries, particularly universities and research organizations.
- ✓ There is in existence, an efficient local government presence with fiscal strength supportive of growth initiatives (Urban Strategy 1996, Morris et al 2002, iTRUMP economic Profile 2003)

## **Impediments in the EMA's Economic System**

- ✖ The iTRUMP economic profile (2003) notes that a weakening local market that is driven by declining per capita income characterizes the city's growth. The result is a decrease in retail demand to 10% of South Africa's total in 1999 from 13.2% two decades earlier.
- ✖ There is also a weak national market with low growth rates (1.4% over the last decade), high interest rates and high unemployment, limiting the potential for internal demand driven growth.
- ✖ Factor disadvantages including HIV/AIDS, crime and the loss of skills to other cities.
- ✖ The EMA has a small business sector struggling to build sustainable presence above subsistence levels and global competitors in cost-based industries (e.g. textiles, clothing and motor) pose competitive challenges to the EMA's core areas of economic activity (iTrump Economic Profile, 2003).
- ✖ There is also an investment lag in terms of infrastructure provision (airport and port) that further impedes growth in the city.
- ✖ The EMA has an industrial base representative of the past, that is dependant on lower value-adding upstream activities, under-representation in the world's fastest growing sectors, diverse 'import-substitution' industrial base lacking sufficient strength and depth to build global competitiveness, and weak clustering of industries and firms with common goals in close proximity diminishes geographical clustering advantages (Urban Strategy 1996, Morris et al 2002, iTRUMP economic Profile 2003).

## **Opportunities**

- + The proposed R 1.3 billion redevelopment of the Port is expected to bring about an opportunistic location of ancillary industries in the City.
- + The completion of the R 657 million Point Marine Theme Park represents an opportunity to unlock development of the Point Precinct and a lever for future tourism investment in the city and the province
- + The Village Green casino will enhance development along the beachfront as a corridor of 'Excellence'.
- + The City's popularity as a host of ocean-oriented events and adventures presents tourism potential to be further unlocked and optimized
- + There is availability of easily accessible and serviced land within the city for future development (iTRUMP economic Profile 2003).

- + The Ucity has a well-coordinated agency tasked with promoting the location as an investment destination in the region and nationally (Durban Investments Promotions Agency).
- + The Durban Events Corporation tasked with promoting local and regional eventing within the Ucity is one of the necessary tools to communicate local and regional eventing to the rest of the country and to the world at large.
- + Durban Africa, a Section 21 company, is responsible for marketing the tourist products within the Ucity and the province. Durban Africa in partnership with Durban Investment Promotions Agency will serve as the necessary vehicles to marketing the focused sectoral approach through economic zones proposed in the future management of the City.
- + The EMA's prioritization of revitalization of the Inner City in its budget processes is an opportunity to leverage further growth opportunities in the local economy (iTRUMP economic Profile 2003).
- + The city is also dedicated in establishing an institutional framework to co-ordinate Inner-City revitalization. The Inner Thekwini Renewal and Urban Management Project (iTRUMP) are responsible for implementation of the Ucity's declaration. iTRUMP represents an existing institutional management structure in the inner city, currently targeting operational issues of safety, social issues and enforcement, however the structures are not formalized yet.
- + iTRUMP is also in the process of developing a Communications Strategy for the Inner City, in consultation with stakeholders to enable ultimate provision of regular updates on progress within the Inner City. This will also disseminate information on achievements as well as alleviate some of the negative perceptions that exist about the City (iTRUMP economic Profile 2003).
- + iTRUMP Stakeholder Forum represents an opportunity for extensive consultation, commitment and support within the City.
- + The Urban Improvement Precincts (UIPs) represents a commitment for private sector to participate in shaping the local economy. UIPs are the primary basis for a sustained Public-Private Partnership (PPP) in local economic development and growth within the Inner City (iTRUMP economic Profile 2003).

## **Threats**

- An unsatisfactorily widespread and vigorous response to the competitiveness challenge, which means that few companies are repositioning to meet the new basis of competition, not believing they can compete globally (iTRUMP economic Profile 2003).

- There are leading exceptions – few companies are leveraging their advantages in competing within South Africa – Migration of Head Offices to Johannesburg for supporting services and networking (iTRUMP economic Profile 2003).
- There is also the threat of declining investment in manufacturing over the last decade, correlating to declining growth rates (Morris et al 2002)
- Investment has increased only in capital intensive, upstream industries where value added is low (chemicals and food); and in printing and publishing (Morris et al 2002)
- Port infrastructure is lagging demand, creating the possibility for other ports to aggressively enter the container and general freight industry.
- Inadequate industrial land planning resulting in inappropriate mixed use of land, particularly in the Southern Industrial Basin is a major threat to the health of the city.

The review of economic trends in the EMA and strategic analysis in the previous section provides the context within which to examine the role of the Port of Durban, and more importantly, its potential role as a platform for growth in the EMA.

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## **1.7 The Port of Durban as a platform for growth**

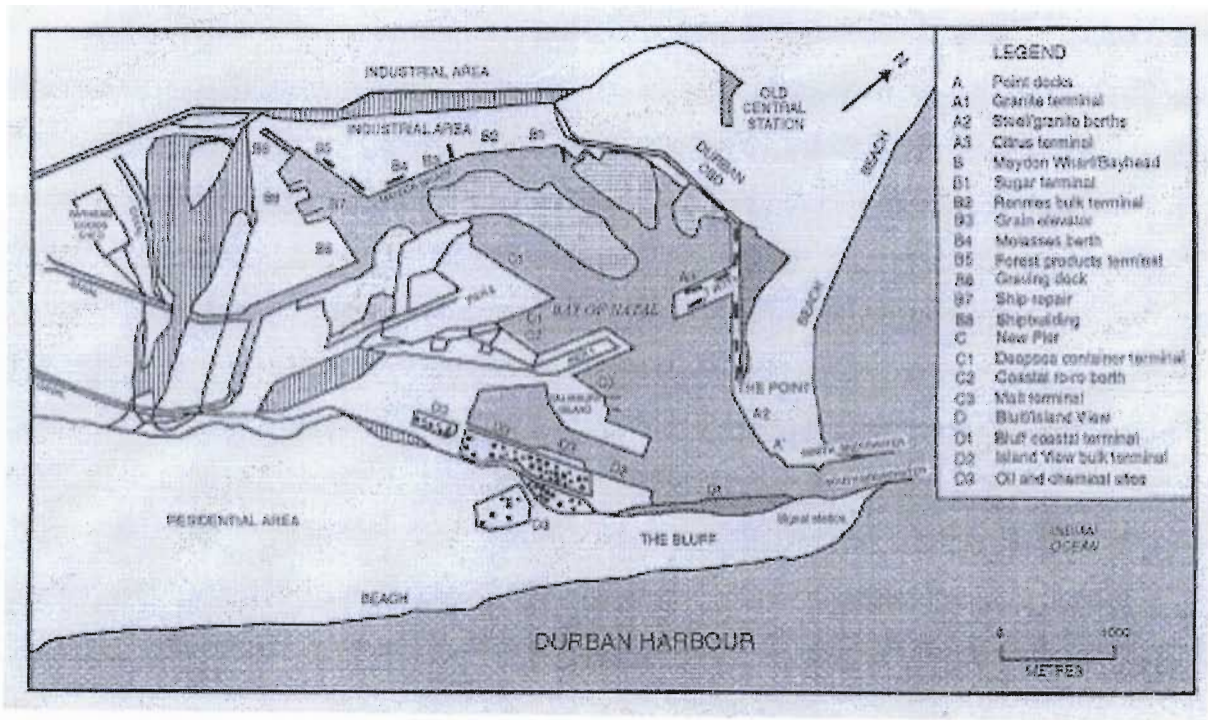
The port is directly linked to the origin and the development of the city, and benefits from advantageous natural conditions. Its privileged geographical location has established the Port of Durban as a hub of international trade between Europe, Africa, the Americas and the Far East. The port remains the hub of the EMA's industrial base and settlement pattern, which forms a T-shape radiating out from the port (Day 1993 in Morris et al 2002). Industry extended south, establishing in Jacobs, Mobeni, and later Prospecton (Katzen 1961 in Morris et al 2002). The Port also serves the Southern Industrial Basin (SIB), where leading firms in heavy industries, particularly those dependent on imported inputs, such as paper and pulp, food, textiles, chemicals and heavy metals, and later the automotive industry, are located (Morris et al 2002).

Despite the fact that the land that constitutes the Port of Durban is extensive (see Map 1), the majority of its facilities, premises and port equipment are located around the natural bay. This has been the source of a series of conflicts between the port and the city, and the occupation and use of port territory has been challenged on various occasions. In May 2001, Portnet was split into the National Port Authority (NPA) and South African Port Operations (SAPO). The National Ports Authority (NPA) is a division of Transnet (a state owned company comprising of a number of transport related



business units). Although the port is owned and managed by the national government through Transnet, the port continues to influence, either directly or indirectly, much of the economic development in the EMA and its immediate hinterland. The Port of Durban’s operations is estimated to yield profits estimated to be over R5 billion annually (2002/2003 financial year) being channeled back to the national level (Chetty: Interview October 2003). The relationship between the port and the rest of the EMA’s economy is therefore of considerable importance. The lack of joint planning between the port authorities and local government, in the past, has meant that many of the opportunities inherent in the relationship between the two have not been optimized (Green Paper 1996).

Map 1: Durban harbour layout



Source: Jones, 1998

The port of Durban is currently on a path to better position itself in the future. It may become a global or regional hub port, remain a general port serving South Africa, or may even become a more specialized port serving particular industries, depending upon what is optimal (Monitor Company2000). “From the EMA’s point of view it is important for the port to position to serve the growth strategy. The port has the potential to create the City’s desired outcomes *not only as an industry in its own right, but also as a facilitator of competitiveness of the EMA’s firms*. It is not likely that within the next decade the port will be a regional or global hub, although it may begin to

position to be such” (Monitor Company 2000). It is also stated (in the same document) that the decision in which direction the Port will take will be influenced by many factors:

#### **Strength of local and regional demand for the port’s services**

- The port will respond to the strongest demand conditions particularly in high value adding areas in the city where proximity to the Port and tailored services create competitive advantage
- The Port will seek higher value adding services to improve its returns

#### **A clear vision for industrial growth**

- Given the long-term, high fixed cost nature of its investments; the Port will favour investing in areas where it sees secure long-term growth

#### **City investment and city-based spatial developments**

- The Port requires City co-operation in the provision of infrastructure, land, planning, services, etc.
- The Port may require a common strategic approach with the City given a changing regulatory environment and potential competition from other ports” (Monitor Company 2000)
- “The Port requires city logistics especially policy and procedures for heavy traffic and cargo” (Chetty: Interview October 2003)

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## **1.8 Conclusions**

In summary, it is evident that the city is faced with various challenges in providing a favourable quality of life for all of its inhabitants. In the city’s autonomous quest for sustainable economic prosperity, it builds upon the strengths of its inherent resources. On the other hand, whilst having the Port of Durban sitting firmly within its inner city, the municipality’s requirements for alignment have historically been given the back seat. Albeit a disequilibrium between port and city jurisdiction, the port has an important role to play in the local economy. The city requires a position in the planning of the port so that it can restructure its policy guidelines towards creating for a sustainable and efficient port and economic system. The underlying concern of this dissertation is to highlight that the city has no control over its comparative advantage, which is, being a port-city. This is surely a factor of poor planning principles that should be remedied for the future.

The following chapter provides a description of the methodology incorporated in investigating the ‘role of the Port in strengthening the platform for growth in the EMA’.

## **CHAPTER TWO: METHODOLOGICAL FRAMEWORK**

This chapter two gives a concise account of the methodology applied throughout the dissertation in affirming the notion that port-city relations play a crucial role in the vitality of port cities such as the eThekweni Metropolitan Area. This chapter follows with outlining the history of the port (2.1), in an attempt to provide a background to the research problem (2.2). The research questions are spelled out in section (2.3) and the hypothesis outlined in (2.4). Section (2.5) provides a point of departure for the research methodology used for this dissertation, section (2.6). The structure of enquiry concludes this chapter section (2.7), providing a framework of understanding for this dissertation.

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### **2.1 Historical overview of the Port**

Durban harbour was originally “a large stretch of water enclosed by the Bluff headland on the south, at its northern entrance by the Point discharge, and on the north and west by the flats on which the town arose from the 1820s onwards” (Fair 1991 p 26). The first European settlement in the bay developed rapidly around a flourishing ivory and animal skin export market. It all started with one warehouse, a customs house and a soldier but the substantial beginnings grew as the newly arriving immigrants looked to the potential of the port for their financial success however the port was unable to accommodate large ocean-going vessels at the time. The Government of Natal felt that the growth of the colony was being constrained by the shallow sandbar at the entrance of the bay, and the appointment of John Milne as Durban’s first Port engineer marked the major infrastructure development in the late 1840’s. This was the turning point for a highly successful port, which in itself contributed to rapid development of Durban. Therefore the first major port development program initiated at the port was during mid 1800’s involving the removal of a sandbar at the entrance of the bay. The construction of the south breakwater and North Pier increased the permissible draught at the entrance channel from 1.8 meters to 3.3 meters during 1894 (Blackenbury 1991). By 1888, the mangrove swamps adjacent to Albert Park and Congella were removed to facilitate future harbour expansion. Between 1889 and 1910 the harbor experienced large amounts of wharf and jetty construction, and in accordance with that, 539 steamships and 222 sailing ships entered the port and handled 513, 029 tons of cargo in 1897. The growth in port activities stimulated development around the Point and Bluff areas of the city (Webb 1994).



As this table indicates, there is an overwhelming optimism amongst the respondents, that the expected growth would be beneficial to these major industries. On the other hand, the survey also indicated that this traffic growth will not be achieved without additional port investment (Jones unpublished). On average, 80% of these respondents felt that the marine infrastructure and cargo-working superstructure required to cope with increased traffic demands, would only be adequate for up to two years from present (2003). Apart from limited infrastructure and superstructure limitations, capacity constraints were perceived to be the most serious issue (Jones unpublished). These issues in hierarchical order (from lowest to highest) of importance is given below:

- Limited marine infrastructure
- Inadequate rail services
- Limited space for terminal expansion
- Low port productivity
- Limited container handling capacity
- Poor port management and human resources
- Poor cargo-working infrastructure and equipment (Jones unpublished)

It can be argued therefore, that poor management coupled with poor port cargo-working infrastructure are the greatest obstacles to increased traffic growth in the future. In compliance with the above, Chetty, points out “the additional new investments had bolstered the global port industry considerably. Just as importantly, however, was the new opportunity for management talent to be moved around the world and to exposed to a variety of influences – something that would not have been possible before, and this was having a positive impact on benchmarking” (Logistic News: August 2003 p 21). Additionally, international knowledge is now being imparted to developing countries. By the same token, port improvements require extensive capital investments that the government cannot afford. The problem therefore is for the Port to be a player in private port investments to realize economic benefits. The resultant effects of private participation in port operations have multiple benefits, more importantly the technical skills exchanged would undoubtedly enhance the competitive advantage of the Port (Chetty: Interview October 2003).

In total accord of the competitive potentials for the Port, it is argued that the more the port expands, the more local resources it consumes. This development factor impacts greatly on the city in which it

resides, as in the case of the Port of Durban, these impacts would be imposed on the eThekweni metropolitan Area. It is therefore essential that the Port consolidate its relationship with the city so that it can re-enter the global markets as a competitive player. On the other hand there is a historical legacy that the operations at the Port (being a national asset) are separated from that of the Local Council as a result there is a history of no cooperation between both entities. From this, it is assumed that there is a separation of port policies from urban planning policies and consequently institutional misalignment. The problem therefore is that the city uninformed about the planning and development direction the port is headed in the future. Consequently, this affects the manner in which economic growth policies of the city can be implemented.

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## **2.3 Research Questions**

### **WHAT ARE THE PORT IMPROVEMENTS NECESSARY TO MAINTAIN THE STATUS OF THE PORT OF DURBAN AS THE PREMIER CONTAINER HANDLING PORT IN AFRICA?**

- a) Which global trends have an impact on the capabilities of the Port?
- b) What are the key issues facing the Port of Durban in the 21<sup>st</sup> century?
- c) What key actions are required to address the problems encountered at the Port?
- d) What are the recent proposals at the Port?

### **HOW DOES THE PORT IMPROVEMENT PLAN STRENGTHEN THE PLATFORM FOR GROWTH IN THE ETHEKWINI METROPOLITAN AREA?**

- a) In what way does the port contribute to protecting the city's natural environment?
- b) In what way does the port contribute to socio-economic benefits for the city?
- c) In what way will the port contribute to improving the competitiveness of the firms in the EMA?
- d) In what way would the increase in port activity benefit the local economy?
- e) What would the increase in port activity represent in terms of employment created in the city?
- f) What is the status of contemporary port-city relations in the EMA?

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## **2.4 Hypothesis**

*The continued separation of decision-making about the port and the city's urban development policies will result in the port not achieving its potential as a global competitor and as a result, the city's economic base declining*

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## **2.5 Points of departure and assumptions**

On the basis of the discussion in chapter one, section (1.7) and section (2.2) from above, the dissertation is built upon the following points of departure and assumptions:

1. The Port of Durban is performing at 27% above of its design capacity (Chetty: Interview October 2003).
2. The Port has infrastructure limitations to accommodate new trends in vessel technology.
3. South African Port Operations (SAPO) (a division of Transnet, which is state owned) controls most of the state owned terminals.
4. The National Ports Authority (a division of Transnet, which is state owned) owns the land is the landlord of the Port of Durban.
5. The National Ports Authority and the Durban Metropolitan Council have historically followed separated planning processes.
6. There is no such institutional coordination between the Port and the Council. This relates mainly to the history of South Africa where ports have been national assets and also because of the capability of the city to take planning decisions that are a benefit to the nation rather than that of the city residents.
7. NPA has a history of acting without permission from the Durban Local Council Government and have only recently started to inform the Metro of their decisions pertaining to port activities.
8. The Port has regional hub status because of its geographical location between the East and West, and thereby handles most of the traffic along the East African Coastline.
9. The port authorities have historically established a hostile attitude to tourist and public facilities therefore there is a limited amount of these facilities within the port.
10. The potential for port-city integration is inherent in provision of such facilities.
11. The Port enjoys a relatively healthy ecology compared to other Estuaries and Bays in South Africa.

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## **2.6 Research Methodology**

The Port's future expansion or status is of immense importance for the eThekweni local economy and for the community that metropolitan economy supports. The nature of the linkages between the port of Durban and the local economy forms the central focus of this dissertation. This research incorporates a mixture of primary and secondary source information to gain exposure to the main debates surrounding the planning of the Port and city in collaboration. The information applied also provides a basis for investigating new opportunities for both the Port of Durban and the eThekweni Metropolitan area.

### **2.6.1 Scope and limits**

It is important to note at this point, what the parameters and limitations of this research are. The focus of this dissertation is to study the relationship that exists between the port and the city. For this reason, it is not in the scope of this dissertation to give a detail of port operations, as well as the mechanics of port design but rather the impact of global trends on the planning devices of the Port. It is also necessary to identify the key issues facing the port and the rationale for port improvements. On the other hand this dissertation does not detail the actual planning process of port improvements, that is, implementation. It is of importance however to give a general account of the process to fit the issues into context. Moreover, as there is mention of the economic contributions of the operations of the Port to the local economy; it is not within the scope of this dissertation to quantify such benefits; but rather to outline briefly the role the port plays in providing platforms for the development and maintenance of the local economy. It is essential to note that although the focus of this research is between the port and city planning, and an integration of port and city points of view, the focus is on the planning of the Port rather than the city.

### **2.6.2 Secondary source information**

In order to understand the concepts underpinning the planning and development approaches at the Port, this dissertation examines contemporary literature on port-city relationships and port development trends. The topic required a considerable search for material to conceptualize and conceptualize three aspects, namely, global changes in port operations and technology; issues, changes and plans for the Port of Durban; and issues relating to the Port-City interface in the EMA. Other information examined consisted

of South African national ports policy, national transport strategies, provincial and municipal growth strategies, and global port development precedents. This dissertation also uses information from international toolkits for implementing port reform, supporting material from the Internet, periodicals and a host of papers presented at various port related conferences. The research involved examination of documents and plans detailing the issues and direction in which the port and city were headed. The documentation used included the review of recent plans for development in the province, the Port of Durban and the eThekweni municipal area (including waterfront areas). The key secondary source material applied to analyze the key issues presented in this dissertation included:

- Long term development framework for the municipality
- Various specialist studies on the port
- Port Development Framework for the national port authority
- Waterfront Development framework for the port and city authorities
- Provincial strategy documents
- National policies and strategies for the maritime transport sector
- International Port reform toolkit

On the basis of this secondary research, detailed and in-depth interviews were conducted with selected persons who were able to provide insight into specific aspects relating to the dissertation topic. A quantitative analysis of the Port's contribution of employment to the EMA was based on a previous study done on the subject. This involved using a general framework extrapolated from this survey of the employment contribution of the Port to the Durban metropolitan Economy, and contrasting these determinants on the growth projections for the Port. In providing a critique to the planning approaches identified in this dissertation, secondary information based on international precedents in port-city relationships were used.

### **2.6.3 Primary source**

This dissertation also involved issue-based interviews with the various role-players in the city and the port, planning academics, and private consultants. These interviews were unstructured in order to elicit a range of opinions on the issues relating to the port and city. The purpose of these interviews was to



collate sufficient support of the key issues facing the Port in the 21<sup>st</sup> century, in addition to information on the detailed aspects of development occurring within the Port and city. These interviews also provided a context to the critique of the planning approaches adopted by the Port and city. A list of the interviewees is contained in the Bibliography and Appendix Eight.

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## **2.7 Structure of enquiry**

The conceptual framework (chapter three) follows with a description of the contemporary global trends in port-city relationships in addition to port development trends in the 21<sup>st</sup> century. Chapter three illustrates the generic role of ports followed by the dynamics of port and city relationships then touching on issues related to trends in the port industry over recent years. The objective here is to create a context into which the Port of Durban relates, in an attempt to inform planning choices for the development of the port in the future. In other words, chapter three sketches out the impact of globalization on modern ports worldwide, in an attempt to review the requirements and demands of the maritime market on the Port of Durban in the 21<sup>st</sup> century.

Chapter four provides an attempt to identify the significant issues facing the Port of Durban in the 21<sup>st</sup> century. Additionally, chapter four identifies some of the alternatives recommended by specialist studies to provide a background to address key issues. Chapter four also, provides a context from which to analyse the port, that is, from the South African government's perspective in relation to the issues considered in chapter three.

Chapter five discusses the extent to which plans have been implemented to address the key issues discussed earlier. Chapter five therefore outlines the ports quest to improve productivity and efficiency, by identifying and analyzing the proposals put forward by the South African government to consolidate the role of the Port of Durban.

The penultimate chapter (six) broadly illustrates the economic benefits associated with the proposed improvements as an aggregate plan, which results in the greatest public and private benefit to the eThekweni Metropolitan Area. The chapter sheds light on the extent of the input (multiplier effects of port improvement plans) into the eThekweni Metropolitan Area. It is also the focus of chapter six to

briefly highlight such issues as socio-economic benefits of port-city interface developments; employment contribution of port improvements; ports as facilitating competitiveness for firms in the metropolitan economy; environmental considerations of port improvements; the role of the port in the industrial development zone; and the importance of the port-city dialogue.

To end with (chapter seven), the dissertation provides a synopsis of the proposed efforts of the port and city in an attempt to outline the focus of this dissertation, that is, to demonstrate the ***“role of the Port of Durban in strengthening the platform for growth in the eThekweni Metropolitan Area”***. In addition to the above, the section will try to show that the ***“continued separation of decision-making about the port and the city’s urban development policies will result in the port not achieving its potential as a global competitor and as a result the city’s economic base declining”***. Chapter seven also concludes this dissertation with a critique of the planning approaches noted in the research in addition to providing considerations for the Port of Durban and the eThekweni Municipality for future alignment. A brief account is also given to future areas of research.

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## 2.8 Conclusions

It is evident that the Port has had a history of resilience in terms of coping with global demands in the maritime industry. The fact the Port was planned and managed in exclusion of the local municipality cannot be ignored, and arguably the era controlled by the dogmatic regime proved fruitful to the port. Currently however, the decentralization of power through democracy has created an air of preservation, collaboration, conversation and more importantly, accountability. The main concerns from here onward for that reason, is the extent of the reparation to the city by the Port is given in its quest for global competitiveness.

The chapter that follows outlines some of the significant trends visible in port-city relations as well as port development trends in the 21<sup>st</sup> century.

## **CHAPTER THREE: CONTEMPORARY GLOBAL TRENDS IN PORT-CITY RELATIONSHIPS AND PORT DEVELOPMENT TRENDS**

This chapter presents a review of contemporary trends in port-city relationships and port developments trends to develop a framework for understanding the issues faced by the Port of Durban in the 21<sup>st</sup> century. This chapter endeavors to outline the principal complexity in port-city relationships in addition to trends contributing to successful port development. This chapter begins by summarizing the generic role of ports (3.1) in providing a comparative advantage for coastline economies. A complex of port and city relationships are discussed in (3.2) encompassing spatial dynamics of the port and city (3.2.1); socio-economic benefits (3.2.2); benefits of ports to local economies (3.2.3) and increasing pressure on local resources (3.2.4). The need for port infrastructure and services are discussed in section (3.3), whilst section (3.4) sets the tone for pursuing port reform. An analysis of the three broad forces contributing to port reform in the 21<sup>st</sup> century, namely the competitive landscape (3.4.1); the benefits of private participation in infrastructure development and service delivery (3.4.2) and a rather drawn out effects of the diversification and globalization of investors and operators in the port industry (3.4.3). Finally, with summarizing contemporary port management models (3.4.4) arising out of reform, this chapter outlines, that new trends have created new challenges, requiring new strategies and eventually new areas of discussion between all role-players in the evolving ports sector.

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### **3.1 Generic role of ports**

A port is considered to be a terminal and is an area within, which ships are loaded and/or discharged of cargo. It is where ships wait for their turn or are ordered or obliged to wait for their turn no matter the distance from their destination. The port interacts with other forms of transport and in so doing provides connecting services and, is therefore a place where goods and passengers transfer between ship and shore. A port commonly occupies an area where there is adequate sheltered water; and this may be largely natural (as at Vancouver, Canada); largely artificial (as at Ashdod, Israel), much improved by man's labors (as at Port Klang or Singapore) or it may even be an open roadstead where fine weather is regular and composed water may generally be relied upon (as at many Mediterranean and Caribbean ports). Port



activities contribute to the economic independence of nations, which is vital to their political autonomy, and they perform a strategic role in their trade.

The array of activities in individual ports may differ greatly, but all ports have several activities in common. The basic role of an international port consists of the ownership of land, quays, piers and port surface. The port either maintains or controls these facilities itself or rents them out to other parties (World Bank 2001). Its aim is to serve the prosperity and welfare of the regional or national community and beyond the borders to make contribution to improving the quality of life (Bazan-Lopes 2002). The primary function of a port is to provide for efficient, low cost, intermodal and intramodal transfer, inspection, storage, form change, and control of cargo (World Bank 2001, Benacchio et al 2001). A port must for that reason be effective and able to accommodate ships and vehicles of other modes of transport interfacing at the port (Hoyle 1988). It should act as an central part of a chain of transport links designed to move cargoes from place of low utility to a place of high utility - right place in right time with right technology at right cost (World Bank 2001). For that reason, it is important to note that a port is a vital and essential part of the overall pattern of trade and transport for a nation. Ideally, ports should provide the capacity for a continuous flow between land-water, as well as water-to-water transport modes. Ports are therefore critical links between major transportation links (Winkelmans in Dolman and Ettinger 1990). The five most important roles of an international port can be summarized as follows:

1. ***Provision of shelter from the elements.*** In circumstances when heavy seas and storm conditions prevail, ships take shelter in the environment of a port and, thereby, seek safe anchorage or berth.
2. ***Cargo and passenger handling.*** The prime function of the port is a place where ships can load, or discharge their cargo, and/or passengers.
3. ***Support services for ships.*** This function encompasses victualing, stores, bunkering, ship repair, crew change, and so on. In larger ports, such as Hong Kong, Singapore, Nagoya, Rotterdam, Hamburg or London, dry-docking and shipyard facilities are also available for ship surveys, maintenance and overhaul purposes.

4. ***A base for industrial development.*** This involves the provision of industry and its infrastructure to facilitate development of trade passing through the port. It may be a steel plant, a cement factory, an oil refinery, a sugar or grain centers. It can also be a free port with Free Economic Zones.
5. ***A terminal forming part of a transport chain.*** Such an interchange point links the shipping service with other transport modes to provide an overall trade distribution network, often under the combined transport operation concept. This involves land, air, rail or inland waterways/canal transport.

Ports are the comparative advantages for the economy of countries possessing a coastline and they represent the 'lungs', as it were, for their global trade. They are the important transfer points for the bulk of this trade, permitting the import of goods<sup>6</sup>, and the export of its major items. Ports are also good places for the provision of further services which add value to the products transported and thus help better to meet the increasing demands of trade (Suykens and McJunkin in Dolman and Ettinger 1990). The movement of goods by sea, in recent years, reflects a similar pattern of change to that displayed on modern roadway systems. In the last century the objective was to link the centers of population with as direct a route as possible to the heart of towns and cities. Main arterial roads actually encompassed the high street, and the wharves and jetties serving sea transport were similarly located with the same objective (Banister 2000).

It can be concluded that the port is considered to be part of a vital supply chain, for the benefit of its nation in securing global trade. In saying so, it is noted that a chain is only as strong as is its weakest link or linkages. More recent trends have indicated that the fundamental link is required at the local level that is, the relationship between the port and its city. The next section outlines some of the trends that have emerged following this relationship.

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<sup>6</sup> Of which the country does not itself generate in sufficient quantity.

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### **3.2 The Port and the City relationship**

Towards the end of the 1960s, the relationships between the port and the city have taken a rather drastic and divergent turn. Traditionally the port and the city have represented a complimentary system of exchange as well as the development and production of maritime trade. This new form of divergence has lead to port activities moving outside urban areas, and the former port facilities at the very heart of cities have progressively been allowed to decay as a result of their obsolescence (Hoyle 1988). The spaces at the interface between city and port are visible evidence of the rift between port and city. Modernization of the ship building industry since the 1960s has shifted the balance of port capacity worldwide. Ships reaching load capacities and gigantic dimensions require a total restructuring of port facilities.

The transportation of merchandise has particularly been affected and has led both to radical changes to the traditional organization, structure and functions of ports (Hayuth 1988). In the past, the port found benefit in its capacity to transfer goods from land to sea through its activities involving merchandise transfer, warehousing and commerce. These techniques for processing merchandise therefore underwent substantial change, with the introduction of mechanization, the unitization of loads (a cargo handling system whereby loads are made up from varying numbers of units of merchandise which are containerized to accelerate handling time), in particular, containerization made loading and unloading quicker. Port productivity therefore increased by the reduction in time that ships spent at the quayside (Hayuth 1988).

The port industry was therefore shifting towards a more capital-intensive approach. In order to develop, the ports therefore had to adapt constantly and initiate strategies to attract business. “The modern port operates more as a port than a center of activity and technological developments in the maritime sector have weakened the traditional functional links between port and city” (Hoyle 1988 p3). The port area has a dominant transport function and is becoming more homogenous, technical and large-scale. The decentralization of ports, the spatial de-localization of infrastructure to the other areas, further away from the original port center is not a recent phenomenon (Hoyle 1988). Port facilities were, for the most part, increasingly neglected and even allowed to decay.

Consequently, when ports were developing, the (economic, social, environmental) impact was not so clear for the city, whose relationship with modern port activity was not transferred spatially. The port and the city became separate entities, which were increasingly distinct and distant. "Ports have tended to have become national gateways, whilst the cities are more concerned with their development within the context of local and regional functions" (Hoyle 1988 p 6). In instances where port activity was the *raison d'être* of the city, the port is no longer the motor of economic development, but is rather just another subsidiary (Hoyle 1988). In view of this, it should be noted that cities have also undergone considerable changes such as: diversification of economic centers, multiplication of tertiary functions, insertion and integration into a regional economic context, the dilating of the urban territory, and so forth.

It is therefore imperative to note at this point, that the city's dependency on the maritime sector has decreased that is, "the de-maritimisation" of port cities and the interest that cities have in ports has become dissociated, involving specific strategies (Vigarié 1991). The nature of employment has therefore changed and contact with the port activity has become more immaterial. On the other hand, certain activities continue to be located in the urban center (passenger services, inshore navigation) although separate from the urban fabric (functional zoning). Although the trend may be that majority of port equipment are relocated to new sites or inland terminals, the port tertiary sector very often continues as the traditional port / city interface, since it needs an urban economic environment, including banking and insurance services (Hayuth 1988). It can therefore be noted that the port sector consists of two sectors. Namely, a decision-making and or operational sector (port management, shipping companies) that does not have to be localized in the city; and relational sectors (example shipping agents) remaining in the port city and eventually reinforcing the city's role as a central platform and transactional area.

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### 3.2.1 Spatial dynamics of the port and city

The separation as indicated above between city and port is often described as a divorce because the trend has significant impacts, sometimes representing an absolute separation, which is directly noticeable inside the port cities (Vigarié 1991). This spatial separation and rapid change in the way ports are functioning has implications that the port-city interface system has become incompatible.

In some instances, facilities in place have become inadequate due to the way transportation has changed, and on the other, the nature of the contact between the port activity and urban functions has shifted. With the effect of the disconnection of urban and port systems, the system located at the interface (the area where contacts and exchanges between the two systems take place) is therefore moving into a phase of dysfunction, more noticeably to the dissatisfaction of modern ports. There is partial neglect of these areas in the name of economic profitability. On the other hand, since these interface systems have not undergone classic urban development but are rather modelled and organized around the port activity, they are different from urban fabric and functioning. Consequently, port-city interface areas have difficulty integrating into those systems, becomes out-of-touch with these systems and eventually, gets left behind (Hoyle 1988). It is therefore important to note that the result of this trend is the emergence of port derelict land.

Derelict land represents both the neglected port areas and the urban sites whose functional attributes link to the port and have now become abandoned. Accordingly, in most port cities, this area is gradually becoming more and more abandoned and dilapidated, and very often landscaped with rusty cranes, unkempt quaysides, polluted water, etc. (Hayuth 1988). The result of this separation is particularly noticeable when this neglect represents decline for the urban population and even the downfall of their port (Hoyle 1988).

In most cities around the world, the port was a contributor of an historical and cultural heritage that had a great degree of public connection. On the other hand, recent trends have dismissed all orientation to the port, especially when these changes were not appropriately integrated into the city. In recent times, ports are gradually becoming more isolated and inaccessible to the public, a situation that is detrimental for both the city and the port. This represents a crisis, which not often reflects the enthusiasm and development these cities may wish to project (Hayuth 1988).

There are a range of consequences of separation between city and port (from spatial, cultural, social and economic points of view), which raise the whole issue of the organization and nature of port cities. Port-City restructuring generally implies an encouraging opportunity, which can allow a port-city to reinforce its image at the same time as facing up to the many challenges (of an economic, urban planning and



environmental nature). The same could be argued for the port as it strives for global competitiveness. The outcomes of such reorganization are significant and will be crucial for the port city. The progressive ineffectiveness and neglect of ports carries with it substantial implications (despair of the site, pollution, negative image, drop in employment levels, de-population, decline in fiscal revenues, and so forth), which are becoming bigger and bigger problems (Hoyle et al 1988).

In many European port cities, the surfacing of derelict port areas was an unenthusiastic, unpleasant experience, which had to be addressed by decision-makers to allow them to re-assert their power to control the future of these sites. In this instance there was restructuring to establish an organization and task team, which corresponded to the renewal context. This reaction emerged as an opportunity for the city and port to redefine significant sections of their territory at the same time as satisfying a number of key development challenges. Derelict areas have potential to be used for new developments and restructuring on the basis of the behavior, tastes, technical innovation potential and the socio-economic context in question (Hoyle et al 1988 p 247 - 260). "It can result in the emergence of a new centrality absorbing new functions, which are more appropriate to new city characteristics, as traditional city centers become less suitable to participate as a central hub of the agglomeration" (Chaline 1994 p 299).

During the 1950s, major port cities in the United States (Boston, Baltimore, San Francisco) began a movement towards the reorganization of former port sites for municipal use. At this point, port activities were separated and the old sites recuperated. At a later stage, these areas were changed to provide new functions as an extension to city centers. The port area was given an attractive character (the waterfront) and was used to introduce property developments and attract construction programmes of a greater or lesser value. This was based on the proximity of these sites to the water and usually incorporated tertiary activities for office accommodation, tourism, high-class housing, and recreational uses. The opening of the 'Waterfront' was a means to revitalize city centers, brush up the city's image and offer activities, which may bring in new populations (tourism, congresses, etc.).

In the 1980s, British port cities were home to the first major renovation projects in Europe. The planning operation termed "London Docklands", based on the American model, reconstituted the vast area of docklands to the east of the city (2,200 hectares). The public entity (the London Docklands Development Corporation) created and commissioned by the government had to fulfill requirements imposed by

planning at that time. Those involved in the renovation processes were exogenous and came into the area to derive profit from an opportunity situation with total disregard for the traditional functions of the port and the local context. In Europe, there was a general lack of land pressure and interest on the part of the local business community. The result of which led to huge rental prices and thereby mismanagement of prime waterfront property and further derelict. It should be noted that, "Urban sites are increasingly no more than a market force, whose influence has to be moulded or framed on a case-by-case basis, with the support of public opinion. That is if, public opinion expresses itself in a manner in which raises the very unevenly treated problem of consultation, public enquiry and preliminary study" (Chaline 1994 p 42).

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### **3.2.2 Socio-economic benefits**

Restructuring of derelict docklands is in essence the transformation and development of land dictated by a given socio-economic situation. Thus, modern port cities use the interface for new uses, which reflect a service society, and its concerns for leisure time and consumption. The natural environmental and leisure are important urban issues for all cities; likewise port cities ought to consider the potentials and requirements of their inhabitants for improvements to their living space. In many rejuvenation and revitalizing projects, detailed attention is given to the development of open spaces, the aesthetic quality of architectural planning and leisure and recreational functions, which allow people to consume the environment. Water is extensively used as a natural and pleasant backdrop to modern leisure activities. Activities such as walking and cycling beside the water, parks, restaurants, shops, cinema complexes and aquariums are some examples of leisure activities situated on these Waterfronts. In some instances, the water is used to provide dock functions relating to specific maritime activities: marinas, boating quays and docking areas for cruises (Tweeddale in Hoyle et al 1988).

Cities also support major technological activities related with the tertiary and industrial sectors to reinforce their image, advancement and capacity for transformation. The presence of University buildings is often part of the renovation procedure since such institutions imply a specific type of dynamic of the renewal process (Tweeddale in Hoyle et al 1988). These institutions assist in generating lively activity and creating the need for other activities (shops and housing). The large number of tertiary functions and their

concentration are, for the city, equal with economic control and power. Ultimately, this power and or control allows for the setting up of administrative headquarters, world trade centers, head offices, conference centers and shopping centers.

This increases the influence of the port, generates traffic (tourism and business) and reinforces its regional, national and international status. Ports can use certain facilities and competencies found in the cities to offer new services and secure new traffic. Thus, the development of tertiary functions linked to port activities sometimes represents a basis for renovation operations through which the city and port work hand-in-hand towards joint development (Hayuth 1988, Hoyle 1988).

Cultural activities are a large part of dynamics of port cities and in most cases act as economic tools to attract tourism. Port cities have an opportunity to promote their cultural attributes to attract traffic and avoid becoming indistinct regional poles. To achieve this, they can call upon their industrial and maritime history to celebrate their heritage. This is done by the renovation of buildings and equipment, maritime museums or maritime and docks culture centers.

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### **3.2.3 Benefits of ports to local economies**

As indicated above, the range and complex kinds of mutual influences that are included in port-city relationships are: economic, spatial, institutional, social and cultural links. An understanding of economic relations in particular, is essential for port and city development and planning.

Seeing that the prevalent trends<sup>7</sup>, have implied that the positive economic impact of ports tends to move away from the local setting (the port city) to a much wider, and sometime international one. The purpose of this section is therefore to highlight that ‘new port city relationships add economic value to the city’.

Prior (the modernization period) to globalization, ports signified a huge percentage of job creation in port-cities; new port developments implied more employment share underpinned by a wealthy urban productivity. In the globalization times, when Information Technology, new transport technologies and managerial transformation have been applied in ports, the “multiplier factor” of modernization has moved

from the actual port activities to an extended services sector (Bazan-Lopes 2002). The drastic reduction in direct employment has not always been attached to labor reconversion programmes and often the port service sector is not flexible enough to create new jobs. The employment share of the region before directly attached to the port area is nowadays related to the development of the service sector. These aspects of the globalization process in ports have changed the social dimension of the port-city relationship (Bazan-Lopes 2002).

The *concept* of port as a *logistic place* implies a *new port-city relationship*, in which the port-functions are not restricted to the port-area but to the whole transport and distribution chain giving more added value to the city (Aldoney Vargas 1997 in Bazan-Lopes 2002). The *main issues* that ports face presently can be summarized as follows:

- Ports ‘have to’ play a role in modernization of the entire port-structure in terms of organization, management, equipment and services with new requirements in the “cost-efficiency-quality” relationship. This implies an increasing demand on water and land space, and the consequent reduction of directly related employment,
- Ports should offer an economically and socially viable alternative for both the port and the city developments focusing on the port-areas. This means looking for new activities, sectors and services of employment in the city,
- Ports should work towards shortening the supply chain, delivering seamless point-to-point service through logistics and intermodal networks (ship-truck or railroad-store) in a more efficient transportation pipeline but also maintaining the integrity and quality of life of the urban structure, and
- Ports should search for an efficient port-city cooperation formulae with joint financing from different players –local, regional, global- in order to integrate the activities connected to transport organization and logistics to the activities of the city (Alemany Llovera 1997 in Bazan-Lopes 2002).

The economic impact of ports to a city can be measured through the *direct effects* (concerning the cargo volume, actual employment and gross value related to the activities carried out in the port area), *the backward linkages* (the indirect employment connected with the services to the port area) and the

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<sup>7</sup> The trends that have been outlined so far pertaining to separation of port and city.



*forward linkages* (including those activities which would not take place in the city without the presence of the port) (Van Den Bossche 1997 in Bazan-Lopes 2002, Jones 1997).

On the other hand, the geographical dispersion of economic effects is very apparent when a port does not concentrate on developing local value-added activities linked to transit cargo (intermediacy-based as well as centrality-based flows) or on establishing a strong local industrial and logistic cluster. In that case cargo flows are just passing without generating a lot of employment and value-added for the local community. The changing distribution of benefits is also illustrated by the development of logistics zones in the vicinity of ports or in inland locations along the main corridors towards the hinterland (supported by growing containerisation and inter-modality) (Benacchio et al 2001, Bazan-Lopez 2002). These logistics sites and zones in many cases generate considerable economic effects by providing low-end and high-end value-adding logistic activities and only use large load centres as a transit point for their cargo. Nevertheless, it is quite unlikely that these sites and zones would have developed were it not for the presence of ports. For example, the functional interactions between the ports of Antwerp, Rotterdam and logistics zones in the 'hinterland' have created a large logistics pole. Antwerp and Rotterdam are the central nodes driving the transport dynamics in this logistics pole. But at the same time Antwerp and Rotterdam rely heavily on the 'hinterland' nodes to preserve their attractiveness (Notteboom 2002).

It is generally established that port managers and government bodies in this day and age (have to) spend a lot of time in trying to make sure that new port developments are socially broadly based. It is also noted that ports cannot and must not take broad public support for development plans for granted (Monteiro 1997). This aspect of port competitiveness will undoubtedly become more important in the near future as resources such as land are becoming scarcer and as broader social and environmental functions are challenging the economic function of ports (de Bruijn 1997). The more international the maritime and port industry becomes, the more energy will have to be put in embedding the port in the local community (Monteiro 1997).



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### **3.2.4 The increasing pressure on local resources**

Port development requires progressively more space (a local factor) but land allocated to port activities seems to be paid less than its opportunity cost. On the other hand, ports still remain essential from a national industries (e.g. manufacturing, transport, logistics) and services point of view. The benefits tend to become less concentrated in the local port city but at the same time negative side effects of port activities are primarily felt at the local level (de Bruijn 1997). A large part of the population takes ports for granted and is sadly unaware of how the port is structured and operated and to what extent the port contributes to the local economy (de Bruijn 1997). More attention is given to the fact that the growth of a port in many cases goes hand in hand with increasing negative effects for the local community, such as road congestion, intrusion of the landscape, noise and air pollution and the use of scarce land (de Bruijn 1997). It can therefore be argued that there is a clear unevenness between the benefits and costs for the local community of having larger and larger ports. This viewpoint is a breeding ground for major socio-economic confrontations related to port development (de Bruijn 1997).

It is widely established that ports use resources in order to strengthen their position in worldwide logistic and transport networks. The question remains whether the local community is getting a fair payback for the scarce local resources used. For instance, land for new port developments has become very scarce. Nevertheless, land sites for port activities are sometimes ‘sold’ on the market for less than their intrinsic value (de Bruijn 1997). By doing so, port managers hope to attract new clients. Once a new port client starts operations, the payback for port land would be compensated abundantly by value-added creation (local employment, investments, taxes and profits) (de Bruijn 1997). However, one has to keep in mind that many powerful port users are extracting a large part of the economic rent produced by ports, so the issue of a correct remuneration for the local system remains a tricky one (de Bruijn 1997). Port authorities should make the relation between the price for scarce resources on the one hand and the socio-economic payback on the other more transparent both to port users and community groups. Lack of transparency feeds the suspicion among port companies and clients on the existence of price

discriminating behavior in favor of some companies (e.g. in terms of land lease agreements or port dues) and might lead to harmful socio-economic confrontations in this field (de Bruijn 1997).

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The trends presented above have indicated the ever-changing dynamics of port city relations, in particular signifying the issue of jurisdiction of port and city areas. It can be emphasized that the local port setting is in continual shift likewise, control over port operations. In this regard it should be understood that port industry has to conform to market forces quicker than cities are able to adapt. It is for that reason that sometimes these relationships have become out-of-step.

The next section outlines the impacts of markets forces on the functioning of the port industry. Of particular attention is given to need to continuously up to date with global forces in the maritime industry. In this instance the sections to follow outline contemporary trends in port development.

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### **3.3 The need for port infrastructure and services**

As indicated above, the ports sector is continuously changing due to the growing influence of world markets. This section outlines the basic infrastructure requirements of a port to maintain its position in the maritime supply chain.

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#### **3.3.1 Port infrastructure**

The port area is defined as a complex of berths, docks, and adjoining land where ships and cargoes are served. To gain access to this area, infrastructure related to maritime access (channels, locks, aids to navigation, etc) and to land access (connections to roads, rail network, and inland navigation it) is required. The port area is where activities include both the infrastructure within the port (e.g. berths, quays, docks, storage yards) and the superstructure take place. Amidst those elements forming the superstructure, it is possible to distinguish between fixed assets built on the infrastructure (e.g. sheds, fuel tanks, office buildings) and fixed and mobile equipment (cranes, carriers, trucks). In determining port infrastructure, it is expedient to define precisely those fundamentals that are included and prohibited. It is noted that there are also infrastructure that are found outside the port area, which is critical for the use of a port (maritime and land access). More importantly, port authorities have responsibility over some of the

maritime access infrastructures breakwaters, lights, buoys) and all fundamentals within the port area. In the interim, connections to land networks and the remaining forms of maritime access (channels, locks) are generally owned and maintained by the State or local government.

In most countries, port infrastructure has traditionally been designed and maintained directly by port authorities (World Bank 2001). Public funds were utilized to finance the construction of new infrastructure; it was argued that these assets should be in the public sector, to avoid the risk of monopolization by private firms. Nonetheless, there is at present a global trend toward revising this view. Specifically, there is a shift toward increasing the participation of private capital in the construction of infrastructure, normally through the use of concessions (World Bank 2001). These concession contracts encourage private firms to become the custodians making the necessary investments to build new infrastructure or improve existing facilities. Concessions offer incentives to private investors, which are required because firms are in charge of infrastructure construction and must pay all costs. On completion of a project, they are granted the right to operate those facilities (World Bank 2001). Typically, concession contracts are obtainable for long-term periods so private-firms are able to recover their investment costs made in the port. It is exceedingly important that concession contracts should be properly drafted to determine the ownership and the rights of use over the infrastructure that is to be concessioned (World Bank 2001). Specifically, to capitalize on international trade, the objective of national ports systems should be to see the efficiency gains those private firms can achieve (World Bank 2001). Private contribution in ports can be used as a possible solution to the problems observed when a port is fully public (lack of incentives, excess of workers, etc.). In contrast, a system based on private operators providing port services must ensure that these agents are not left completely unregulated, otherwise tariffs may be raised excessively, or the quality of service lowered (World Bank 2001). A case in support of regulation concerns the impact that monopolistic behaviors could have over the rest of the economy, in terms of soaring tariffs that eventually would be transferred to elevated inflation rates through those goods directly or indirectly affected by port services (World Bank 2001).

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### **3.3.2 Port services**

In addition to the provision of basic infrastructure for the transfer of goods and passengers between sea and land, there are numerous services provided by different agents at ports, some of whom may even

work external to the port area (World Bank 2001). These services cover all activities related to the connection between port users and port, from the instant that a ship advances toward a port until it finishes all its operations. All through this stage, there are services provided to the ship, to passengers, to ship crews and to cargoes (World Bank 2001). Primarily, there is a group of services related to berthing, which include pilotage, towing and tying. Port authorities can directly provide all these services, or private firms can offer them. Pilotage is defined as those operations required for a ship to enter and exit a port safely, and it usually implies the presence in the vessels bridge (or at least by radio) of an expert with adequate knowledge of the region to avoid risks (World Bank 2001). Pilots can be independent private agents in some ports, licensed by the port authority, while in other cases they are public employees. Towage is the operation of moving a ship using small powerful boats (tugs) to steer it more easily (World Bank 2001). As indicated above, it is possible to have private firms providing services for these operations; while in other ports the port authority directly hires tugs and their operators.

One of the key services provided to cargo ships is what is generically labeled as cargo handling, which encompasses all activities related to the movement of cargo to/from ships and across port facilities. There is a historic disconnection between the operations of moving goods from ships side until they are safely stored within the vessel (stevedoring), and those movements from berth to ships side (loading), as a result of these operations usually being performed by different workers. Currently, however, there are dedicated firms that provide all these cargo-handling services, using equipment such as cranes and surface transport elements. The process of cargo handling varies according to the type of goods concerned. There is a trend toward the specialization of firms according to the type of cargo, since the equipment required can then be specially designed to be highly cost-efficient (World Bank 2001). As a consequence, specialization leads to the configuration of terminals, defined as specialized berths where all operations are principally concentrated on a given type of cargo (World Bank 2001). Container terminals is an example of this trend, since the handling of containers requires large gantry cranes, and land storage is relatively easy with adequate trucks and lifts, although highly space consuming. The combination of these dynamics make it more suitable for a firm to have a specially designed berth in order to handle containers more efficiently than general cargo berths (World Bank 2001). Of the total cost concerned in moving goods through a port, cargo-handling charges are the most important (between 70% and 90% of total cost, approximately, depending on the type of goods) (World Bank 2001). It is for that reason, that these



services that must be supervised more closely by a regulator in order to ensure cost-efficient port operations (World Bank 2001).

A further type of service required by port users relates to administrative paperwork and permits (e.g. sanitary certificates, import/export documents, taxes). Specialized agents, who are hired by shipping companies to arrange in advance the paperwork and all matters related to the use of port facilities by a ship, usually perform these tasks. Prior to a ship calling at port, the necessary arrangements are made so that services required are contracted for the ship and carried out in the shortest viable period. It is critical for a modern port to have systems to minimize the burden of paperwork for port users, since delays originating in inefficiency in administrative procedures result in large economic losses to shippers, who do not receive their goods on expected dates and thus have to alter their productive plans, and to shipping companies, which have to keep their ships in ports for longer than necessary. The European Union has established some guidelines to promote ports investments in developing electronic data interchange systems (EDI) (World Bank 2001). These systems are aimed at speeding up administrative paperwork and reducing waiting times for ships and land transport modes (trucks, railways) that deliver goods to/from ports (World Bank 2001).

There are also a series of other additional services executed by a variety of agents and firms, working within or even outside the port city area. In this group, all supplies to ships must be integrated, of which fuel and water are possibly the most essential. There are also services to crewmembers, and general common services such as cleaning, refuse collection, safety and the like. Some ports can also offer repair facilities to ships, which may involve the use of some special infrastructure (World Bank 2001).

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From the observations above, it can be established that a port requires different types of infrastructure to offer a variety of services to its customers. These services can be performed by a combination of public and private initiatives, and there are several representations of ports demonstrating how private participation is initiated. An important consideration therefore, is that the provision of infrastructure and cargo handling are the more noteworthy services, since efficiency in ports is dependent on these two services. At the same time, regulation is required so as to limit the ability to monopolize these functions, so as to spread benefits to all stakeholders within the port industry to create a competitive port sector. In



the same way, private firms can and are encouraged to provide other services to create competitive conditions.

The focus of the next section is for that reason, to highlight the importance of creating a competitive port sector. The issues discussed from here onwards relates to the changing structure and environment of the port business in the 21<sup>st</sup> century, with the involvement of the private sector to enhance the competitiveness of ports.

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### 3.4 Port reform in the 21<sup>st</sup> century

Port reform is about the changing institutional structure of the port business and a much greater involvement of the private sector in the utilization and financing of port facilities, terminals and/or services. The outcome of port reform is changing relationships between the public and private sectors. Privatization is not the only way to improve the performance of port organization although most port authorities and governments feel that the characteristics of the private sector are indispensable to achieve commercial success. The term "privatization" has therefore become synonymous with "port reform." Table 4 below, summarizes the reasons countries pursue port reform in the 21<sup>st</sup> century. Privatization, however, more accurately refers to one aspect of port reform – the introduction of the private sector into areas previously reserved for the public sector. Other strategies that improve organization and operation performance include:

- **Modernization of port administration and management** as a means of improvement by introducing systems that are more suitable, working practices, equipment and tools within the existing system of bureaucratic constraints (World Bank Transport Division 2001). The advantage of this strategy is that certain changes in the organization of the port may occur without the requirement to change laws or national policies.
- **Liberalization or de-regulation** is a form of institutional arrangement whereby there is a partial elimination of government rules and regulations to enable private companies to operate in an area where previously only the public sector was allowed to operate.

- In **commercialization**, the public port is not transformed into a private company, but is given more autonomy and made accountable for its decisions and performance. The management and accounting principles however, are similar to a private firm and therefore have the characteristics of these firms. The practice of these ports enables them to become more customer-oriented as well as more efficient and profitable.
- **Corporatization** is a process whereby a public port is given the legal status of a private company although the public sector or government retains ownership. The assets as well as land lease rights are transferred to this private entity but land ownership remains with the port authority.
- **Privatization** as defined by UNCTAD (publication of 1998) “is the transfer of ownership of assets from the public to the private sector or the application of private capital to fund investments in port facilities, equipment and systems”.

Table 4: Reasons for pursuing port reform

Reasons for Pursuing Port Reform
General Reasons:
<ul style="list-style-type: none"><li>• Improve port efficiency</li><li>• Decrease costs and prices</li><li>• Improve service quality</li><li>• Increase competitive power</li><li>• Change the attitude with respect to port clients (become more client friendly)</li></ul>
Administrative/Managerial Reasons:
<ul style="list-style-type: none"><li>• De-politize the public port administration</li><li>• Reduce bureaucracy</li><li>• Introduce performance-based management</li><li>• Avoid government monopolies</li></ul>
Financial reasons:
<ul style="list-style-type: none"><li>• Reduce public expenditure</li><li>• Attract foreign investment</li><li>• Reduce commercial risks (investments) for the public sector</li><li>• Increase private sector participation in the regional or national economy</li></ul>
Employment reasons for change:
<ul style="list-style-type: none"><li>• Reduce of the size of the public administrations</li><li>• Restructure and retrain the port labor force</li><li>• Eliminate restrictive labor practices</li><li>• Increase private sector employment</li></ul>

Adapted from: Box 15, World Bank Port Reform Toolkit Module 3 200 p 38

According to the World Bank (World Bank 2001), there are three broad forces generating momentum for port reform in developing and industrialized countries alike. These are:

1. Competitive landscape
2. Benefits of private participation in infrastructure development and service delivery
3. The diversification and globalization of investors and operators in the port industry

The next section (3.4.1) outlines these three forces that are contributing to global trends in port reform.

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### **3.4.1 The competitive landscape**

This section deals with some of the key issues that contribute to global competition in the port sector. Rivalry within and between ports in a region (3.4.1.1); threat of new competitors (3.4.1.2); and the potential for global substitutes (3.4.1.3), are discussed below.

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#### **3.4.1.1 Rivalry within and between ports in a region**

The intensity of rivalry within and between ports is of major importance in shifting the competitive landscape of ports. Some ports have the ability to monopolize access to certain markets due to the lack of adequate infrastructure from other ports; political issues; geographical features or financial incentives. This improves the ports hinterland market access. A port may also have the ability to service trans-shipment trade better than others may. This may be due to its advantageous location on a specific trade routes and proximity to regional origin and destination centers across the globe. Differences in port capacity within a region will also intensify rivalry between ports and excess capacity will cause rival ports to aggressively compete for market share. The effects of which may lead to other ports lowering the price of services that may not be covering costs. An example is the rivalry between Eastern Mediterranean ports of Limassol and Damietta (Egypt). Another problem between regional ports is the ability to generate sufficient traffic thereby competing for cargo. It is recommended that one or the other should specialize in types of traffic for a comparative advantage as noticed in small ports in the Caribbean (World Bank 2001).

Competition within a port occurs when, for example, facilities are divided to create competition. This is directly dependent on the geographical layout of the port. In Jeddah, it was possible to segment container terminal facilities in a way that enabled the port to award long term container handling concessions to two contractors, each operating in a separate location within the port (World Bank 2001). However port authorities should take into account the lumpiness or conglomeration of port investments. The development of any port will place immense pressure on the investor and hence will try to ensure that the new facilities will capture and preserve market share. The stakes of risk that an investor may face is the ability of a competing port to absorb losses and/or cross-subsidize operations within the port. This affects the balance and intensity of rivalry. Terminal operators may be willing to absorb losses in a particular port at least for a limited period, in order to eliminate competition. Ports with multi-faceted operations may be able and willing to cross-subsidize service to lower charges on port activities where there is great rivalry for business. Port authorities that are involved in non-port related activities may be able and willing to cross-subsidize port related services through higher charges on non-port related services (World Bank 2001). The ability of port authorities and port service providers to control efficiency of port services may also intensify the environment of rivalry. Such procedures that hinder efficiency may be in the form of customs and excise. In some instances, custom processes have become a hindrance such that container dwell times are suffocating the port.

Regulation of activities in a port refers to limits set on the number of eligible service providers such as policies limiting the number of stevedores; tug companies and other industries that can operate within the port. These situations can arise through port policy that limits the number of competitors, and in some cases because businesses are historically well established into the port. Another factor that initiates competition within and between ports in a region is the availability of public funds to offset losses. These funds might blur the role of commercial forces. Governments often use ports as mechanisms for economic growth as exhibited by the European port system. Sometimes government subsidies may influence the ability of trans-shipment centers to compete for business.



### **3.4.1.2 Threat of new competitors**

The potential entrance of new port facilities or service providers within the port including the creation of new regional load centers that change the way cargo to and from a country or port's hinterland is distributed.

Capital costs of new port facilities may create barriers for competitors. In some countries, government has sensed the opportunity to tap into the large and lucrative container market as well as Post-panamax vessel accommodation. These infrastructure improvements in dredging, quay construction, access roads and other super-structures may affect the efficiency of other ports in a region (World Bank 2001). Also changes in the distribution patterns, particularly the case in containerized traffic may offset competition. Port improvements to capitalize on these markets may siphon traffic at other ports in the same region. An interesting investigation in the future of a specific port would be to identify provisions in leases, concessions and other agreements, particularly those involving the investment proposals of a new operator. These provisions may provide some degree of protection from new competitors starting up business in the port (World Bank 2001).

Another major constraint of most ports is the ability to acquire land for fixed facilities. In times of future expansion, there may not be space for additional berthing, storage and other fixed facilities to provide insulation from competition (World Bank 2001). The existence of switching costs will often determine the ability of new port entrants to start up competing operations, either within a port or between ports. The problem facing trans-shipment centers for containers is that they can be vulnerable to switching as the carriers using the facility may incur little switching costs in shifting to a competing facility in the same region. Ports and service providers within a port can often protect their market position by ensuring that these switching costs are maximized. In other words, it would be more costly to move out of the initial port for most customers. The advent of a new service provider at a port is another factor that may create uncertainty within the port (World Bank 2001). There could be a threat of customers shifting to another service provider or ultimately another port. A consideration of customer loyalties is essential e.g.; the quality of services may have cost advantages (World Bank 2001).



### **3.4.1.3 Potential for global substitutes**

This relates to the potential of port users to shift to other global sources, affecting the level of activity in the port. It is important to note that as world trade is open to competition, sourcing of supply becomes increasingly global and vertical specialization becomes an increasingly important factor in global logistic chains. The extent to which there are other global sources available to customers now shipping through the port, will determine the ability to source elsewhere (World Bank 2001). ‘Footloose’ industries impact considerably on port efficiency thus it is imperative to identify the benefits of such facilities as well as services on offer at a port so as to impact on the success of such ‘footloose’ products in the export market (World Bank 2001). The success of products ultimately influences the level of activity moving through the port. Another important point is that foreign buyers may be able to substitute other products for the products they are currently shipping through the port (World Bank 2001). The problem is therefore with changing handling facilities to suit or accommodate substitutes may affect the viability of acquiring land for these new facilities. A port may have great bargaining power on the converse side, as the costs in switching to substitutes are significant (World Bank 2001). These costs may be representative in the actual price of the product, that is, value added services. This ultimately influences shifts to other global sources. Another factor determining the potential for global substitutes is the elasticity of demand for country’s exports and imports (the greater the elasticity the greater the potential to do without the product) (World Bank 2001). In this form of substitution, the volume of traffic for that product at the port will be affected. It is therefore imperative to identify if any products that move through the port have been exhibiting some elasticity (World Bank 2001).

The importance of port costs in total delivered price is expressed as a percentage of total delivered prices. The rationale is that the higher the percentage the port’s costs are of total delivered price, the more impact port costs will have on buyer behavior. These penalties may represent the difference between profits and losses. In the marketplace, this influences whether the port user has the option to ship through another port, not buying the product or find another market (World Bank 2001).

### **3.4.2 The benefits of private participation in infrastructure development and service delivery**

Although the reasons for engaging in port reform are many and varied, the benefits can be quantified as they accumulate to exporters, consumers, shippers and entrepreneurs. A successful privatization program may liberate governments of uncalled for expenditures, releasing funds for more socially needy government programs, release bottlenecks to trade and economic development and motivate the adoption of new regulations that protect the environment and improve workman and navigational safety. The section below outlines the broad summary of benefits to stakeholders (3.4.2.1) and the different forms of private participation at ports (3.4.2.2).

#### **3.4.2.1 Broad summary of benefits to stakeholders**

**Governments:** At the macroeconomic level, the benefits attained improve external trade competitiveness by reducing transport costs, and in particular the cost of port services, and improving port efficiency at the sea/land interface. At the microeconomic level, the benefits alleviate financial burden on national budgets by transferring part of port investments and operating costs on the private sector, and incidentally, raise revenues from assets divestitures

**Transport and terminals operators:** In this case, there will be the benefit of more cost-effective port operations and services. This allows for greater efficiency in the use of transport assets and better competitive positions on transport markets as well as more business opportunities in growing sectors (for example, container operations);

**Shippers, exporters/importers:** There are reduced port costs, and as a consequence of more efficient port operations, lower maritime freight rates, allowing lower cost of imported inputs and better competitiveness of exports on external markets.

**Consumers:** The benefits are lower prices on consumer goods, and better access to a wider range of products through increased competition between suppliers.

### **3.4.2.2 Forms of private participation at ports**

There are various forms of private participation in the organization of port services. Depending on port size, initial conditions and the type of service, several alternatives are considered. Among the different possibilities, the following can be mentioned:

A fully privatized port is where all assets and liabilities are transferred to the private sector, which can be justified by serious fiscal needs from the public sector. Transferring to the private sector parts of the port for their development by private operators (Build, Operate and Own, BOO). Short-term financial needs justify the use of this form of privatization.

When private participation is introduced in the port in order to build or renovate facilities required for provision of port related services (Build/Rehabilitate, Operate and Transfer, BOT or ROT). This situation ensures that the public sector does not lose ownership of the port infrastructure, and even new facilities built by private firms are transferred to the public sector after a specified period.

Joint ventures are a type of agreement that arises when parties with common interests join forces creating a new independent company, from the combination of efforts from two or more firms. In some cases, a firm can supply technology and expertise, while another might have knowledge of market opportunities and customer contacts. Such agreements are not exclusively signed between private firms.

In some cases, leasing arrangements occur, that is when port authorities simply rent port assets to be used by private operators during a fixed period, and thus they obtain income from contract fees. In contrast to concession contracts, private firms are usually not required to make investments, therefore they only assume commercial risks. A way in which this may occur is when under this arrangement operators rented port facilities such as storage buildings or cranes.

Licensing is when the port authority allows operators to provide some services, which only require relatively simple equipment, and thus private operators generally own assets. Infrastructure is provided for these operators to use it, generally for some specified fee, and in some cases, they may use some superstructure elements owned by the port authority. Stevedoring companies, pilots, tug operators or consignees can work under this type of agreement.

A management contract is a simple form of accepting private participation in a port and is done by contracting out the port management. Here, the port authority is the owner of infrastructure and port facilities, but decisions on its running are taken by a private firm, which can provide a more commercial approach to operations. The public sector in this instance is faced by both investment and commercial risks since managers do not invest their own capital in the port. In some examples (Bristol U.K) a type of contract exists, where the local government owns facilities, but the port is managed privately.

In order to determine the best alternative for a particular port, the port objectives must be evaluated, and the constraints that the port authority faces must be considered. The type of service may determine the possible degree of private participation. A basic determinant would be to consider whether the service requires the exclusive use of ports fixed assets (see Trujillo and Nombela 1999 for more information on this subject).

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### **3.4.3 The diversification and globalization of investors and operators in the port industry**

It should be noted that strong global competition will compel changes in the way all players in the international logistics chain, including ports, do business in the future (World Bank 2001, Benacchio et al 2001, van Niekerk 2002, Notteboom 2002). Modern systems and innovative technology will drastically alter requirements for port infrastructure and enhance the degree of specialization, increasing the financial stakes of port investments and the requirements for a extremely specialized labor force (World Bank 2001). Realignments and consolidations among port users and service providers will continue generating a flexible foundation of businesses with which ports can interact. Adjustments in distribution patterns and



in the structure of the maritime geography will progressively create a hierarchy of ports and some historical port related activities would be shifted to other locations inland. Environmental and safety concerns will force on ports the requirement to impose regulations and provide facilities that may have no commercial return on investment (World Bank 2001, Benacchio et al 2001, Van Niekerk 2002, Notteboom 2002).

The sections to follow are an exploration of the issues contributing to this third influencing force of port reform. These are (3.4.3.1) to (3.4.3.15) respectively: the development of containerization; multimodalism; modern cargo-handling facilities equipment, facilities and services; one-stop shipping centers; free trade zones; high volatility and declining profitability of the shipping industry; environmental safety and standards in international shipping; the 'U.S Terrorism Act' and implications for shipping; economic recession and shifting global trade patterns; shipping fleets become more niche-oriented; expansion and multi-polarity of global trade; separation of port authority and port operator; emergence of global port developers and operators; growing influence of port users; and finally, integration of ports in logistics value chain. It should be noted that all the issues discussed in this section are based on research done by i-maritime Consultancy for ports in India.

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#### **3.4.3.1 The Development of Containerization**

In the 1960s containerization revolutionized and radically affected the shipping world. This development radically changed the design of the ships, face of the ports and the business and commercial practices globally. Containerization will continue to have a major impact on the ports; influencing existing liner trades and strengthening further their position in present containerized routes. The future of ports and shipping will ensure additional investments in container berths and associated equipment to remain abreast with current trends. The development of new terminals will mean that the port will be increasing the throughput in TEUs and will consist of of highly sophisticated cranes and other container-handling equipment, such as, rubber-tired gantry cranes, straddle carriers, and so forth. The development of containerization will also facilitate the expansion of the combined transport operation involving road, rail, logistics and distribution services to and from a port. It is envisaged that an increase in the demand for



inland container depots (ICDs), warehouses, distriparks and storage and distribution centers are required by a port. This will eventually reduce port congestion and, on the whole, improve the throughput at the container berths (<http://www.imaritime.com/resources/>).

#### **3.4.3.2 Multimodalism**

The concept of the combined transport operation is being developed in many trades involving the through rail, road vehicle, or inland river services. The concept of land bridge is an accepted norm in USA and will soon become a way of life possibly in South Africa. This system enables the merchandise to travel under one document covering the various transport modes and permits a through rate to be quoted. The major benefit to a port is the unimpeded flow of traffic through the port and ease of documentation and port procedures (<http://www.imaritime.com/resources/>).

#### **3.4.3.3 Modern cargo-handling equipment, facilities and services**

Most industrial coastline countries have mechanical cargo-handling techniques, which has to be extended to other seaboard nations as their shipping services become modernized. It is imperative that where there are capital-intensive port trans-shipment systems, dock labor attains high productivity. This will create a competitive position for the port and support the development of trade. Countries which do not have modern cargo trans-shipment systems have increased vessel turn-around time, increase port charges to the shipper, have longer transit times, and discourage the development of trade compared with countries exporting similar cargo but through a more modern and efficient port and related shipping services (<http://www.imaritime.com/resources/>).

#### **3.4.3.4 One-stop shipping centers**

It can be argued that ports in future are likely to become one-stop shipping centers, providing modern cargo-handling facilities and a wide range of maritime services. When ships call at a port it must be able to carry out a host of activities like cargo handling, distribution and warehousing, bunkering, acquiring

ship supplies, ship repairs, change crew and so on. The quality of these services must be of very high standards and competitively priced. Prompt, reliable and cost-effective service to the customer should be a top priority of a port. In order to remain competitive ports need to upgrade their ship supplies industry, so that good quality goods at competitive prices are available at all time. In this regard, ports could therefore provide sophisticated shipbuilding, ship repair and dry docking services to shipping lines (<http://www.imaritime.com/resources/>).

#### **3.4.3.5 Free Trade Zones**

In the future, major load centers will have to offer efficient container handling services at attractive rates as well as other supporting services. One of these is the cargo storage, distribution and processing. In Free Trade Zones (FTZ) goods stored can be processed and re-exported with minimal custom formalities (<http://www.imaritime.com/resources/>).

#### **3.4.3.6 High volatility and declining profitability of shipping industry**

Major global shipping companies are experiencing the effects of market volatility. Worldwide the shipping industry is in the midst of a transitional stage of re-adjustment and restructuring and is expected to observe a significant level of consolidation through mergers and acquisitions in addition to expansion to new regional trade hubs (<http://www.imaritime.com/resources/>).

#### **3.4.3.7 Environmental safety and standards in international shipping**

Recently, poor monitoring and compliance with international safety standards in the shipping industry, coupled with recent ship accidents<sup>8</sup>, the subject of environmental safety and standards. This is likely to be a major issue of concern to all national ship registries and is likely to lead to new rigid demands. Accordingly, the Tanker shipping industry, which has major share of global fleet and sea-borne cargo, is going to be particularly affected (<http://www.imaritime.com/resources/>). Recent calls for global intervention has motivated the European Union to issue a 'blacklist' of ships to be barred entry into the

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<sup>8</sup> The case of "Erika" and MT "Prestige" incident, off the Spanish coast.

European ports. The incremental costs of a stringent international safety regime, administered on a multilaterally by a number of countries, is bound to further impact the operations of global shipping companies through added costs of redundancy and renewal of fleet (<http://www.imaritime.com/resources/>).

#### **3.4.3.8 The ‘US Terrorism Act’ and implications for shipping**

The consequence of terrorist attacks on the United States on September 11 2001 has sent global concerns regarding national defense. This has resulted in unparalleled burden on national ship registries and ocean liners to abide with a series of new rules and regulations for port clearance of cargo. This is likely to significantly increase legal and insurance costs and other indemnity requirements and accountabilities. Eventually this could affect shipping, by building greater demands on restructuring of terminal loading operations in the future. The US Terrorism Act, which aims to securely regulate cargo movements into and out of the United States, a major partner in world trade, came into force from December 2002. The Act is likely to critically impact US-bound cargo logistics and trade supply chains across the globe (<http://www.imaritime.com/resources/>).

#### **3.4.3.9 Economic recession and shifting global trade patterns**

The consequence of instituting the World trade organization (WTO) has impacted on global trade patterns due to the increase in trade restrictions. This impact has led to economic recession in the developed economies. Regardless of this, global merchandise trade volumes having increased and the shipping freight rates have come down, mainly due to many structural changes in the world trade.

Although developed industrial economies of Europe and North America still continue to drive the global merchandise trade, there has been considerable growth of merchandise trade, especially in the Asian region led by countries like China and India. Reorganization of the world trade flows is leading to parallel effects on the global shipping patterns (<http://www.imaritime.com/resources/>).

#### **3.4.3.10 Shipping fleets become more niche-oriented**

Shipping industry worldwide is increasingly becoming globalized, despite the importance of national ship registries. Although ships will certainly carry national flag for purposes of international maritime organization, the fleet operations will be entirely driven by global market dynamics (World Bank 2001, van Niekerk 2002, Notteboom 2002, <http://www.imaritime.com/resources/>).

It can be acknowledged that shipping companies that have established themselves in different commodity and service trades and trading regions will on the other hand, have greater opportunities to pursue their specialization and infiltration, both vertically and horizontally in terms of niche marketing position. Tanker trade, major dry bulk trade, minor bulks, coastal trade, feeder service, container trade and so forth will grow into significant business and a niche market opportunity in themselves (<http://www.imaritime.com/resources/>).

#### **3.4.3.11 Expansion and multi-polarity of global trade**

Recent trends have indicated that the growth of global trade volumes and increasing multi-polarity of trade flows will impact global shipping as intensely as did liner shipping and containerized cargo, in the past. Even in earlier stages, Trans-Atlantic and Trans-Pacific trade grew at a rate to a large extent than any other trade. Noticeably, this trend in the future will encourage a much more distributed global merchandise trade that can employ not only mega ships but also medium and smaller ships on shorter regional and coastal trade routes. Current collaboration between Pacific-rim and Indian Ocean-rim countries have dismissed any linear forecasts about larger and faster ships alone taking the prime spot and concealing other segments of shipping trade (<http://www.imaritime.com/resources/>).

#### **3.4.3.12 Separation of Port Authority and Port Operator**

The growing separation of port authority from port operator is encroaching on all exiting institutional models of port organizations. These trends have impacted on port organizations globally, contributing to a wide range of institutional reforms, as a part of the adoption to new demands of shipping and international trade. Port authorities are being focused on policy and regulatory roles, while a range of private port operators and port service providers are taking over a range of port related services. (World Bank Port



reform Toolkit Modules 2001, Benacchio et al 2001, Van Niekerk 2002, Notteboom 2002, <http://www.imaritime.com/resources/>)

#### **3.4.3.13 Emergence of global port developers and operators**

The advancements in liner shipping and container cargo trade have placed demands on port infrastructure, in this way becoming reasonably intensive, both in respect of level of capital investment and also exceedingly innovative technology for container handling. In this regard, the foremost international shipping lines like P&O, Maersk and Sealand have accordingly, diversified into managing the port operations at several locations. These operators have consolidated especially in regard to container terminal operations, adding the benefit of them being in the container line trade. At present, port developers and operators work on a global scale and could possibly dominate a large amount of future port development (<http://www.imaritime.com/resources/>).

#### **3.4.3.14 Growing influence of port users**

The balance of power in the maritime trade, which traditionally was weighed in favor of the shipping line, has now decisively shifted in favor of the shipper, whose cargo is being moved (World Bank 2001). In the same respect, the freight service providers have developed into an increasingly significant part of the value chain (<http://www.imaritime.com/resources/>).

#### **3.4.3.15 Integration of ports in logistics value chain**

As in the case of shipping lines, the port operations are also becoming increasingly part of a common logistics value chain that extend from point of origin of cargo to the final destination of cargo - in terms of a door-to-door delivery cycle (World Bank 2001). Ports have to progressively endeavor to accelerate the movement of cargo by ensuring that ships enter their berths to unload cargo and leave them after loading cargoes in minimum possible time and cost. The consequence of not realizing customer expectations is that there is a probability of cargo moving through another port in the fast emerging competitive market structure (<http://www.imaritime.com/resources/>).



### **3.4.4 Port Management**

In most ports around the world, a port authority is a coordinator of activities that are being performed simultaneously within the limited space of the port area. The port authority ensures that there is a proper use of common facilities in the port as well as ensuring the safety and general design of port facilities. These situations generally occur at public institutions, where local interests are represented, but this situation is not unique, and it is possible to find examples of purely private port authorities (World Bank 2001). There are several organizational modes for ports, depending on the role that port authorities assume.

#### **3.4.4.1 Port Management Models**

The World Bank (2001) identified and assessed the four main port management models as follows:

##### **3.4.4.1.1 Landlord Port**

This is where the port authority owns all the port assets and is in charge of its management. Meanwhile, private firms that own the assets conforming to the port superstructure provide remaining port services and all equipment required for service provision (e.g. cranes, vans, forklifts). This is the most common form of organization for large ports.

**Strengths:** A single entity (the private sector) executes cargo-handling operations, owns, and operates cargo-handling equipment. The terminal operators are more loyal to the port and more likely to make needed investments because of their long-term contracts. Private terminal handling companies generally are better able to cope with market requirements.

**Weaknesses:** Risk of over-capacity because of pressure from various private operators. Risk of misjudging the proper timing of capacity additions.

#### **3.4.4.1.2 Service Port Model**

This is where port authority and operator are one and the same (the major ports of India). Port authorities are responsible for the port as a whole. They own the infra- and superstructures, and they hire employees to provide services directly.

**Strengths:** Superstructure development and cargo handling operations are the responsibility of the same organization (unity of command).

**Weaknesses:** There is no or only a limited role for the private sector in cargo handling operations. There is less problem-solving capability and flexibility in case of labor problems, since the port administration also is the major employer of port labor. There is lack of internal competition, leading to inefficiency. Wasteful use of resources and under-investment because of government interference and dependence on government budget. Operations are not user-oriented or market-oriented. Lack of innovation.

#### **3.4.4.1.3 Tool Port**

This is where the port authority selectively engages private operators in areas where they do not wish to operate. As in the landlord model, port authorities are also the owners of infrastructure, but in this mode of organization, they also own the superstructure (e.g. buildings) and the equipment. Private firms provide services by renting port assets, through concessions or licenses.

**Strengths:** Investments in port infrastructure and equipment (in particular ship/shore equipment) are decided and provided by the public sector, thus avoiding duplication of facilities.

**Weaknesses:** The Port Administration and private enterprise jointly share the cargo handling services (split operation), leading to conflicting situations. Since the private operators do not own major equipment, they tend to function as labor pools and do not develop into firms with strong balance sheets. This causes instability and limits future expansion of their companies. There are serious risks of under-investment and this constitutes to a lack of innovation.

#### **3.4.4.1.4 Fully Privatized Port**

In this situation the private port developer owns all the port assets and operates all services. However, there are very few ports where the port operator owns the port land and sea front and these are only made available on long-term lease basis.

**Strengths:** Maximum flexibility with respect to investments and port operations. In this model, there is no direct government interference. Ownership of port land enables market-oriented port development and tariff policies. In case of redevelopment, private operator probably realizes a high price for the sale of port land. The often-strategic location of port land may enable the private operator to broaden its scope of activities.

**Weaknesses:** Government may need to create a Port Regulator to control monopolistic behavior. The Government (be it national, regional or local) loses its ability to execute a long-term economic development policy with respect to the port business. In case the necessity arises to re-develop the port area, Government has to spend considerable amounts of money to buy back the port land. There is a serious risk of speculation with port land by private owners.

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### **3.5 Conclusions**

The interaction that exists between the city and the port are changing and are the subject of strategies through which cities and ports often ignore each other and sometimes end up in conflicting views. This interaction should however, tend progressively towards becoming areas of dialogue and co-operation. When restructuring these areas, applying the efforts it demands and through the potential that exists, the process is going to require the involvement of all local stakeholders. This will create a dynamism, which will promote development that is economic, sustainable and sensitive to humanity. Establishing partnerships and real consultation processes to defend joint interests is undoubtedly the challenge that port cities must face up to today. The chapter that follows identifies the significant challenges facing the Port of Durban in the 21<sup>st</sup> century with regard to the trends that have been outlined above. The chapter begins with a section outlining the impact of global trends on the South African maritime supply chain, with particular reference to the container trade.

## **CHAPTER FOUR: IDENTIFICATION AND ANALYSIS OF KEY ISSUES FACING THE PORT OF DURBAN**

The aim of this chapter is to identify the significant issues facing the Port of Durban in the 21<sup>st</sup> century. Additionally, this chapter identifies some of the alternatives recommended by specialist studies to provide a background to address these issues. The issues discussed here, provides a context from which to analyse the port in comparison with the issues considered in chapter three. It begins with setting the context for analysis (4.1) of the port environment at Durban harbour for future “consolidation” as a “core port” in the South African maritime supply chain. An analysis of the current situation is highlighted in (4.2), detailing the strengths (4.2.1); weaknesses (4.2.2); opportunities (4.2.3) and threats (4.2.4) of the Port. The key issues facing the Port is analysed in (4.3) and section (4.4) concludes with some substantiation of the impact of globalization on port planning strategies.

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### **4.1 Setting the context for analysis**

The Port of Durban fulfils an indispensable role in the growth of the national economy and the city in which it resides. The basic functioning of the port to meet requirements for growth in the South African economy is based upon its strategic assets in addition to the physical and economic characteristics of its infrastructure. The Port of Durban is currently facing high growth in cargo volumes, largely because of the lowering of trade barriers particularly after the political restructuring of the country. Moreover the impact of increased container growth has placed immense pressure on the capacity and operability of the port in recent times.

According to the (*Moving South Africa*) (transport strategy by the national department of transport for 2020) situation analysis, global trends in container traffic indicate that South Africa will be driven to consolidate ports of call for larger ships over the next 20 years, mainly due to strategies of the increasingly powerful shipping lines that are changing supply and demand dynamics as well as shifting the patterns of competition (Department of transport 1998 p 101)

“Changes in container ship line dynamics include:

- **Reduction in port calls** - the continuing increase in average vessel sizes is leading to a stagnation, and even reduction, in the absolute number of ship calls at main container ports, in spite of continued strong growth in liner shipping volumes;
- **Shrinking customer base** - slot charters, alliances and mergers and acquisitions are all reducing the number of commercial entities calling at ports;
- **Hub ports** - selected hub ports are winning important roles as connection and relay points;
- **Fierce pressure on prices** - container ocean freight rates will continue to fall, further squeezing the already thin margins, which will put pressure on ports to reduce rates” (Department of Transport, 1998 p 102).

“At the same time, ports are getting bigger as the introduction of larger ships requires deeper waters, larger cranes, larger terminals and better inland connections as carriers strive to realise the economies of scale necessary to maintain margin. Ports, such as LA/Long Beach; Hampton Roads; Bremen/Bremerhaven and Singapore, which develop innovative responses to these pressures, are likely to secure a leading-edge position in a rationalised industry” (Department of Transport, 1998 p 102). This trend is a clear indication of the increased pressure on the Port of Durban to reconstitute its role in the container industry especially along the Indian Ocean Rim trade route. The (*Moving South Africa* 1998) project has identified the need to focus investments in core container ports (consolidation) in an attempt to meeting objectives for customer service and reducing travel times from all regions. The benefit of this ‘consolidation would therefore reduce the total logistic costs of handling cargo hence improve the overall competitiveness of the facility.

It can be noted that these trends have already impacted on the Port of Durban, and evidence reveals that increases in container throughput in addition to other cargo handled, has been the most noteworthy impact on the port planning devices, thereby illustrating the need to improve capacity in handling facilities. The requirement for further investment however, needs to be dealt with within the context of the adjacent landuses in addition to concentrating on other significant functions within the port (NPA: Port Development Framework March 2003).

The National Department of Transport has identified the need for strategies to remove the capacity constraints in the South African port system along with direct infrastructure investments in line with



the strategy. Some of the steps recommended for the South African ports outlined in the (*Moving South Africa*) document (1998) include:

- “In the short-term, address the causes of vessel delays in Durban;
- Undertake a long-term capacity exercise, or revise existing capacity planning in light of the new strategy. Currently, both Durban and Cape Town ports are forecast to experience capacity constraints, but decisions about consolidation will determine the impact of such constraints;
- Invest in the expansion of the selected core ports;
- Reduce spending in the non-core or feeder ports to basic requirement levels. It is important to keep feeder ports operating smoothly, if they are economically viable, since they form a key link into the core ports. However, capital spending priorities should begin with the core ports;
- Stop spending on non-viable ports. Continued investment here will dilute the effectiveness of the rest of the port system
- *Focus the role of ports.* Allowing ports to be self-sustaining on the basis of their own economics is critical to the ability to upgrade assets and service levels, particularly in entities as capital intensive as ports. The strategy requires three types of focus: among cargo types, among ports, and among origins and destinations” (Department of Transport 1998 p 125).

The manner, in which the Port of Durban responds to these strategies, would be determined by the strengths, weaknesses, opportunities and threats facing the port in the 21<sup>st</sup> century.

## **4.2 S.W.O.T analysis of the Port of Durban**

A scan of the internal and external environment is an important part of the strategic planning process. Environmental factors internal to the port usually can be classified as strengths (S) or weaknesses (W), and those external to the port can be classified as opportunities (O) or threats (T). Such an analysis of the strategic environment is referred to as a SWOT analysis and presents information that is helpful in focusing attention on the most critical issues needing attention at the port. This analysis is based on information acquired from interviews in addition to various literature on the Port of Durban The analysis, is instrumental in strategy formulation and selection.

#### **4.2.1 Strengths**

A port's strengths are its resources and capabilities that can be used as a basis for developing a competitive advantage. Such strengths at the Port of Durban include:

- The port is endowed with a variety of port ancillary services in the eThekweni metropolitan area: freight forwarding; ship chandlers; ship agents; transport services; warehousing centres; banking facilities; office facilities; customs and excise; container depots; container parks; container logistics; ship-owners and operators and so forth (Jones 1997)
- A significant amount of traffic (approximately 60 %) handled at the port is consumed in the eThekweni metropolitan area (Chetty: interview October 2003)
- The port is in close proximity and well served with road and rail links to its hinterland (Gauteng) as compared to its competitors
- The geographical proximity to the east (Asia and Australia) makes it the first port-of call from that trade route (van Niekerk et al 2002)
- The port handles the largest amount of containers in comparison to other ports in South Africa giving it the status to as a regional container hub (Jones 1997)
- The port experiences excellent climatic conditions all-year round thereby facilitating optimum operational activity (Jones: Interview October 2003)

#### **4.2.2 Weaknesses**

The absence of certain strengths may be viewed as a weakness. In the case of the Port of Durban, each of the following may be considered weaknesses:

- There is limited space available for port expansions in the future (NPA: Port Development Framework March 2003)
- The port requires widening and deepening at entrance channel for post-panamax vessel accommodation (van Niekerk et al 2002)
- There are severe draught limitations (12.8 meters) at berths in the port to accommodate post-panamax vessels (van Niekerk et al 2002)
- The container terminal's potential is not fully utilized as a consequence of the way it is managed (Chetty: interview October 2003)
- The port has some out-dated handling equipment and an inefficient configuration for container handling at Pier 2 (Chetty: interview October 2003)

- The inability of the port authority to unlock the Bayhead marshalling area (owned by Transnet) for port developments (van Coller, Persad: Interviews 2003)

#### **4.2.3 Opportunities**

The external environmental analysis may reveal certain new opportunities for profit and growth, such opportunities include:

- A possible merger with the Port of Maputo to eradicate inter-port competition (NPA: Port Development Framework March 2003)
- Port improvements to facilitate post-panamax vessel accommodation (van Niekerk et al 2002, Port Development Framework 2003)
- Port development for specialized container handling (Chetty: interview October 2003)
- Options outlined in Integrated Management Study for container handling (IEM unpublished 1996)
- Relocation of the navy base to make space for cargo handling (IEM unpublished 1996)
- The Maydon Wharf area obstructs the capability of the port to respond to new challenges (Robins October 2003)
- Use of derelict land in the Bayhead area to increase back-of-port capability (van Coller, Persad: Interviews 2003)
- The growth in activity at the port would affect the capacity of overland transport infrastructure serving the facility
- Improved rail utilization for minimizing total logistic cost (National Department of Transport 1998)
- Making use of a multi-modal (air, rail, road, sea) transport system to improve competitiveness capability (van Coller, Persad: Interviews 2003)
- Concessioning of Durban container terminal to realize benefits of privatisation (Chetty: interview October 2003).

#### **4.2.4 Threats**

Changes in the external environmental also may present threats to the port. The latest threats facing the Port of Durban include:

- The ship building industry in the port is under threat of closure and will impact on significant jobs (The Mercury November 2003)

- The port of Ngqura (Coega) has the potential (within the next 15-20 years) to compete for a significant proportion of future containerised cargo due to its advantageous location and deep water berths (Jones, Robins, van Coller: Interviews 2003)
- The political unrest in Zimbabwe hampering perceptions of South Africa as transshipment centre
- Uncoordinated planning between city and port officials (Robins: Interview October 2003)

The analysis provided above is a starting point from which to analyse the key issues facing the port in the 21<sup>st</sup> century.

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## 4.3 Key issues

It can be noted that the development of containerization has created the greatest impact on the Port of Durban in the 21<sup>st</sup> century creating several issues that need to be resolved as part of the development process. This research has highlighted the key issues facing the port hierarchically; level one (planning and development issues); level two (value-adding and logistic issues); and level three (port and city issues), so as to outline the scale of the impact of these issues. These issues are discussed below.

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### 4.3.1 Level One issues: planning and development issues

The six issues discussed in this section as industry-specific issues that affect the planning devices of the port directly. For the sake of this analysis it is imperative to note that the ports of South Africa have been identified as providing a “freight service to port users”, for that reason the planning approaches must be viewed as part of an overall strategy to improve the business operations of ports (National Department of Transport 1998).

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#### 4.3.1.1 The port needs to be a major competitor in the world container trade otherwise it would be relegated to secondary spoke status

As indicated above, the prevalent trends in the maritime industry has suggested that ports should consolidate their roles around serving the container trade (National Department of Transport 1998). Recent trends have indicated increases in activity in the global container ship line industry is relatively significant on the major East-West trade routes, in addition to some smaller routes. The potential therefore exists to capitalize on this emerging growth in containerized cargo, and the project (*Moving South Africa*) has revealed that with the extent of this growth, some ports could be repositioned as

feeder ports or specialized ports serving specialized customers. In other words, potentials exist within the east and west ports serving the main east-west global container trade routes, and also indirectly emphasizing the potential for the Port of Durban to be created into an east-facing international container port serving East Africa, the Middle East, Asia and Australia (National Department of Transport 1998). Although it has been established that the Port of Durban is the foremost general cargo port of the African continent, the container hub port of the western Indian Ocean and arguably the leading port of the southern hemisphere, the port's success is facing a considerable amount of insecurity in terms of competition forces in the 21<sup>st</sup> century (Jones 1997).

The growing influence of shipping lines which have the most influence over international container shipping could focus their Indian Ocean operations on hub ports as far a field as Aden, Salalah or Singapore, in the process threatening to relegate the Port of Durban and other Southern African ports to secondary spoke cargo receivers rather than authentic hub generators of regional and trans-shipment traffic (Palsson in Jones, 1998). On the national (local) scale, the port faces threats related to the upgrade of the Port of Maputo<sup>10</sup> as well as a new 'deep-water harbour'<sup>11</sup> at Coega (Industrial Development Zone). Maputo currently consists of a container terminal, which is currently handling approximately 10-12% of the volume that Durban handles, and its locational aspects render it an attractive port of call for servicing the Gauteng hinterland as well as other landlocked countries. The Port of Ngqura on the other hand is still being considered for container handling with P&O Terminals providing a substantial bid to concession the operations.

The effect of these competitive forces has therefore stimulated the need and urgency to undertake capacity and investment decisions in the South African ports sector. Accordingly these decisions will determine whether the Port of Durban will move into the 21st century as the unchallenged hub port of the Indian Ocean Rim. Some of the more significant issues directly affecting the operations of the Port of Durban are discussed further in sections to follow.

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#### **4.3.1.2 Improvements in vessels technology places pressure on cargo handling operations at the port**

The impacts of containerisation on ocean shipping lines, ship design, and port investments at the Port of Durban are discussed in this section to emphasize the role that shipping plays in international trade.

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<sup>10</sup> P&O Terminals currently operate the Port of Maputo's container terminal under a concession agreement.

<sup>11</sup> To be referred to as the Port of Ngqura after conception and is to be developed by the South African government (via the NPA) and the Coega development Corporation.



It is important to note that with the occurrence of merges and alliances between the major shipping lines, has driven strategies to reduce the number of port-calls and ultimately costs of goods transported, along with influencing the way ships are to be designed in the future. The results of these strategies have therefore noticed the development of large ships, “3,000 TEU (twenty foot equivalent units) capacity or larger, that would call at only a few ports, where large volumes of containers would be concentrated by land transportation, barges, and small feeder vessels. These so-called load centre ports would be equivalent to the ‘hubs’ of the ‘hub and spoke’ system of airlines. In reality, strategy drove the ship design, and vice versa” (Talley et al 1999 p 8)

The Port of Durban does not serve the markets for large bulk vessels and very large crude oil carriers (VLCC’s), restricting these vessels to the Port of Richards Bay along the same provincial coastline. The ships that are likely to visit the ports of South Africa in the future and their draught requirements are summarized in Appendix One: Table 5

#### **4.3.1.2.1 Depth and Width restriction at the port**

The dimensions of the ships that are expected to reach the shores of Southern Africa possibly within the next 5 to 10 years far exceed the maximum depth and width restrictions at the Port of Durban. The largest container ship presently calling at South African ports and Durban can carry 3 428 containers, with a draught of 13,1 m when fully laden. The maximum draughts of the post-panamax container ships that are expected to replace existing ships on South African services routes will be between 12,5 and 14 meters. The Port of Durban has an entrance<sup>12</sup> channel depth of 12.8 meters from chart datum and a width of 122 meters, permitting only one-way traffic. The length of the channel at the Port of Durban has a limit of 244 meters, which is less than the length of most post-panamax ships. At present there are 57 berths in the Port of Durban, ranging from 7 meters to 12.8 meters in depth (NPA: Port Development Framework March 2003). The handling capacities of vessels at the port are dependent on the berth depth. Increasing shipping costs at the port is affected by ship turn-around-time, which at most times is high due to the variability in berth drafts at the Port of Durban.

The impact of new vessel trends is also visible in the break-bulk<sup>13</sup>/neo-bulk industry at the Port of Durban and evidence reveals that the combined handling capacity of Point berths D to G were considerably low (only 140,000 tons) during 1999, this due to their shallow depths ranging from 7 to 8

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<sup>12</sup> The entrance channel allows one-way traffic and is currently employing approximately 5000 vessels per annum.

<sup>13</sup> Loose, non-containerized cargo stored directly into a ship’s hold, to unload and distribute a portion or all of the contents into a container

meters (NPA: Port Development Framework March 2003). The berths at Maydon Wharf (mostly 9.9 meters) are also at risk to shipping trends in the future and many of the vessels have to be shifted to the deepwater berths at Pier 1 (12.8 meters) for topping up (NPA: Port Development Framework March 2003). Past and current cargos volumes at the Port of Durban have been affected largely by the availability of capacity and berth limitation with major constraint to capacity at these terminals are that of inadequate drafts alongside quay walls. The demand in the container, breakbulk and liquid-bulk<sup>14</sup> market for that reason, places considerable pressures on the Port of Durban to deepen and widen the entrance channel of the harbour, otherwise it will be relegated to a feeder port status.

Although the maximum draught permissible in the Port of Durban is 12,8 meters, it seems unlikely that considerable difficulties will be encountered in accommodating those ships calling from the West (from Europe to South Africa), as these loads are lightened at the Port of Cape Town, being the first port-of-call for offloading. This will lead to a reduction in the depth required at the berths at Port Elizabeth and Port of Durban (being the last port-of-call from the West) (van Niekerk et al 2002 p 9). “The existing physical limitations of the Port of Durban is thus unlikely to constrain the employment of container ships of the sizes, which will be economically justified on the services between Europe and South Africa during the next 18 years. That contention is valid in accordance with the existing logistical arrangement whereby fully laden ships arriving from Europe will first discharge cargo at Cape Town before proceeding with a lesser load and shallower draughts for further offloading to Durban and back, accumulating cargo for the return voyage with Cape Town being the last port-of-call” (van Niekerk et al 2002 p 10). It is evident that there is restrictions arising when fully laden post-panamax ships from the Far East calling first at the Port of Durban and evidence has indicated that container ships carrying 4 500 TEUs or more, exceed the existing provision at the Port of Durban, the main port-of-call from the East. “The entrance channel has to be widened and deepened, and depth must be increased alongside the container quays” (van Niekerk et al 2002 p 10).

Safety during vessel maneuvering through the channel is also an essential issue at the Port of Durban. According to the Port Engineering Handbook, the entrance channel is narrow by world standards (Portnet, 1994: 1-20 in Port Development Framework 2003). A rudimentary evaluation of the entrance channel shows that it is 3.5 times wider than the width of the design vessel, however it should be of a ratio greater than 5 to be considered acceptable. It has been noted that is usually important not

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<sup>14</sup> As indicated earlier the port does not cater for VLCC's but there are limitations to accomodating the smaller type vessels. The liquid bulk industry however is not dealt with in detail, as it is isolated (zoned) away from container handling by privet operators and little information has been gathered on this industry. Specific action plans to address issues for the Liquid Bulk industry is outlined in Appendix Three.

to widen the entrance channel too much so as to limit wave penetration into the port (EIA: Channel Widening and Deepening November 2003).

According to the National Ports Authority, technical modelling to aid the detailed design of the entrance channel at the Port of Durban is underway (Port Development Framework: March 2003). The designs would be suitable for post-panamax vessels, to allow such vessels safe access to the harbour and reduce the risk of navigation incidents occurring whilst ships enter or exit the harbour. The course of action however, required in alleviating the problems in employing new generation vessels is encountered by time restrictions (4 years) due to leasing arrangements at adjacent properties (Port Development Framework: March 2003). Table 6 in Appendix One identifies the TEU capacity of these vessels on order as of February 2001, in addition to the total number of these vessels on order.

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#### **4.3.1.3 There are capacity constraints at the Durban Container Terminal. (Future growth in industry vs. the design capacity and operational performance issues)**

Since the 1970s the container transport industry has grown rapidly requiring larger ships as well as container terminals to transport the containers promptly as possible. Likewise, when a containership is travelling between ports it is subjected to increasing costs (which consequently is transferred onto the cost of the goods being transported), so every minute spent in a harbour should be avoided. It is essential for that reason that container-handling operators improve the efficiency and effectiveness of container terminals and in doing so create new terminals. Accordingly, “the design for a new or a replacement terminal requires various design options varying from dimensions, architecture, kind of equipment, and the intended use of this equipment at the terminal. Each of these design options affects a wide range of performance indicators. The cost of handling of a container is the most important one of these performance indicators, followed by lead-time for emptying and loading a containership” (Amborski et al., 2003 p 1).

The container traffic at the Port of Durban has been sparked by factors such as the general shift of conventional general cargo into containers; as well as the globalization of markets (which has led to increased productivity of world trade), the period 1981 to 2002, has noticed an average growth of container handling at the Durban Container terminal of 6% per annum. At the dawn of democratic era (1993-1995, removal of trade barriers) capacity became an important issue at the port especially since products and consumers were experiencing increased costs due to congestion. The majority of containers are handled at Pier 2 and through the various multi-purpose terminals. Being the largest

container terminal in the southern hemisphere, highly acclaimed and modern by international standards, the port handles 65% of the total number of containers passing through the ports of South Africa (SAPO 2003). This handling capacity of the port renders it as the most strategic (accommodating the highest value of goods and expensive vessels) terminal in the South African Maritime Supply Chain, therefore exhibiting the necessity to ensure best practices are adopted in the capacity planning of the Port of Durban.

Whilst this may be true, little upgrade at the port in the past had resulted in increased ship and cargo dwell-times, which created the motivation for upgrade in the last decade. There is conclusive evidence that there will be maintenance of the same trend in the future. A most recent survey by a team commissioned by the National Ports Authority in July (2000) forecasts an expected growth in container handling of 6% after 2001. This scenario termed the “Salisbury” Scenario took into account the average growth rate being experienced at the Durban Container Terminal (DCT) as well as the Nedbank GDP forecasts. The growth rate based on historical statistics has shown a direct relationship between the change in GDP and the growth of containers in Durban (Port Development Framework: March 2003). For planning purposes, so as to meet capacity ahead of demand, an inflated growth rate has been adopted (variation figure of 8.5%, based on fluctuations since 1987) (Port Development Framework: March 2003). Current figures have also shown that the port’s container terminals is operating at 27% above of its design capacity (970 000 TEU’s) therefore suggesting that the terminal would have to be extended to meet future growth (Chetty: Interview October 2003).

Performance indicators that measure the efficiency and the capacity provided relative to the throughput at the terminal is highlighted by (1) average vessel waiting time; (2) average vessel turn-around-time; and (3) by the average road and rail truck turn-around-time. In addition to this the NPA (2003) notes the main terminal performance variables necessary for planning capacity improvements are: (1) average container dwell time in terminal, (2) stacking height and (3) annual throughput per linear meter of quay wall. Table 7,8 and 9 highlight the various performance indicators mentioned above.

**Table 7: Container supply chain times at South African Ports**

Table 7: Container supply chain times at South African Ports

Port	Sea time <sup>1)</sup> (days)	Dwell time in port <sup>2)</sup> (days)	Time per road <sup>3)</sup> (hours)	Time per rail <sup>4)</sup> (hours)	Total supply time by rail (hours)
Traffic from the West (UK and Europe)					
Cape Town	13	1-2	18	36	372
Port Elizabeth	14	1-2	13.3	26	386
East London	14.5	1-2	12.5	24	396
Durban	15	3-5	7.5	17	425
Richards Bay	15.5	1-2	7.7	15	411
Traffic from the Far East					
Cape Town	14	1-2	18	36	396
Port Elizabeth	13	1-2	13.3	26	362
East London	13	1-2	12.5	24	360
Durban	13	3-5	7.5	17	401
Richards Bay	13	1-2	7.7	15	351

Notes:

- 1. Assuming an average speed of 20 knots per hour
- 2. Based on the average 2001 statistics
- 3. Assuming an average speed of 80 km per hour
- 4. Assuming an average speed of 42 km per hour

Source: Adapted from Table 2: in H.C van Niekerk et al 2002 p 5

The table above indicates that the Port of Durban experiences a considerable amount of delays in comparison to other ports although closer to the hinterland market. Additionally it highlights the fact that the facilities at the port are experiencing backlogs due to the lack of efficiency in support services to relieve cargo. It is also important to note that the cargo from the Far East, encounters considerable amounts of lag-time at the port, a serious issue when trying to consolidate to meet demands in the future.



**Table 8: Performance variables quantified at the DCT**

<i>Terminal capacity performance measured</i>	<i>Current</i>	<i>Future</i>	<i>Comment</i>
Average stack dwell time	4 days	3.5 days	Any further reduction will impact on total transport costs
Stack height	1.81	1.81	2 over 1 straddle carriers identified as the most appropriate for common user terminals
Throughput per linear meter [using effective quay length]	405 TEU's p.a.	650 TEU's p.a.	Not relevant if stacking capacity is limited

*Source: Adapted from Port Development Framework 2003 p 33*

The above capacity analysis has factored in improvements to efficiency to existing operations (NPA: Port Development Framework March 2003). It should be noted here that average stack dwell time relates to the congestion problems encountered at the port during peak seasons.

**Table 9: Quay and Stacking Capacities of Container-handling**

	<b>Durban container terminal</b>	<b>Pier 1</b>	<b>206/207 &amp; SCD</b>	<b>Pier 1 East Expansion</b>
<i>STACK CAPACITY</i>	1 579 000	325000	346 000	519 000
<i>Quay capacity</i>	1 606 000	803000	423 000	549 000
<i>Capacity [TEU's per annum]</i>	1 579 000	325000	346 000	519 000
<i>Capacity [moves per annum]</i>	1 215 000	250000	266 000	399 000
<i>Cumulative Capacity [TEU's per annum]</i>	1 579 000	1904000	2 250 000	2 769 000
<i>Cumulative Capacity [moves per annum]</i>	1 215 000	1465000	1 731 000	2 130 000

*Source: Adapted from Figure 6-4 Port Development Framework 2003 p 37*

The most influential factor facing container terminals worldwide is that post-panamax ships with a capacity exceeding 4 000 containers and a beam exceeding 32,2 meters require post-panamax cranes (Table 10 in Appendix One outlines the crane types required by post-panamax vessels in the future), with a longer reach for container handling off those ships. Availability of modern equipment is also a major issue at the Port. The Port of Durban is equipped with four such cranes, and the NPA notes that poor equipment utilization and low productivity will affect the profitability of the terminal (Port Development Framework: March 2003). Other equipment utilized within the 102 hectares of the Durban Container terminal (DCT) is included in Table 11 below. According to South African Port Operations (SAPO), the layout of the terminal is an important contribution to its efficiency potential, but the DCT's current design state is very restrictive because of its 'Z' shape (Figure 1), thereby contributing to operational inefficiencies.

**Figure 1: Z-shaped Pier 2 design Configuration**



*Source: Chetty (Interview October 2003)*

This figure above indicates the main concern with the layout, that is, straddle carriers have to travel long distances from the quayside to the stacking area, which increases the cycle time and thereby contributing to lower crane productivity. In addition the terminal is restrictive to expansion because of the South African Container Depots (SACD) who currently owns a lease agreement with the port authority (Chetty: Interview October 2003).

Accordingly, efforts to reduce lags at the port requires an improvement in average stack dwell-time from 4 days to a lower acceptable time span, and increasing throughput per linear meter of the number of TEUs handled per annum. Table 11 outlines some of the other equipment available at the DCT to realize these efforts.

Table 11: Facilities and Equipment at DCT

STACKING CAPACITY	
Total area	102 hectares
No. of TEU ground slots	11 650
No. of reefer slots	602
EQUIPMENT	LIFTING CAPACITY
13 x ship-to-shore gantry cranes	Nominal 35 ton under spreader
3 x rail transfer gantry cranes	35 ton under spreader
83 x straddle cranes	35 ton
1 x reach stacker	40 ton
39 x internal haulers	
115 bath-tub and skeletal type trailers	Carries 2 TEUs at a time

Source: Chetty (Interview October 2003)

Apart from its design state, the DCT’s operational performance has been affected through bottlenecks experienced when organized labour began an anti-privatisation campaign. Port workers protested against the government’s decision to privatise state-owned enterprises in addition to proposing concession off the DCT to private operators. Accordingly, the strike had given rise to backlogs in the port as vessels were gathering at the outer anchorage and consequently contributing to delays in excess of 40 hours per vessel (Chetty: Interview October 2003).

Moreover, there has been a lack of alignment within the supply chain (between the port and the hinterland) especially between shippers, container terminal operators and the rail operator (Spoornet), resulting in increased delays (Chetty: Interview October 2003). The issue is primarily a rail related issue that leads to an increase in ship dwell time in the port, mainly because of containers to be loaded onto ships have been delayed. In this regard, Spoornet requires a date in advance for containers to be transported to the port, but the ‘estimated time of arrivals’ of most vessels change frequently resulting in too many containers at the DCT and little space for stacking. This therefore creates a negative impact on operations throughout the facility (Chetty: Interview October 2003). Other delays occur because trains do not carry containers for any particular vessel, thereby scattering the cargo over a number of trains. The result in some instances means that the container terminal operator has to discharge cargo from trains for vessels that are not ready to commence loading in addition to some



stack the containers. Equally, when cargo arrives at the port too early, trains that are called-in, appear to be delayed in removing cargo from the port to the hinterland. The DCT for that reason seems to be facing issues of under capacity in addition to efficiency backlogs. The fundamental component of this issue is therefore that of managing the process, clearly coordination is required from all parties in the process (Chetty: Interview October 2003).

In an attempt to address the container handling capacity of the port, an identification and preliminary assessment of key issues and environment impacts of container handling were discussed at a public workshop on the 6 May 1996. The workshop also outlined seven opportunities and options or possible solutions for resolving the container-handling problem in the port. (Watermeyer Prestedge Retief: IEM unpublished 1996). Details of the IEM study and the recommended phasing of the improvements considered necessary to address the requirements of container handling are outlined in Appendix One

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#### **4.3.1.4 The Durban Container Terminal is functioning below its operational potential mainly due to Management issues**

In May 2001, Portnet was split into the National Port Authority (NPA) and South African Port Operations (SAPO). The National Ports Authority (NPA) is a division of Transnet (a state owned company comprising of a number of transport related business units). The main business units include Spoornet (railways), Autonet (road transport), Petronet (pipelines), South African Airways (airlines), South African Port Operations (SAPO) and Ports Authority (ports) (Port Development Framework: March 2003). The Port of Durban managed by a national port system together with other ports is a way in which government aims to eliminate inter-port competition and thereby enable a complimentary system of ports. This situation is considered an appropriate solution to a developing economy of limited port sites (Port Development Framework: March 2003). The motivation for the split was to ring-fence business units and to prepare port operations for concessioning (van Niekerk 2002).

The Port of Durban (like the other seven commercial ports in South Africa) is managed, controlled and planned by the National Ports Authority of South Africa, which acts as landlord and provides the services stipulated in the landlord management model as well as marine services (towage and pilotage). The South African Port Operations division operates all the container terminals, 77% of the breakbulk terminals and 35% of the bulk terminals in South Africa. Those bulk and breakbulk terminals not operated by SAPO are leased to private participants on long-term contracts. The

National Port Authority of South Africa is presently acting as the concessor and South African Port Operations acting as the operator or service provider of those business units for which private takers could not be found (van Niekerk 2002).

In accordance with the capacity inadequacies and operational inefficiencies noted above, the Durban Container Terminal requires private capital to make efficiency improvements (Chetty: Interview October 2003). Literature has suggested that the financial conditions of governments, the likelihood of government interference in port operations, and growing international competition, imply that both ports and governments could benefit by transferring operational responsibilities and port assets to the private sector (Haarmeyer et al 1993). In addition to this, the South African government is facing immense pressure to develop port infrastructure (as indicated in the *Moving South Africa* project) to encourage trade and enhancing economic development, but unfortunately lacking the necessary resources to maintain and modernize these capital-intensive facilities. Similarly (noted earlier), the increase in international competitive forces encourage shippers and ship operators to direct cargo traffic to ports that have the most cost-effective handling procedures and advanced Intermodal organization (Haarmeyer et al 1993). "These tend to be ports where private managers have greater autonomy and incentive to adopt technological changes and efficient labor practices" (Haarmeyer et al 1993 p 4).

The increase in private-sector involvement can be found in the trend in both developed and developing countries to privatize port operations, and sometimes port assets, likewise, the South African government has been no exception in supporting these trends. Table 12 in Appendix One outlines some of the developing countries that are involved in privatizing port investments. The Durban Container terminal is considered to be the first of the 13 business units currently operated by SAPO, to be concessioned off to private operators, with the intention of realizing the benefits, which some have been noted above. It should be noted that the management issue facing the port also relates to net revenue generated by the facility is most often met with government interference in the form of spreading the profits to other business units that are threatened by income deficits. This ultimately impacts on the performance of the facility, and the current reflection of the value of the facility can be misleading. The issue therefore for the Durban Container Terminal is to find an appropriate autonomous private operator for handling containerized cargo in a bid to improve the overall status of the Port of Durban as the premier container handling facility in Africa. As Table 12 indicates, private participation in ports creates favourable potential for developing countries. South Africa however is not a player in private port investments of this magnitude.



#### **4.3.1.5 The potential to improve container capacity will impact on break-bulk/neo-bulk and multi-purpose cargo handling facilities at the port**

Before the container genesis, the dominant types of cargo passing through the Port of Durban were break-bulk and neo-bulk<sup>15</sup> cargoes. These terminals subjected to a variety of commodities required intricate and differing handling specializations. Technological advancements over the years have placed several constraints on these facilities, requiring changes to the layout and the terminal operations. The physical characteristics of a multi-purpose terminal are: opening stacking areas for container and general cargo, covered storage for general cargo requiring shelter from the elements, a rail terminal, a road vehicle reception area, administration buildings and staff facilities. These specific cargo types are handled through the Point, Maydon Wharf [berths 5-15] and Pier 1 terminals in the Port of Durban (NPA: Port Development Framework March 2003).

The calculation of capacity of multi-purpose terminals is in most cases difficult to determine, due to the variability in type of cargo handled. Presumably, there will not be a high growth rate in the future at the port. The port's marketing department forecast's steady growth over the next two years but for planning purposes a conservative growth of 2% compounded per annum is considered (subject to rigorous monitoring and review) (NPA: Port Development Framework March 2003). Neo-bulk on the other hand exhibits some homogeneity in cargo type, and productivity is normally higher at a neo-bulk facility permitting greater stacking height, more efficient stacking layout, and the opportunity for specialized equipment (Port Development Framework: March 2003). An important performance indicator from a planning perspective however is the annual throughput for a given berth group (NPA: Port Development Framework March 2003). Factors that affect the throughput for a berth group need to be subjectively assessed to deduce an appropriate capacity level. Similarly, it's of great importance to measure the berth occupancy, which should be in the region of 40-70% ideally (dependant on the number of berths in a particular group), so as to ensure that the total port costs are optimized (NPA: Port Development Framework March 2003). It is assumed that the cost of port infrastructure and ship waiting-time reach an acceptable optimum at this berth occupancy (NPA: Port Development Framework March 2003). At the Port of Durban, the recommended berth occupancies have already been reached, and it is assumed that with the decreasing available quay length and space

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<sup>15</sup> Uniformly packaged goods, such as wood pulp bales, which store as solidly as bulk, but that are handled as general cargo.

available for break bulk cargo, multi cargo terminals will face increasing pressure to be more efficient in their operations (NPA: Port Development Framework March 2003).

The equipment used at these terminals include: container gantry cranes, mobile wharf cranes, rail mounted wharf cranes, utility mobile cranes, straddle carriers, forklift trucks, tractor trailer combinations, stacking overhead gantry cranes and container reach stackers. Most of this equipment are not fixed to the sites and are more often operated by private entities rendering them difficult to quantify.

There are however, four dedicated privately owned bulk handling facilities at the Port of Durban, which are available for the import and export of free-flowing bulk commodities. Also four coal berths handle coal and anthracite; there is a privately owned sugar terminal situated at Maydon Wharf handling bulk and bagged sugar exports. There are numerous other privately owned facilities for the handling of specialized commodities such as forest products; granite, molasses and so on are situated in the port.

As indicated above, there are no expectations of high growth rates for these commodities at the port in the future, thereby securing the emphasis to be directed on container handling for the future. The container handling options (Appendix One) that have been identified by the Integrated Environmental Management Study (1996) coupled with the growth assumptions (capacity analysis) in the industry (as indicated to be 2% for planning purpose) will have a dramatic impact on the available capacity of break bulk, neo bulk and multi-purpose cargoes at the port. These impacts relate to the need for additional space for future cargo (container, break-bulk/neo-bulk and multi purpose) handling at the port. The impact of container handling as well as the embracing of new shipping fleets at the port suggests that most of the current break-bulk facilities would have to be remodelled to make way for future capacity demands. The following options have been identified by the NPA as crucial in alleviating the problems related to capacity for container handling and break-bulk cargo:

- Re-modelling Point berths D to G,
- Relinquish Point berths A and B for new passenger and Waterfront development,
- Convert Pier 1 for container-handling, and
- Re-modelling Maydon Wharf (Port Development Framework: March 2003).

Appendix Two shows a detailed outcome of the capacity analysis and decreasing capacity options available for these cargoes. The theoretical capacity was determined by taking into consideration: quay length and depth, current and future cargo type, stacking configuration and international benchmarks (Port Development Framework: March 2003). The details of this capacity analysis reveal a rather strategic intervention is required to prepare the port for container handling into the 21<sup>st</sup> century.

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#### **4.3.1.6 The provision of increased capacity requires extensive land that is currently unavailable at the port**

Container berths need back-up land for roll-on and roll-off berths as compared to traditional break bulk berths. The necessary back-up area is mostly determined by the ship sizes visiting the port of call (Banister 2000). New container ships are bigger and the loads are bigger therefore back-up land needed should be at least be proportional to the size of the ship load often coupled with organizing double location for containers. It is also necessary for land to be available for a safe and speedy movement of containers throughout the port. The Port of Durban is concentrated with port facilities, thereby limiting the future expansion of the harbor. Land in the port is presently 95% utilized and an exploration of land acquisition beyond the present port boundaries requires collaboration between the eThekweni Metropolitan Council and the port authority (NPA: Port Development Framework March 2003). According to the NPA, the potential for land acquisition lies in the redevelopment of land in the Southern Industrial Basin. Other possibilities involve rezoning areas in Jacobs for warehousing, storage and other value-adding activities (NPA: Port Development Framework March 2003).

##### **4.3.1.6.1 Options within the city**

The long-term growth forecasts for container capacity at the Port of Durban, suggests that the port is only adequately equipped to handle approximately 2.8 million TEUs per annum (Port Development Framework 2003 p 38). Furthermore, Ray Mills, a senior consultant with Halifax (Nova Scotia office of SNC-Lavalin Inc.), mentions that “assuming that a new Pier 2 equivalent terminal can be brought onto stream, the Port of Durban should, with some improvements in the volumetric efficiency of the facilities be able to accommodate the forecast growth scenario until 2005. After 2005, a new port, namely the ‘Port of Durban South’, will be required.” (Mills, 1999 p 184).

Technically referred to as the “Dig Out” by the NPA because of the extensive engineering required in fulfilling the project, the new facility could be designed at the current Durban International Airport site in the South Durban Industrial basin (SDIB). The proposed port could handle an excess of 5 million TEUs per annum thereby enhancing the city’s status in the container trade. According to Mills<sup>16</sup> the proposed site is considered as the ‘logical choice’ for the following reasons:

- Assuming that the airport is relocated to the proposed King Shaka Airport in La Mercy, the site would be considered for alternate use;
- The site is approximately 630 hectares and can be readily serviced by the existing road and rail systems;
- It is within 2 km from the coast and can be redeveloped as a port without any negative environmental effects;
- The new port would be able to take advantage of the existing Port of Durban service infrastructure, including ship’s brokers, ship agents, shipping lines, container services and container terminal depots;
- The topography and soil conditions are suitable for port development” (Mills 1999 p 184).

The concept for this port on the other hand needs to be investigated further with full feasibility of the site and its impacts. At the moment there are potentials for the proposal, especially since there has been considerable endorsement by the provincial government regarding the Durban International Airport relocating to La Mercy to support the Dube Trade Port (DTP) in the near future (Persad: Interviews October 2003). According to the NPA, the proposed “Dig Out” port could be operational within the next 5-10 years, and the capacity of the combined ports in the city could be “more than sufficient for the economy for a greater part of the century” (NPA: Port Development Framework March 2003 p 39). The eThekweni municipality would have to create the necessary infrastructure to support the activities at the port, but nothing worth noting has been suggested from the council. At present there is no reference to this facility in the city’s “Long-term development framework” and or ‘Integrated Development Plans’.

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<sup>16</sup> Ray Mills is a specialist in the engineering, operational and financial analysis of potential port developments.



#### **4.3.1.6.2 Options beyond the city**

It is envisaged that if sufficient land is not acquired to consolidate efforts to meet container demand in the future, options for port operations especially that of container handling could be positioned outside that of the port area to the detriment of the harbour. These opportunities could be positioned at the other ports in the South African maritime Supply Chain, namely (east-facing ports) Richards Bay, Port Elizabeth/East London and the Port of Maputo to lessen the burden at Durban.

The Port of Richards Bay has the potential for further development particularly if road and rail capacity could be upgraded and a container terminal would have to be constructed by extending specific quay walls. If this scenario is pursued a further 700 000 TEUs per annum would be gained (IEM unpublished 1996). Port Elizabeth has a dedicated container terminal catering for the automotive industry and prioritised development could initiate further container handling at that port. Other limitations at Port Elizabeth include insufficient quay length, number of berths and availability of stacking area for TEU ground slots, which the Port of Durban has a comparative advantage over. The Port of Maputo has a dedicated container terminal but its ability to capture traffic is highly dependant on the upgrading of the Maputo-Gauteng transport corridor, to reduce logistic costs and serve that hinterland. The options stated above on the other hand, have to be investigated further (IEM unpublished 1996).

It can therefore be argued that these ports could also threaten the ability of the port to compete for container handling operations in the long-term. It also implies that the port should collaborate with the municipality to seek opportunities within the city. The issue therefore becomes one of port-city relationships for alignment in the future.

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#### **4.3.2 Level Two issues: value-adding and back-of-port logistic issues**

This section identifies three resultant (from above) issues that need to be addressed so as to provide a seamless service to customers of the port, with the intention to improve its overall competitiveness. In doing so it is important to note that the South African government has implemented a strategy that puts emphasis on the export of value-added export manufactured goods; as a result there has been a notable increase in exports since 1994 (National Department of Transport 1998). In spite of these changes, the transport system does not reflect this strategy and evidence in the rail general freight



service, port costs, and ocean freight rates reveal this misalignment (National Department of Transport 1998). “The average port delay in 1997 was almost 20 hours, and over 61% of vessels calling at South African ports were delayed for some period of time” (National Department of Transport 1998 p 45). Table 13 below, illustrates “the percent of time that the average South African value-added export container spends in each step of the transport chain. The time is heavily weighted – 83% of time travelling – to the ocean-going portion, due to South Africa’s distance from most of its major markets in Europe or Asia” (National Department of Transport 1998 p 45).

Table 13: Transit Time in the Import/Export Chain



Source: Adapted from Figure 19: in National Department of Transport 1998 p 46

It can be established that these distances represent a considerable competition factor for the ports of South Africa, even more especially because of the distance from its major markets in Asia and Europe. In view of that it should be highlighted that ocean freight costs account for 68% of the cost of transport for containerized imports and 60% of transport cost for containerized exports (National Department of Transport 1998). Also important to note, is that once the vessel leaves the port, little can be done to influence its pace in reaching its destination. For that reason, the key issue lies in trying to alleviate the delay before goods are loaded onto vessels as well as when off-loaded, so as to reduce the costs incurred cumulatively. At a local level (close proximity to the port of call), responses to this issue normally occur within the back-of-port areas to alleviate capacity in addition to efficiency problems (van Coller, Erksine Interview November 2003). This section therefore aims at outlining some of the options available for the Port of Durban in the 21<sup>st</sup> century.

Recent trends have also shown that the most successful ports around the world have highlighted the value of back-of-port activities as making a growing contribution to the competitiveness of ports. These back-of-port assets, facilities and services located at the port-city interface, offers a potential to present a considerable quantity of comparative advantage to a region and eventually significantly improve the location's competitiveness. It is therefore of paramount importance to both city and national government alike ([www.sacob.co.za](http://www.sacob.co.za)). The issue therefore for the Port of Durban is to expand the capacity of the existing container terminals by providing a back-of-port capability, that could also provide a link to value-added industries. The Maydon Wharf and Bayhead areas that have the potential for back-of-port capabilities, surround the port. A brief account of the character of these areas is given below.

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#### **4.3.2.1 The Maydon Wharf area has facilities and businesses that potentially obstruct the capability of the port to respond to new challenges**

At the moment, the most noteworthy characteristic of the area is the availability of various multi-purpose terminals, which provide potentials for improved capabilities in the future. Whilst Maydon Wharf Multi Purpose Terminal centers on efficiency aspects such as safety, security and compliance with customer requirements, the terminal has in recent times completed a number of projects aimed at achieving this objective. This includes the erecting of a fence at a number of strategic berths with back-up areas and consolidation of working area for security control purposes ([www.sapo.co.za](http://www.sapo.co.za)). The terminal provides undercover storage for all high value and weather sensitive products, and its location in relation to the port and the South Durban Industrial Basin allows the terminal to establish synergies with surrounding private business operators to offer all customers a complete logistic service. This has allowed Maydon Wharf Terminal to secure additional warehousing in the area. Maydon Wharf Terminal operates five berths and also has access to seven other berths along the Maydon Wharf area ([www.sapo.co.za](http://www.sapo.co.za)).

The motivation to remodel the Maydon wharf is primarily attributed to the conversion of Pier 1 to container handling terminals as well as the relinquishment of Point Berths A and B for a new passenger terminal and Waterfront development. The motivation is further enhanced to include the pressure of future demand on port facilities. The opportunities therefore exist at the Maydon Wharf area to improve the overall management of the area, which primarily does not suite modern cargo handling techniques. The area also contains many activities in the leased areas that do not require close access to cargo berths. According to Robins "some businesses occupying premises on much

needed port land which are only there by virtue of history, are potentially obstructing the capability of the port in responding to new challenges” (The Mercury, Network 22/10/2003 p 8). The remodelling initiative would therefore create opportunities to re-negotiate lease and rentals in the area, provide customs control, improve security and safety, constitute environmental management, enhance traffic control (road and rail), implement best practices in berth planning and improve and upgrade infrastructure such as quays, road and rail. The initiative might also resolve issues that may later impact on port reform issues (Port Development Framework: March 2003).

#### **4.3.2.2 The Bayhead area is currently under utilized and consequently sliding into neglect**

This area currently zoned for shipbuilding and ship repair industries has been experiencing trends of growth and decline over the years. The most notable being the closure of SA Shipyards in early November 2003, and consequently “putting 87 employees out of work” (The Mercury: Business report 18/11/2003 p 6). On the other hand, the consequence of closure does increase the potential for redeveloping the area for a cargo-handling terminal (NPA: Port Development Framework March 2003). Details of this potential include quay wall construction, development of a multi-cargo terminal in addition to relocating the ship-repair industry to dry dock area within the port (NPA: Port Development Framework March 2003).

According to other specialists in the city, the Bayhead Marshalling Yards at the back of the port are derelict and unused at the same time noting that back-of-port logistics continue to be congested by trucks without any infrastructural investment that deal with the aims to ease the flow of these trucks and goods. The issue is therefore for the city and the port authority to jointly promote facilities that allow Intermodal transfer of containers (Persad, van Coller: Interviews 2003). In addition to this, van Coller notes, “these Intermodal logistic centers are becoming an integral part of industrial and commercial activities. Most of these centers focus on warehousing and transport, in some case road and rail, and in other major ports there is an interface with sea, air road and rail transport simultaneously” (van Coller: Interview November 2003). Accordingly, to signify the importance of logistic centers, van Coller<sup>17</sup> notes the following services offered by these centers that could be used to outline the issue facing the back-of-port areas, such as Bayhead. The example of “Spain (Centro de Transport De Coslada (CDC) just outside of Madrid) can be used to illustrate some of these benefits:

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<sup>17</sup> Jon van Coller is an economic and business analyst as well as strategic planning consultant (VANCOMETRICS cc.). The observations made occurred during his research tour to Europe around July 2001.

- Immediate and easy connection to logistics facilities of the surrounding area
- Storage, management and distribution of a wider range of goods
- Division and consolidation of containers and loads
- Customs administration
- Transport services, modal exchange and trans-shipment<sup>18</sup>
- Quick reception and distribution of packages” (van Coller: Interview November 2003)

“Accordingly space has been set up for all necessary devices such as:

- Service stations geared to heavy trucks and light vehicles
- Vehicle parks with security for heavy goods vehicles
- Facilities for transport staff and passengers e.g. rest rooms, toilets, showers, accommodation etc.
- Workshops for repair, maintenance and servicing of vehicles and other equipment
- Tyre sales, vehicle wash, cranes for hire, batteries and other accessories” (van Coller: Interview November 2003)

In addition to the above, the total area is approximately 1000 hectares of which about 50% is zoned for industrial buildings rendering the remainder of the area for vehicle facilities and workshops, car parks, service stations, commercial buildings and public spaces as well as green zones. The total traffic area utilizes around 250 hectares with roads being generally 12 meters in width (van Coller: Interview November 2003). To juxtapose this on to the back-of-port areas in the vicinity of Durban harbour, it should be noted that the Bayhead area plus the Durban International Airport site constitutes an area that is approximately within 500 hectares of the Port of Durban (Interview: Erksine November 2003).

According to the port authority however, “a comprehensive strategy needs to be formulated on how to acquire back land and properties that are under utilized” (Port Development Framework 2003 p 52). Transnet, the holding company of the National ports Authority of South Africa, currently owns the land in the Bayhead area.

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<sup>18</sup> A distribution method whereby containers are moved between large ships (possible post-panamax) and small feeder vessels, or between equally large ships moving north-south (Europe-Africa) and east-west (Asia-Europe) trade routes.



#### **4.3.2.3 Overland transport infrastructure investments are critical to the success of the port**

The combined effects of the locational advantages the EMA enjoys in relation to Gauteng (strong relations to the reef (gold) which stands in its collective hinterland i.e. the area from which the port is draining goods) as well as the rest of Kwa-Zulu Natal have influenced the hinterland structure of the Port of Durban on the one hand and on the other, by a range of handling facilities and deep rooted economic relations with the interior. The EMA's interior industrial growth areas (Pinetown, New Germany, Mobeni, Prospecton, Tongaat, Verulam and Pietermaritzburg) respectively are in quite a favourable setting to utilize the port and transport related infrastructure, the service industries and the EMA's tertiary sector. Another feature of EMA's strengthened hinterland is the historical inefficiency of the Maputo Port in securing trade linkages with Gauteng, much due to the improvement in cargo and container handling at the Port of Durban. It is also strengthened by the distance of the other ports in the region to the respective industries as well as the traffic hinterland. The Port of Durban has a concentrated hinterland concerning the collective and distributive pattern, but, in other situations, many ports may be able to provide access to a common hinterland creating intense rivalry for market share. A fundamental component of these comparative advantages of the Port of Durban are availability of well-established road and rail links, which have sufficient levels of capacity (Port Development Framework: March 2003).

##### **4.3.2.3.1 Overview of Rail Infrastructure and Capacity**

The Port of Durban is adequately served by a rail link connecting the EMA to the Gauteng (hinterland) region, and is currently being utilized at 50% of its potential capacity. Although the rail is considered to be the more sustainable of the two modes of transport (environmentally friendly, cost-effective, less disruptive, more efficient, excessive capacity), road transport has been the trendy choice over the last two decades.

The Port of Durban does have an area dedicated as marshalling yards situated in the Bayhead area. Previously, cargo-handling techniques expelled the large tracts of rail from the port. Cargo handling is now loaded and unloaded from rail trucks to rail terminals on the periphery of the terminal. Rail infrastructure at the Port of Durban will in the near future need to accommodate rail terminals at the



Point; Maydon Wharf; Pier 2 (container terminal); Pier 1 (multi-purpose terminal); Island View Bulk liquid sites as well as the Bluff Coaling appliance.

#### **4.3.2.3.1.1 Rail Infrastructure serving the port is under utilized and some of which are outdate**

At the local scale, the Point area is served by rail infrastructure leading from the Victoria Embankment line, and is currently under used. The line however, does pose a problem in terms of conflicting with adjacent residential landuse. The line is also inefficient in terms of its current layout (Port Development Framework: March 2003). The Maydon Wharf rail infrastructure is considered outdated in terms of modern port operations. The reason that this layout has not changed is that the area comprises of a number of long-term leases as well as other incompatible activities that obstruct redevelopment. The Bluff Coaling Appliance is entirely served by rail but does require better management to serve the ultimate capacity of the terminal (NPA: Port Development Framework March 2003).

On a national level, the rail distances between the ports and Gauteng all exceed 700 km. This renders rail a more beneficial mode of transport than road transport, provided the service ensures the smooth integration of multiple modes. The rail line between Durban and Gauteng is 713 km long and has only one-traction (3 kV) thereby limiting the acceleration of trains on this line. Utilization on the South African rail lines is all below 57 per cent. It will be difficult to improve speeds on the lines because other bulk cargo and passenger trains are operational on those routes and container traffic will therefore be subjected to rail access slots (van Niekerk et al 2002). If integrated supply chains can be successfully managed, investments in rolling stock and locomotives will be necessary, as at present less than 20 per cent of all cargo that is imported and exported to and from South Africa is railed.

The key actions required for improving rail infrastructure include uplifting and redeveloping rail yards that occupy valuable port land, as well as developing a rail terminal for Point Berths D to G (Port Development Framework: March 2003).

#### **4.3.2.3.2 Overview of Road infrastructure and Capacity**

The road infrastructure linking the EMA to the Gauteng region is the N3 national road route. The N2 national road links the Eastern Cape to EMA in the south and the Port of Richard's Bay to the north. Both national routes have the capacity to accommodate heavy vehicular transport.

The Point area serves the Port via the Victoria Embankment and Stanger Street routes. These routes consist of residential and commercial land uses respectively, and is impacted by heavy port related traffic thereby creating significant levels of noise as well as congestion during peak traffic hours. The Maydon Wharf provides entry points at the north and south of this route, creating considerable traffic problems mainly associate with the management of the parking of trucks and rail level crossings. The Bayhead Road link is considered the most important link to the port, serving the Island View bulk liquid sites, Pier 1 multi-purpose terminal, Pier 2 container terminal, and the ship repair sites. The naval base also depends on this access route for entry. The road is two-way with one lane in each direction. The land on the southern side of Bayhead Road will become important for the development of port related industries in the future to ensure an overall efficient port system (Port Development Framework: March 2003).

##### **4.3.2.3.2.1 Road Infrastructure could face capacity constraints in serving the port in the future**

There have been considerable problems in terms of traffic congestion emanating from port in the past despite the eThekweni Metropolitan area (EMA) having sufficient road networks to facilitate port traffic. As activity tends to increase at the port, the rerouting of heavy vehicles carrying port traffic will raise the issues of improving road networks in the future so as to relieve pressure on the inner city. The increasing pressure may affect strategic entranceways such as the Point, Maydon Wharf and southern area of the port (Bayhead Road).

The Point terminals that are to be re-modeled will have a considerable impact on the traffic emanating from the port due to the increase in cargo handling capacity. The Stanger Street entrance to this area would remain the only entry point as it provides the least disruption to the city and its networks (NPA: Port Development Framework March 2003). The Port of Durban in conjunction with the Metropolitan council have identified impacts of the Point re-modeling on the traffic of the inner-city, and have

noted that traffic could be addressed in the following manner (NPA: Port Development Framework March 2003):

- Restricting the movement of heavy cargo during peak hours
- Implementing a program to manage traffic noise at night by restricting the movement of heavy vehicles down the Victoria Embankment
- Providing areas outside the CBD where heavy vehicles can wait
- Identifying alternate routes for haulers to minimize impact

The traffic problem associated with the Maydon Wharf area is mainly due to the parking of trucks and rail level crossings; therefore future re-modeling of the area could aim to address this issue. The Southern area of the port (Island View) however is inefficiently served by the two-way with one lane in each direction, Bayhead Road. The issue is therefore to widen the Bayhead Road in each direction to double the capacity in the future. Impact studies however, have identified the need to limit and manage the traffic generated from the developments of the future (NPA: Port Development Framework March 2003).

The key actions required to manage traffic and improve road transport to and from the Port of Durban include re-modeling the road traffic through Maydon Wharf; exploring the utilization of “Khangela” bridge with the Council and improve road vehicle reception areas throughout the port (NPA: Port Development Framework March 2003).

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#### **4.3.3 Level Three issues<sup>19</sup>: port and city issues**

As indicated throughout this document so far, the port plays an important role in the city’s economic, social and overall operational functioning. It is for that reason that this section outlines three fundamental issues needing to be addressed relating to the ports role in forging a relationship (that has been to an extent, almost unseen in the past) with city. This issue is critical to the success of both entities for the coordination of future growth initiatives.

Even though the port is a national asset it is imperative to note that there has been an age-old argument around jurisdiction, with the ports impacts (social, economic, environmental) having been

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<sup>19</sup> This section will form the basis for a separate chapter (six) that addresses the topic of this dissertation.

felt at the local level. The issues that follow are therefore based on the role that the port and city have in aligning their activities so that both entities can grow and be enhanced alike.

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#### **4.3.3.1 The natural environment could be compromised as proposals to improve capacity are implemented**

It can be argued that the issues related to planning and development, particularly issues relating to increasing the width and depth of the entrance channel to accommodate new generation vessels, could have serious spill over effects on the natural environment. As it was noticed previously, jurisdiction over the port area created many conflicts especially since increased activity sometimes impacted on the city's open space systems, but in reality the port lacked restrictions to increase capacity due to it being under the control of the national government.

Although this may be true of the past, the port authorities have been compelled by the democratic government to overcome their autonomous behaviour over the environment, thereby requiring the consolidation of stringent environmental scanning of future proposals. As indicated above, the options for increasing the container handling capabilities of the port have been subjected to an Integrated Environmental Management study (1996), in addition to the Biophysical Impact study (1998) to guide the development of the port into the future. Altogether these studies address the concerns of the public domain, strategic action is required from the part of the National Ports Authority to maintain an environmental stance on future proposals.

It is therefore imperative to note that an increase in activity at the port may contribute to waste from ships, spillage, noise and other types of pollution, to the detriment of the environment. The issue therefore is for the development of an environmental management plan or framework to ensure best practices are implemented within and around the vicinity of the harbour.

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#### **4.3.3.2 An increase in port activity could affect the appearance of the port-city interface (waterfront) and thereby impact on the public accessibility to the waters edge**

With the increase in port activity, there would indisputably be an impact on the social interaction of the waterfront. It is envisaged that an increase in shipping would impact on the availability of space in the port, thereby consuming more land closer to the physical port-city interface. In this way cargo-

handling operations could be in closer contact with public recreational activities. This in itself creates an issue of accessibility to the waters edge as well as the visual aspects of these operations impacting on the aesthetics of the interface. The waterfront, as well as the related beaches creates a growing call for reinvestment into established properties more importantly from a city renewal point of view. It is therefore imperative that projects occurring at these interface zones comply with national sustainable development goals.

Another concern is that the National Port Authority of South Africa has been historically less responsive to waterfront development concerns and therefore solutions to overcome this problem are of paramount importance. The port has the responsibility to facilitate the development of recreational facilities, including renovating open spaces and protected wildlife preserves, to improve the overall quality of life in the city. The underlying issue is that most of the land at the port-city interface is owned by the NPA, but the authority does not have the resources to develop these areas. Recently however, there has been some indication that the port in collaboration with the city is investing in the waterfront area (yacht basin area), possibly to realize the benefits of waterfront property.

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#### **4.3.3.3 Formal structures for Port-City collaboration has been non-existent to the detriment of both entities**

The environmental and waterfront development issues discussed earlier provide an important case for the port and the city to realign its position on collaboration for the future. It is essential to note that previously there has been a lack of alignment between each other to the detriment of their opportunities for growth. The port and city authorities in partnership on the other hand, “offer a viable source of skills, investment capital, services, technology and leadership to take most threats head-on and more especially take advantage of opportunities that present themselves” (Robins 2002 p 10).

The opportunities that are available to both parties can be seen through the development of the port for improved container handling. The impact of these increased activities poses as an opportunity for the city, to expand its economy through multiplier effects of increased port activity, in addition to the port gaining from city investments in infrastructure upgrade. In this way the port can provide a seamless transfer of goods to the hinterland and issues that revolve around congestion and under utilized land can be resolved in the future.



The issue is therefore to facilitate the development of a port-city joint planning working group to “discuss areas of future development potential including conversion of areas outside of port boundaries into back-of-port service/industrial area as well as conversion of surplus port land for commercial, tourist, recreation or bio-diversity enhancement activities” (Robins 2002 p 9). Other port-city issues relate to the development of integrated and coherent plans for future alignment. Previously there have been no joint agreements on service levels and targets and more importantly a shared vision for both entities. It should for that reason be noted, that joint decision-making is a key issue in realising benefits for both entities in the future.

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## **4.4 Conclusions**

The Port of Durban has been impacted by global shipping strategies to lower costs and increase market share of world trade. Simultaneously, globalization has impacted on vessel technology to an extent that the emergence of gigantic vessels on South African trade routes will create demands on the Port of Durban in terms of entrance channel capacity, quay length and draught, cargo-handling equipment, terminal capacity, layout and efficiency, and space taken up by other cargo handled at the port. Further to this, there is a pressing need to invest in overland transport infrastructure and forge port-city collaboration. In addition to consolidating the port’s role in the container industry, consolidation is required with the city as well. This relationship between the port and city could aide the port in generating value-added services for its customers in the future.

The issues discussed above will ultimately contribute to the ports decision as to whether it becomes one of either leading or following the global trend in containerized freight. The section that follows outlines the manner in which the port responds to these issues, and thereby reconstitutes its role for the future.

## **CHAPTER FIVE: KEY PROPOSALS PUT FORWARD TO ADDRESS ISSUES FACING THE PORT IN THE 21<sup>ST</sup> CENTURY**

The success of the port in providing an efficient service to its customers depends on the successful implementation of plans to address the key issues discussed earlier. It should be noted that the plans/proposals outlines in this chapter, are aimed to address the Level one (or industry specific) issues discussed in the previous chapter (section 4.3.1). This chapter therefore outlines the ports quest to improve productivity and efficiency, by identifying and analyzing the proposals put forward by the South African government to consolidate the role of the Port of Durban. The plans/proposals in response to the issues are: Port improvement plans to increase container-handling capacity (5.1), Plans to concession the Durban Container Terminal to improvement management and efficiency (5.2), and formation of National Policy to promote (5.3) and regulate ports competition (5.4).

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### **5.1 Port improvement plans to increase container-handling capacity**

The advent of containers has changed the port industry more than any other development in the maritime history. Despite the growth in the industry over the years, earnings achieved by port operators through container handling have dropped at the same time as shippers/port users look for competitive prices.

The need for recurring growth in investment for container handling is also the result of the growing influence of shipping lines and users through mergers and alliances (as noted in chapter three and four). The major carriers enforce demands onto operators such as limiting dwell time and more importantly having preferential treatment over each other. South African Port Operations (SAPO) notes that because of excess shipping capacity globally, shippers are forced to drive costs down to realize economies of scale.

Therefore it has been noted in the previous chapter (section 4.1) that the pressures to consolidate ports for specialization in the maritime industry is a phenomenon that is reactive to the shipper's port of choice in a competitive environment. The juxtaposition of these prevailing trends onto the Port of Durban has initiated the most extensive capital investments in over twenty years, so as to maintain the status of the Port of Durban as the premier container handling facility in Africa, (consolidation to serve the container industry as well as focusing on the role of the port). Recent trends have

transformed the Port of Durban from wharves containing common-user multi-purpose berths to the proposal to construct a collection of special-purpose berths. The rationale more importantly, is for the purpose of terminalization these berths in order to place them under private operation (Chetty: Interview October 2003).

The decision to invest R2.85 billion by government into the Port of Durban is motivated primarily by the recent pressures in the maritime shipping industry to increase the port's shipping capacity (Natal Mercury 12/11/2003). The plans are aimed at accommodating the large container carrying vessels (post-panamax) that are forecast to visit the shores of Durban in addition to increasing its capacity to meet the growth in container traffic. The most strategic planning initiative would be to move the northern breakwater to increase the width of the entrance channel at the port for the accommodation of post-panamax vessels. The NPA has identified (Figure 3 – Appendix One) the need to widen the channel by about 90 meters and deepen it by about 6 meters to facilitate the movement of fully laden vessels of post-panamax proportions to and from the Port of Durban (EIA, November 2003). Other major extensions and improvements are to the existing cargo handling facilities of the port (NPA: Port Development Framework March 2003).

The objectives of the proposed improvements are:

- “To provide additional container handling capacity to meet future demand”
- “Consolidation of general cargo handling facilities and the alignment of operations with best practices” ([www.npa.co.za](http://www.npa.co.za)).

The development plans dubbed “Port of Durban Development 2005” comprises of three main elements, (1) Upgrading of Durban container terminal; (2) City Terminal Development; and (3) Conversion of Pier 1 for container handling. According to the website, “these developments aims to confirm the Port of Durban's status as the premier container handling facility in Africa; the development will have significant multiplier effects on the economy of the city and beyond (creation of jobs during construction and operation); and the project will also support the Durban Unicity's newly established Long-term development strategy ([www.npa.co.za](http://www.npa.co.za)).

- **Upgrading of Durban container terminal:** The project to upgrade the existing facility is via the acquisition of additional equipment; infrastructure improvements and equipment upgrades. The National port authority envisages that the terminal upgrade will increase capacity from present 1.3 million TEUs (twenty-foot equivalent units) per annum to 1.6 million TEUs per

annum. Thereafter the conversion of Pier 1 would provide the additional capacity needed ([www.npa.co.za](http://www.npa.co.za)).

- **Conversion of Pier 1 to Containers:** This project aims at providing an additional capacity of 350 000 TEUs per annum through the consolidation of all container operations in one general area. The details include the upgrading of the (current) multi-purpose terminal to a fully-fledged container terminal status via the conversion of infrastructure. The area will form part of an ancillary function to the Durban container terminal so as to optimize the use of support facilities and also due to its advantageous road and rail access ([www.npa.co.za](http://www.npa.co.za)). This container terminal will only be functional after new facilities have been created to handle the breakbulk cargo presently handled at this site.
- **City Terminal Development:** The reintroduction of breakbulk cargo into the Point area has severe constraints in terms of adequate depths along quay walls. The construction phase includes building a quay wall further (construction of approximately 1400 meters of wall parallel to existing quays) into the harbor where the draught is deeper. Details of the project include reclamation and development of new deepwater quays at berths D to G in the Point vicinity, reclaiming approximately 200 meters of sea behind the wall to create more space for cargo handling thereby consolidating break bulk cargo handling at the Point. Key elements of the project involve upgrading the terminal to world standards, conforming to best practices and providing sufficient back-up areas (NPA: Port Development Framework March 2003).

The port improvements proposed for the Port of Durban would be a catalyst for further development<sup>20</sup> that would involve the re-modeling of the Maydon wharf area for increased cargo handling facilities. Likewise, the Wharf would be divided into clusters for handling of different products. The project however, would have considerable city impacts such as traffic deviation into Sydney road as well as the building of a bridge where city council and the port authority share costs (R40 million each) (Natal Mercury 12/11/2003).

In response to the above improvements, it should be noted that the Durban terminal has seven berths and 13 cranes moving an average of 1.3 million TEUs per annum, whilst in comparison a terminal run by CSX World terminals in Hong Kong has one berth and four cranes handling an equivalent number of containers as Durban, achieving 42 crane moves per hour (Sunday Tribune: Business report

<sup>20</sup> These developments would focus on the Level Two issues outlined in the previous chapter.



24/08/2003 p 2). According to Siyabonga Gama (chief executive of the NPA), in 2002, the average crane moves per hour at the Port of Durban was 16.5 containers a crane per hour (Mercury: Network 3/04/2002). In recognition of the two statements above, it is argued that the issue of control and management (Chapter four, section 4.3.1.4) should be addressed concurrently. It can be argued that the terminal that is run by the private operator in Hong Kong is much more productive than the (state) operator of the DCT. For that reason, amongst the capital projects proposed at the Port of Durban, the government aims to exchange control of the Durban container terminal from the hands of the South African Port Operations (SAPO), and place the operations under the responsibility of a private operator (Natal Mercury 25/08/3003). Accordingly, this endeavour is to prepare the newly developed container terminal (after port improvement plans are implemented) to facilitate South Africa's re-entry into the global economy towards achieving its export led growth initiatives (Natal Mercury 25/08/3003). The section below outlines the decision to concession the Durban Container terminal to private operators in the near future.

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## **5.2 Plans to concession the Durban Container Terminal to improvement management and efficiency**

As indicated above, the primary objective for port development is to alleviate the Durban container terminal's short-term container handling difficulties and to meet projected container growth ahead of time to alleviate container congestion.

Port reform (chapter three), is taking place globally with varying reasons or motivation and in varying instances taking the forms of modernization of port administration and management, liberalization, commercialization, corporatization and even privatization. In South Africa, reform is now being considered more closely, as evidence proves that government has prepared the platform for this to occur by decentralizing<sup>21</sup> the authority of port operations from the once autonomous Portnet (controller of operations and custodian of ports).

The motivation for port reform in South Africa and more importantly at the Port of Durban is to improve the productivity, efficiency and management capabilities of operations so as to consolidate the ports position in the container industry. The view is that in doing so, the increased activity would stimulate economic multiplier effects in the South African Economy. The White paper on national ports policy foresees increased participation by the private sector in operations to enable the ports of

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<sup>21</sup> Portnet decentralized into NPA and SAPO (chapter four, section 4.3.1.4)



South Africa to cope with the needs of the economy as well as the business of ports. It is also felt that the economic impact of the Port of Durban inefficiencies needs urgent attention (White paper on national ports policy, 2002). Other reasons include the “redemption of debt obligations, the obtainment of foreign and private investment to meet capital requirements, the enabling of participation in ports businesses by a broader representation of the demographics of the country as well as the introduction of business-based labor agreements” (van Niekerk 2002). South African Port Operation’s primary aims are to increase efficiency by bringing in world-class capabilities; to increase foreign direct investment; utilize private sector capital instead of public funds for maintenance of terminal; and ensure the growth and stability in employment as well as stakeholder participation through public-private partnerships (Chetty: Interview October 2003).

In April 2002, it was announced that “the Port of Durban handled a record of 1 223 601 TEUs during 2001, a figure which goes a long way towards understanding the constraints and challenges facing a container terminal that is working beyond its design capacity” (Terry Hutson, Natal Mercury: April 10<sup>th</sup> 2002). At the same time South African Port operations (SAPO) was finalizing a plan to minimize delays at the Port of Durban container terminal by developing a slot system that abandoned the previous first-come first served arrangement in favor of priority berthing which is also known globally as the name-day-service. This system enables fixed services to stick to their tight schedules, and according to SAPO, is a component that is essential for maximizing efficiency. “Ships were losing \$20 000 each day they were delayed” and SAPO has created a congestion plan as well as initiated a delay or congestion surcharge of \$75 per container per day, of goods passing through the Durban container terminal (Natal Mercury: April 16<sup>th</sup> 2002). Although these efforts have been made by SAPO to eliminate backlogs in the port, the desire to eradicate costs in this sector (which is becoming a mainstream facet of most port related businesses today) does render profit-making a rather demanding task. The amount of effort and manpower required could be fulfilled by a private operator that has the expertise and financial support. In response to this, Chetty notes that there is immense pressure on terminal operators to:

- Reduce handling costs and improve turn-around times;
- Provide berth for ships on arrival with a tightly managed operation;
- Provide container management systems that allow automatic integration with customs;
- Clearing and forwarding components so as to create greater end-to-end visibility in the supply chain;
- Increase capital investments to attract the larger cargo volumes at terminals;

- Provide unique value propositions to different customers and adopt a differentiating pricing regime;
- In addition to servicing customers seamlessly across the supply chain from a single point of contact (Chetty: Interview October 2003).

Apart from surcharges on delayed containers, SAPO has employed staff up to 12-hour shifts, increased casual labor, introduced incentive bonuses, introduced new computerized cargo planning and control system, improved training as well as appoint new management. However this has had little impact as volumes still outstrip capacity by 27 % (Chetty: Interview October 2003). Some of the obstacles cited by SAPO are the urgent requirement of new straddle carriers to move containers in the terminal; the shipping lines sometimes giving inaccurate time of arrivals; as well as weaknesses in the marine services at offer at the Port. In contrast, the view of chief operating officer of US-based CSX World Terminals (which has partnered with Dudula Shipping to bid for the concession to run the container terminal), Arno Dimmling, is that management rather than equipment is the problem at the DCT. He added that if the ‘equipment were deployed efficiently, the DCT would handle twice as many containers as the terminal handles presently’ (Sunday Tribune: Business report 24/08/03 p 2).

### 5.2.1 The Concessioning agreement

In noting that the improvements directed at the Port of Durban’s is to ensure that the DCT remains the premier container handling facility in Africa (that is a specialized and internationally competitive facility), the government views that the private sector is generally capable of offering greater efficiencies and flexibility. The South African government has for that reason opted for partial privatization to provide for an optimal balance between protecting<sup>22</sup> public interests, and harnessing private sector capital<sup>23</sup> to eradicate inefficiencies. Accordingly if this option is not realized, there could be an increase in the cost of transporting goods that are imported and exported and consequently have a detrimental impact on national and local businesses and the economy in general.

Therefore the Durban Container Terminal is to be the first terminal concessioned in a total of 3 container terminals, 2 bulk terminals, 6 multi-purpose (breakbulk) terminals and 2 car terminals operated by South African Port Operations (SAPO) nationally. There is a request for proposals to encourage international operators with extensive container terminal experience to form a South

<sup>22</sup> This is done through the retention of ownership of public assets and using the NPA as the Landlord of the port.

<sup>23</sup> The reason is that state funding is not available to finance innovative technology and equipment.

African corporation that will operate and renovate the terminal for the maximum level of efficiency. The maritime industry at the same time is currently preparing a charter for black economic empowerment that proposes developing South Africa into one of the world's top 35 maritime nations by 2014 (Sunday Tribune: Business Report 31/08/2003 p 3). The motivation for the charter is that African countries do not have a significant share of the world's merchant fleet, and South Africa aims to increase the number of its vessels as well as develop new shipping companies that are globally competitive. The charter would determine the extent of the reform process at the DCT and in the event of all stakeholders agree on concessioning, between 25 to 40 per cent of port concessions would be awarded to BEE companies throughout South Africa. Although the charter is voluntary, the chief executive officer of the Transnet group, Mafika Mkwanazi, implied that "if local companies were not embracing black empowerment, the group would source from elsewhere" (Sunday Tribune: Business report 22/10/2003 p 6).

The concessioning agreement includes all containerized cargo-handling facilities at the DCT and according to Chetty, "the modality best suited for this concession is a flexible model that embraces a mix of contemporary approaches to concessioning" (Chetty: Interview October 2003). The concession would be a public-private concession that encompasses public-private stakeholders taking into consideration the variety of objectives of the maritime community. It would be based on joint ventures as well as strategic alliances. The concession fee would be paid upfront mixed with investment capital for maximizing efficiencies and thereafter the SAPO would receive revenue in the form of royalties. The lease would be ranging from 25 to 35 years and the concessionaire is liable to be penalized if performance targets are not met adequately. The lease agreement would also have in effect a termination clause if expectations were not met adequately (Chetty: Interview October 2003). The National ports authority of South Africa would retain control over the Port of Durban as landlord and would manage the concession process as well as pay for costs of services regarding piloting, navigating aids, berthing and tugs. These costs could be part of a service levy agreement with users of the port and would not be part of the concession agreement (Chetty: Interview October 2003). The manner in which the concessionaire would be chosen would be via strict screening process that assesses the bidders throughput performance history/experience; productivity history; the contribution to up-skilling and an overall competitive tariff structure (Chetty: Interview October 2003). Ultimately the bidder that offers the lowest total logistic cost becomes the most competitive and attracts the most amount of traffic into a specific port and an increased amount of traffic has a directly proportionate relationship with the ability of a port to compete with other ports in the same supply chain. On the other hand, the move to exchange management control could however affect other terminals in the



port system run by SAPO especially since profits realized at Durban contribute to effective cross-subsidization to unprofitable business units.

### **5.3 Formation of ‘National Ports Policy’ to remove barriers for competition**

As indicated in chapter four (section 4.3.1.1), the Port of Durban needs to be a major competitor in the world container trade otherwise it would be relegated to secondary spoke status. Hence, this section outlines the issue of ports competition, especially with reference to the removal of barriers by the national government to allow the Port of Durban to compete with its counterparts in the same national supply chain. This section also highlights the need for competition to realize economic benefits, in addition to achieving consolidation for the future. In accordance with the plans discussed above the South African government has adopted a new national ports policy in August 2002, to facilitate “greater participation by the private sector to enable our ports to cope with the needs of the economy and the increasing business in our ports” (Abdulah Mohamed Omar<sup>24</sup>: White paper on national ports policy August 2002 p 1).

The White Paper on National Ports Policy has strong sentiment on competition and encourages fair competition that is based on transparent rules applied consistently across the transport and port system. Government has setup a competition authority/commission to address questions of anti-trust (White paper on national ports policy: August 2002). The national ports policy aims to achieve long-term benefits for the country as a whole while the Government aims to increase the private sector's participation in the operational aspects of the ports and allowing for inter- and intra-port competition (White paper on national ports policy: August 2002).

The White paper also identifies the different forms of competition that are possible:

- Competition between whole ranges of ports or coastlines. There is a diversity of main routes for vessels on a global scale. For example, for container trade the main arterial route between the East, Europe and the east coast of the Americas through the Suez Canal or the African range of ports (such as Dakar, Accra, Walvis Bay, Cape Town, Port Elizabeth, Durban, Maputo, Beira, Dar-es-Salaam, Mombasa) in between;
- Competition between ports in different countries. For example, between South African ports and Maputo and Walvis Bay;

<sup>24</sup> Minister of transport during 2002.

- Competition between individual ports in the same country; and
- Competition between the operators of facilities or providers of services within the same port. (Two areas - services and pricing). Restructuring of the world economy has redefined the strategic location of ports on a global scale. Through globalisation the strengthening of the entire logistics and industrial network of ports, connections and corridors is of importance. There is a diversity of available main routes for vessels on a global scale. A port has a more competitive advantage when strategically located on the main maritime routes on a global scale (White paper on national ports policy: August 2002 p 15).

The different operators of port terminals will compete on the basis of:

a) Quality of service

- Ship turnaround time;
- Port operational and financial/technical services;
- Reliability or risk; and
- Intermodal integration model costs and model efficiencies.

b) Facility and operational effectiveness

- Utilisation; and
- Technology. The National Port Authority should give more prominence to the need for greater client orientation and better logistics support through proper organisational arrangements for strategic management, planning and pricing (White paper on national ports policy: August 2002).

Although this may be the situation, ports are dependant on the prosperity of their hinterlands to improve on their physical growth so as to compete for operational efficiency (Fair 1991). A rudimentary account of ports in the same national supply chain that have the potential to absorb growth from the Port of Durban, especially those competing for container handling operations are displayed in Appendix Four.

The section that follows outlines the issue of fair competition as outlined above, in an attempt to balance economies of scale in the South African maritime supply chain.



## **5.4 Formulation of National Ports Authority Bill to regulate port competition**

The competition in the port sector is all about bringing down the costs and improving efficiencies. However, a common framework of rules that attempts to provide an even playing ground between different port players (public as well as private, major and minor ports) needs to be put in place. In fact, minor and intermediate ports can give an effective competition to "major ports" especially through increased cross-subsidization from the government or port authority.

Although the National ports authority is the presiding landlord of the ports of South Africa, the White paper categorically states that there will need to be an external port regulatory body (as noted previously): the Competition Commission or a specialised Port Regulatory Body to regulate the National Ports Authority (White paper on national ports policy: August 2002). Government's preference is to appoint a specialised port regulatory body as well as to eliminate the negative consequences unto other terminals run by South African Port Operations (SAPO) after the concessioning of the Durban container terminal. Once the National Ports Authority is established outside Transnet, the role of the specialised Port Regulatory Body will be disbanded (White paper on national ports policy: August 2002). On September 16<sup>th</sup> 2003, the National ports authority bill passed through the national assembly in a move to make ports more efficient and commercially viable. This would be a part of the overall drive to improve rail, road and port infrastructure to support trade and economic growth. The National ports authority bill of 2003, makes provisions for a port regulator and for the establishment of the National Ports Authority to provide for the administration of certain ports by the National Ports Authority; and to provide for matters connected therewith (National ports authority bill: Government gazette 2003).

The basic goals of the regulator are as follows:

- To avoid the legal challenges to the reform program as well as the transaction following that program
- To clearly define the role of the government during and after the reform process
- To identify any constraints in the law that would limit the ability to transfer services to private providers, or the range of options that might be available for concessioning
- To determine the degree of competition and the need for competition monitoring or economic regulation
- To consider the potential for restructuring the port sector to make it more conducive to regulation by competitive forces rather than government oversight

- To determine the range of strategies that might be available to the regulator to induce competition or discourage anti-competitive behaviour
- To identify the form of interventions that the regulator may take when anti-competitive behaviour ensues
- To determine which issues are not specifically addressed in the existing or proposed law, but need to be addressed on a case-by-case basis (van Niekerk 2002)

The regulator has the power to facilitate disputes between the NPA and the concessionaire regarding missed performance due to unexpected operation costs and other disruptions that are experienced at the port. Likewise the regulator exercises price regulation through concession discounts, but most often prices are dictated through market volatility forces. These forces have the ability to shape and dictate the level of competition between and within ports in South Africa.

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## **5.5 Conclusions**

The combination of the above plans/proposals plays an important role in response to the demands put forward by the national governments transport strategy (Moving South Africa strategy). It should be noted that the port itself has challenged its ability to be developed due to the lack of alignment it enjoys with the city in the past. Consequently, in its stride to improve capacity, capital upgrades are costly enough to the detriment of efficiency. Equally important to note is that the port industry is continuously evolving and growing, making it difficult for national governments to keep apace with maintenance and modern technology. The South African government alike has identified the need to promote the ports of South Africa so as to relieve the burdens of maintenance and modernization, and has therefore provided a start-up investment to persuade private-sector investment into port operations. It is viewed that this investment would enhance port sector competition and in doing so improve the investment climate in the country. The result of this could eventually steer the export-driven strategies of national government.

But in doing so, it should be emphasized that the more competitive the port, the more resources it consumes in order to strengthen its position in global logistic and transport arenas. The issue remains whether the local community is getting a justified payback for the scarce local resources used for stimulating increased port activity. The local community should be compensated abundantly through value-added for example local employment, investments, taxes and profits. The following chapter aims to clarify the extent of this contribution into the eThekweni municipal area.

## **CHAPTER SIX: THE PORT OF DURBAN AND THE EMA**

This chapter aims to examine the extent to which the Port has contributed to addressing the ‘Level Three issues’ (as indicated in chapter four, section 4.3.3), by outlining the number of fields of interaction that have been created between the Port and its City (EMA). It opens with an exploration of the inherent tensions experienced by the Port in striving to remain globally competitive while at the same time maintaining a healthy natural environment (6.1). The following section (6.2) outlines the types of interaction based<sup>26</sup> on the potentials and obstacles to increased interaction, at the port-city interface (waterfront). The Port’s role as a provider of employment is analysed in section (6.3), and its capacity to facilitate competitiveness of firms is discussed in (6.4). Current initiatives to establish a logistics hub (including the Port) and the recent signing of the ‘Memorandum Of Understanding’ (MOU) between the Port and the EMA (sections 6.5 and 6.6) indicate that the often fractured relationship between the port and city authorities have entered a new era – one of mutual co-operation.

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### **6.1 The Port and the natural environment**

As pointed out in chapter four (section 4.3.3.1), the increase in port activity may have a significant impact on the natural environment of Durban harbour. Accordingly, global environmental consensus is that all developments should comply with environmental and other standards set by society and government, as well as finance the extra investments in environmental improvements. Approximately 3 million people live in greater eThekweni Metropolitan area, a fact that cannot be ignored when planning new port activities in the city. Their safety and well being are at least as important as economic growth thereby establishing the point that economic activities could make heavy demands on the city’s living conditions. Therefore, the reduction of (for instance) air, noise, aesthetic, water, and land pollution is an integral component of improvement plans. It should be noted, the development of port facilities is combined with improving the social climate, by revitalizing the waterfront and by re-introducing natural elements into the city, but the main challenge for the Port of Durban in maintaining its leading role in container handling, is providing a clean environment for its more than 3 million inhabitants.

The Port of Durban is considered to be an ecologically sensitive area that has a diversity of waterbird species, over 200 species of fish as well as few traces of the once flourishing mangroves of the harbour. The Bayhead Natural Heritage Site (BNHS) forms part of the port and regular monitoring and assessment is coordinated at the port. The motivation to develop container-handling facilities at the Port

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<sup>26</sup> As indicated in chapter four, section 4.3.3 previously.



of Durban has undergone considerable environmental examination up to present. As indicated previously, the Integrated Environmental Management Study (IEM unpublished 1996) has identified possible options for container handling following a stringent environmental scan. The Joint council for Geosciences from the University of Natal prepared the more recent account for 'common ground consulting' in 1998 (Thaver: Interview October 2003). The report states categorically that the "general options for expansion of container handling facilities in Durban Bay have now been brought down to a specific set of proposals consisting of four phases involving the infilling of areas to the east of the T jetty and Pier 1 and very substantial changes in the vicinity of Pier 2. These involve dredging of an inter-tidal sandbank, the loss of a large proportion of an inter-tidal sandbank through extension of pier 2 towards Maydon Wharf and finally, and of least environmental significance, the relocation of the existing container depot" (South African Container Depot) (Durban Bay proposed container terminal expansion specialist report: Biophysical impacts 1998 executive summary).

To address these concerns for future developments, the NPA has embarked on a path of sustainable development practices for the ports of South Africa. The port authority has compiled an introductory report on sustainable practices in 2003, in which highlights its environmental policy:

- "Complying, as a minimum, with all relevant legislation, as well as all other industry requirements to which it subscribes;
- Implementing measures to conserve natural resources, reduce waste and prevent pollution;
- Influencing the implementation of acceptable environmental practices (cleaner technology and production) by its suppliers, clients, tenants, and surrounding landowners;
- Promoting environmental awareness and responsibility among employees;
- Developing and implementing environmental management systems at each of its ports that:
  - Comply with the requirements of ISO 14001 international standard;
  - Achieve continual improvement in environmental performance;
  - Allows for integration with the NPA's core business activities" (An introductory report on sustainability practices at the National Ports Authority of South Africa 2003 p 13).

The report outlines the modelled approach to development at the ports of South Africa thus illustrating a four-stage protocol:



1. Strategic Environmental Assessment (SEA) to set vision for sustainability
2. Environmental Impact Assessment (EIA) – project level – to investigate specific environmental challenges
3. Environmental Management Systems (EMS) – management stage – to implement preventative and remedial action in order to achieve policy aims
4. Monitoring and data collection – for feedback required for future planning (An introductory report on sustainability practices at the National Ports Authority of South Africa 2003 p 14).

In complying with above-mentioned, the NPA has initiated EIA's for the following projects:

1. Widening and deepening the entrance channel –2003
2. Container development plan – 1999
  - Convert Pier 1 for containers – granted
  - 206/207 extension to Pier 2 – decision deferred, future approval will depend on successful outcome of a habitat rehabilitation, creation and monitoring program led by NPA
  - Relocate SADC and develop site for containers – decision deferred, closely associated with 207/207 extension to Pier 2
  - Eastward expansion of Pier 1 – decision deferred, as project should only be pursued if 206/207 extension to Pier 2 or long-term options outside port not visible
3. Re-modelling Point Berths – granted through assessment by IEM study but with special provisions outlined (NPA: Port Development Framework March 2003)

Although has been frequently argued in the past that costs of port improvements outweigh the benefits accrued to the local community, this argument has been challenged to a large extent by national legislation to promote sustainable development. It can be viewed that democracy has not only unlocked the gates to the global economy for the port in the 21<sup>st</sup> century, but at the same time has insisted on maintaining and enhancing this exposure for generations to come. As it was noticed previously, that the port had freedom through government support to develop as it pleased without city consultation. Today however, environmental consensus has provided rationalization for port and city relations. The arguments that follow deals with the most important socio-economic confrontations related to port development.

## **6.2 The Port as a provider of social development and interaction**

An attempt is made here to show how the port contributes to the local economy with more attention given to the fact that the growth of a port in many cases goes hand in hand with the growth of the city. This section therefore briefly outlines such issues as socio-economic benefits of port-city interface developments to address the issue discussed in chapter four (section 4.3.3.2), that is the impact of increased port activity on the waterfront areas of the city.

The interdependence of living environments and economic development is recognized today in cities all over the world. The aim to create such an environment is a development feature, which is increasingly important to economic strategy. Cities strive to attract traffic and wealth, and more desperately, the port city should focus on being pleasant, contemporary, picturesque, intelligently designed and generally attractive. In the eThekweni's Port-City interface redevelopment therefore becomes a means of advertising or promotion that must keep pace with present social and economic opportunities. The eThekweni's exploration into a good quality of life for all of its inhabitants and those outside of the Metro is to a large degree celebrating the occurrence of port activities in a bid to impose a positive Port-City interface image for the future.

Historically, conflicts between the continued port activity and the city's desire to embellish the site have pushing back the city boundary to the detriment of the interface areas. Presently however, this phenomenon is being cast away with new Port-City interface renewal projects, which also challenge the past rhetoric as to how the water should be used in particular. The revitalization of derelict spaces is presently based on a relationship with the water, with the city's attempt to make it into an attractive, pleasant area for setting up urban functions or rather integrating water into the urban landscape. It is therefore important to promote the characteristics that are exclusive to port cities to reinforce this specific point of attraction. In doing so, the beautification and celebration of the maritime and port characteristics of these interface areas can be used to differentiate the city so that the image it projects is more powerful and more identifiable. The 21<sup>st</sup> century Port-City should be easily distinguished from each other and make best use of their features, i.e. not only of their geographical situation, but also of their industrial and port inheritance to which the history of these cities is inextricably linked. It is a question of reinforcing the renovation process, a concern for identity, which, along with the presence of water, can be a feature and source of enrichment for the city as well as an aspect for growth.

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### **6.2.1 The Port-City interface waterfront developments<sup>27</sup>**

The EMA (Durban) has in the past been a popular destination for local as well as domestic tourists. As noted earlier, a number of key development initiatives, such as the recently opened Sun Coast Casino, the Marine Park (that is under construction), the Point Development (being finalized) as well as the Victoria Embankment and its surrounds have been identified to create a more attractive destination for tourists (national and international) and businesses alike. The two main areas of interface between the Port and the central areas of Durban are the Victoria Embankment and the Point. These will be discussed in turn to highlight the role of the Port in addressing the issues consistent with providing compensation to the local economy as well as protecting the interface between port operations and the public realm.

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#### **6.2.1.1 Victoria Embankment**

In 1993, the Durban City Council-Portnet Joint Planning forum, had raised the issue that although there were several development plans proposed for the Victoria Embankment (located next to the CBD and the Esplanade, with a high density residential character, mixed with office and recreation space), no policy plan or overall framework plan had been adopted for the co-coordinated, integrated development of the Waterfront (van Heerden: Interview October 2003). In 1997, the Victoria Embankment Outline Development Plan was developed and approved jointly by the Port authorities (Portnet) as well as the Durban Metro and Central councils. The plan aims to improve public access to the port and provide safety from port operations, at specific entry points through strategic property development initiatives.

In reality the port-city interface areas are cut off from the city by a railway line serving the Durban Car Terminal as well as a road (Victoria Embankment). Therefore the key issue needed addressing, relates to overcoming these barriers for the benefit of public access to the port. Options put forward by the city in the past to remove the railway line have had little impact, as this line could be instrumental for future port improvements (van Heerden: Interview: October 2003). The city has therefore identified strategic capital upgrading projects aimed at addressing this issue, some of which have been implemented since 1998 by the eThekweni Municipality. The details of these upgrades are as follows:

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<sup>27</sup> Conceptual maps for both developments are illustrated in Appendix Five.



1. Boatman's road, between the Yacht Basin and Wilson's Wharf has been widened and upgraded
2. Maritime Place between the Yacht Basin is being widened and upgraded
3. The pedestrian subways have been renovated
4. The Fenton Lane Access – the existing vehicular and pedestrian access at the yacht Basin Precinct needs to be upgraded. The project is addressed in two phases:
  - i. Phase 1: includes the upgrading the area between the Esplanade and the railway line with the construction of two new traffic lanes, new boom gates and improvement of the pedestrian access
  - ii. Phase 2: upgrading of the area between the railway line and the Marina, which includes landscaping, paving, traffic circle, new lighting and street furniture
5. In addition to the above traffic studies have been completed to gather information on the general traffic-related characteristics of the area. (Victoria Embankment Waterfront Development Project: Progress Report March 2003)

With regard to the overall gentrification of the port-city interface area to address the issue of protecting the public from the increased port activity, the Victoria Embankment Outline Development Plan has identified five precincts to direct property developments to balance out these impacts<sup>28</sup>. These precincts are to be developed include three development nodes and two waterfront parks, each with its existing, unique attributes, which distinguish them from one another. The spatial relationships of these precincts are as follows:

***Wilson's Wharf:*** This site is proposed as a waterfront development node that extends from Mullet Stream in the vicinity of the Sugar terminal to Russell Street (van Heerden: Interview October 2003 and Victoria Embankment outline development plan 1997). The development plan aims to retain and accentuate its existing fishing industry and boating character but at the same time linking the themes of this precinct with complimentary precincts in the city such as Victoria market. Theme linkages would be developed through theme related street furniture. This precinct allows for mixed use developments including commercial, retail and limited office developments. The aim of which is to offer the wider public a variety of consumption and entertainment opportunities (van Heerden: Interview October 2003 and Victoria Embankment outline development plan 1997).

<sup>28</sup> As indicated in chapter four, section 4.3.3.2.



**Broad Beach:** Formerly known as the Broad Street Waterfront, it is presently proposed as a waterfront park from Russell Street to the Yacht Mole, this precinct aims to rehabilitate and manage development in a way as to safeguard the prevalent ecology. The area is to be conserved as a marine sanctuary whilst encouraging passive recreation activities on the tidal beach such as strolling and bird watching as well as low impact active recreation such as fishing and no-motorized boating (Victoria Embankment outline development plan 1997). The development plan aims to link themes of this precinct with complimentary city precincts such as Albert Park, also through theme related street furniture. The development plan ensures that private or commercial buildings are prohibited so as to preserve the Broad Street views (van Heerden: Interview October 2003).

**Yacht Basin:** This site includes extends from and includes the Yacht Mole, to the Gardiner Street Jetty. Proposed as a waterfront development node, this precinct celebrates and accentuates the existing yachting and sports club character (van Heerden: Interview October 2003 and Victoria Embankment outline development plan 1997). The precinct is currently subdivided into 17 subleases, majority of which is leased from Transnet to the City council, who subleases the area to the Point Yacht Club (PYC) and the Royal Natal Yacht Club (RNYC). These clubs have become more open and are attracting more local residents as well as foreign investors (van Heerden: Interview October 2003 and Victoria Embankment outline development plan 1997). According to the City council there has been a recent trend of increasing commercialization has developed based on these sports. The emphasis of which, has been on promoting sail training and sport fishing, but with the added component of substantial job creation (van Heerden: Interview October 2003).

The Yacht basin has a substantially derelict appearance<sup>29</sup> and a restrictive public access along the water's edge (which is in an extremely poor condition). The Urban Design Framework Plan for the Yacht Basin aims to integrate the Victoria Embankment with the CBD so as to create positive impacts on the revitalization and upliftment of the CBD. The emphasis here is to create a Port-City interface district that maximizes public access and the involvement of the residents, office workers of the Esplanade as well as a broad spectrum of the metropolitan community and tourists (van Heerden: Interview October 2003). The framework plan relates to the needs and opportunities of existing stakeholders as well as a response to the need for significant public access and participation in all future developments. Proposals include a small waterfront development (approximately 20 ha – including 2 small hotels) that is different from other property such as the 'Point Waterfront' and 'marine park' projects. Theme linkages would be made to the Inner city such as the boat chandlers

<sup>29</sup> The area has limited public facilities, which contributes to less interaction/use and thereby suffering neglect.

along the northern side of the Esplanade through urban design interventions. The project will compensate for the possible loss of moorings at “Wilson’s Wharf” as well as the limited development of moorings at “Broad Beach” (van Heerden: Interview October 2003). Development would be concentrated on the north side of the precinct with all low-rise dispersed development on the southern end of the pier. Due consideration will be taken of associated activities being accessible to and catering for the public (Victoria Embankment outline development plan 1997).

**Waterfront Gardens:** Formerly considered to be the ‘Gardiner Street Waterfront’, this precinct reinforces its historic landscape characteristics that is, a natural inter-tidal environment. The concept is built upon a reminiscence of the fringes of Durban Bay prior to major harbor engineering, especially reintroducing the Mangroves and encouraging bird life (Victoria Embankment outline development plan 1997). The precinct is to be managed as a marine resource reserve by cutting a channel between the sea wall and existing peninsula. The creation of an island as well as a bird sanctuary would be a special feature. Theme linkages would be made with Inner City nodes such as City Hall Gardens, Medwood gardens and Central Park (van Heerden: Interview October 2003). The plan focuses on connectivity with the proposed “Yacht Basin” and “Craft Harbor Precinct” through the upgrading of the maritime landscape whilst still retaining the existing pleasure craft function (Victoria Embankment outline development plan 1997).

**The Craft Harbor:** Previously known as the “Small Craft Harbor”, this waterfront development node is based on the concept of accentuating the city’s heritage by capitalizing on the established activities of that precinct. The precinct does not include the “Bartel Arts Trust (B.A.T) Center” but does incorporate the “Maritime Museum”, the area has a limited number of public facilities and a poor water edge with an added problem of vagrancy and derelict aesthetic quality (Victoria Embankment outline development plan 1997). The emphasis is to link this precinct with inner city precincts that incorporate the civic area with its theatres, art galleries and museums (Victoria Embankment outline development plan 1997). Urban design interventions aim to furnish the precinct, including ‘Festival Island’ with maritime artifacts creating an open-air museum. Public access would be eased through the expansion of the ‘Maritime Museum’ onto ‘Festival Island’ and remove fences and other barriers. The interventions include introducing new exhibits, which are closely associated with Durban’s maritime history. Although physical constraints such as the existence of a railway line separating the Victoria Embankment from the inner city limits pedestrian and vehicular access, proposals include the development of a clear pedestrian and vehicle level crossing in the vicinity of Aliwal Street, linking the Inner city and the waterfront. There are considerations to use the redundant Expo Site suspension

bridge to establish a further connection over the railway line in order to strengthen a movement corridor aligned on the Tug pier and the intersection of Cato Street, Winder Street and Giligan Street (van Heerden: Interview October 2003). Other efforts include relocating the existing marine manager's office and redeveloping for activities associated with the precinct (van Heerden: Interview October 2003, Victoria Embankment outline development plan 1997).

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### **6.2.1.2 Point Waterfront Development**

In accordance with the Victoria Embankment, the Point area will also be impacted by increased port activity. The issue just as above becomes of providing an acceptable balance between public open space and port operations. As indicated in chapter four (section 4.3.3.2), potential actions required to address these issues have arisen in the property development market. For that reason this section outlines the extent to which the port and city are working to achieve these goals in the Point Waterfront area.

“The Point area (55 hectares), in this instance is defined by Point road in the west, the harbour entrance channel in the south, the beach interface in the east and Bell Street in the north”, is an integral part of the port-city interface and represents the historical awakenings of the city's activities (Point Waterfront development framework 2003). The eThekweni municipality has recently been instrumental in the revitalization of the Point area, which has undergone a considerable amount of urban blight and decay over the last decade. “The joint planning configuration between the municipality and the landowner of much of the Point (RocPoint Development Company) has resulted in the establishment of the ‘Durban Point Development Company (DPDC)’ to facilitate the objective of redeveloping the area for improved public-private consumption. The DPDC has subsequently commissioned Moreland Development to act on behalf of the DPDC, and Moreland have assembled a project team to formulate a development framework that serves as a reference for various revised development processes and applications required in realising the vision of the renewed Point” (Iyer: Interview 2003). The overall approach to development at the Point interface aims to be that of integration into the city be mindful not to follow an expansion of the city but rather to through urban design interventions which create a unique city that celebrates the *African renaissance* at the same time developing an urbanism that is dynamic and held together by spaces that have a sense of nostalgia (Iyer: Point Waterfront Development Framework 2003). The Iyer-Rothaug collaboration is the project team that has been commissioned and an account of their findings are to follow:



As noted earlier, the municipality has emphasised the need for catalyst projects to impact on the overall urban renewal efforts of the city. The identification of strategic capital projects aimed at boosting the city's image in terms of providing a variety of mixed use public amenities has led to a conceptualised spatial development "Golden Triangle" that encapsulates conferencing, tourism and hospitality facilities (Iyer: Point Waterfront Development Framework 2003). As indicated earlier (chapter one), the Inner Thekwini Renewal and Urban management project (iTRUMP) represents an existing institutional management structure in city that aims to coordinate the implementation of the metropolitan's declaration to urban renewal of the inner city and the development of the iTRUMP institutional framework has outlined the Point as a development precinct that needs attention. The municipality has therefore identified catalytic projects such as the "uShaka Island Marine Park" and Point precinct to establish the southern end of the "Golden Triangle" to rejuvenate and diversify the city's tourism products as well as to serve as a generator of further confidence and investment within the beachfront, inner city and overall metropolitan area (Point Waterfront development framework 2003).

The characteristics that motivate the renewal process at the precinct is based on the need to eradicate negative aspects such as an indistinct port-city interface area that lacks clarity and structure to existing development. These aspects create seclusion eventually resulting in underdevelopment and deprivation (Iyer: Interview 2003). The development of the precinct aims to build upon the visual and physical connections to the water; existing recreation character along certain edges; historical and heritage role; the large tract of underdeveloped land as well as permeability of the Bluff backdrop (Iyer: Interview 2003).

The uShaka Island Marine Park project is to be developed as an aquarium, research institute, water-world type entertainment, leisure and retail theme park on the vacant area (used as parking for Addington beach) between the city centre and the Point. The 16-hectare theme park would comprise of:

- 'Sea World' – one of the 10 largest in the world, with the largest dolphinarium in Africa
- A snorkel lagoon
- The recreation of a ship wreck with on-board restaurants
- An adjacent semi-public beach
- Conferencing and events facilities
- A large variety of shopping
- Fresh-water slides (The Mercury: Network 01/10/2003 p 11)



The underlying philosophy guiding the future design of the Point precinct includes exploring *African Urbanism*; creating a *vibrant urban place*; creating a *responsive and supportive public environment* at the same time creating a *unique water-based environment* (Point Waterfront Development Framework 2003).

*African urbanism* is based on the embracement of history in the contemporary design of the area, with special emphasis on revisiting the role of the Point during the colonial regime. The precinct would be developed around the euphoria of cultural diversity that prevails in the public market places that are established in the inner city (Warwick Junction is an example of such a place). The urbanism “draws on cultural richness of the Zulu, Indian, Afrikaans, English, Greek, Portuguese, Lebanese, and Mauritian influences on which the city grew from inception” (Point Waterfront Development Framework 2003). The democratic era has also increased the African expression in the city and the design is also inclusive to the more recent immigrants to the city (Point Waterfront Development Framework 2003).

*Creation of a vibrant urban place* involves redirecting mixed-use activities into the Point in the form of commercial as well as business environments through the construction of multi-functional buildings. There is a responsibility to integrate these activities with a residential and marine environment through the development of sub-precincts (or quarters as referred to in the framework) so as to create a leisure and entertainment node for residents and visitors of the metro (Iyer: Interview 2003).

*Creating a responsive environment* is a feature of best practices in contemporary urban design. The Point development framework outlines the need to create buildings that are scaled down to suite the overall character of the area whilst at the same time defining and supporting public spaces. There are considerations in ensuring that the precinct is well developed with clearly defined edges (through the use of landmarks), paths and linkages that defines spaces as well as protects all users. The responsive environment consideration ensures that these developments are also *supportive to the public environment* through the adequacy of designing for a precinct that is integrated into other city precincts of the similar character (Iyer: Interview 2003, Point Waterfront development framework 2003). The Point development framework envisages a *unique water-based environment* with a series of waterways and canals that will pass through the Point precinct. These canals will have a role to play in linking with other quarters within the Point precinct and creates opportunities for waterfront

residential, leisure and entertainment activities. The framework aims to facilitate the increased public access to the waters edge, making this the central concept for urban design intervention (Iyer: Interview 2003, Point Waterfront development framework 2003).

Proposals for the Point precinct take into consideration the project by the National Ports Authority of South Africa (NPA) to widen the harbour entrance, and thereby utilising the new pier as a southern breakwater for a newly constructed small craft harbour which would accommodate up to 275 international and local yachts and powerboats. The draft plan also aims at reconstructing the abandoned Vetch's Pier to form the main breakwater for the marina. ~~The new small craft harbour~~ would pass through the Point precinct allowing for increased public access to the water facility (Iyer: Interview 2003 and Point Waterfront development framework 2003). 'Through the development of primary open spaces at key points within the system as well as a focal point from which the canals radiate; a series of gateways along the existing Point Road; key pedestrian routes as well as a primary Boulevard; the area is developable as a shared vehicular, pedestrian and canal route that offers users a range of experiences' (Iyer: Interview 2003 and Point Waterfront development framework 2003).

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In summary of both plans for the port-city waterfront developments, it is envisaged that small craft operators, pedestrians, joggers, shoppers, cyclists, photographers, tourists, fisherman and a variety of people from all walks of life all benefit when waterfronts become accessible, safe and inviting. Previously (during the apartheid era), many of the public facilities along the cities waterfronts were inaccessible to the general public, thereby historically affecting the usability potential of the area post-apartheid. The result of which had lead to the suffering from dilapidation and abandonment of these beautiful leisure zones. Today, revitalization as indicated above creates leisure opportunities especially enhancing facilities that enhance the quality of the local environment as well as foundations of community pride. These port-city interface developments aim to build ethnic and cultural accord by reducing alienation, loneliness, and anti-social behaviours that once lingered over the design principles underlying port-city interface areas. At the same time these proposals aim to improve economic activity through the services on offer at these developments. These services have the propensity to motivate business relocation and expansion in the community as well as (noted earlier) become catalysts for tourism (a growing sector of our economy) in the city

The section below is a more rigorous<sup>30</sup> in outlining the impacts of increased port activity on the local economy, particularly employment creation.

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<sup>30</sup> That is, trying to be more quantitative than the previous sections.

### 6.3 The Port as a provider of employment

The aim of this section is a rudimentary attempt to superimpose the survey of the impact of port activities on the “Durban Metropolitan Economy” by Professor Trevor Jones of the University of Natal in the late 1990s, on the future cargo expectations at the Port of Durban. In the original survey two distinct groups of industries were identified for examining the impact of activities on the local economy, and it was noted “these groups were also responsible for a further set of economic ripples generated both via backward and forward linkages with other industries, and via the multiplier effects of the purchasing power created” (Jones 1997 p 30):

**6.3.1 “Directly port-dependant ancillary industries** are concerned with the establishment and, maintenance of a wide range of ship and cargo-related port functions” (Jones 1997).

In this instance the aim of quantifying the benefits of those activities that were “energised when vessels called at the port or when cargo passed through the wharfside” (Jones 1997 p 30). Jones interviewed as many of the major players as possible (conducting just under 100 interviews during the mid-1994 to early-1995 period) with the intention of acquiring “information concerning, employment levels; the associated wages and salaries bill; other major items of cost; revenue generated; and linkage effects with other city-based or regionally-based businesses” (Jones 1997 p 30). The exercise tried to measure the “numbers of persons employed, where revenue generated and in what pursuits, where costs incurred, and what proportion of that expenditure remained in the local community?” (Jones 1997 p 30). A detailed description of the vessels-related activities and cargo-related activities extracted from the survey is available in the Appendix 6. The survey outlined the contributions of the major role players such as:

- *The port authority* (Portnet at that time) the major player “contributing to roughly one local Portnet job in the port of Durban for each 7 500 tons of cargo handled annually” (Jones 1997 p 34).
- *Spoornet*, the rail authority of South Africa (subsidiary of Transnet) responsible for the carriage of “approximately 9.4 million tons of traffic to and from the Port of Durban in 1993/1994, contributed to employing the cities labour force by approximately 2 365 employees that were estimated to be worth R112.5 million at 1994 salary levels” (Jones 1997 p 36).



- *The Terminal operators* of which the industry as a whole (13 terminals across South Africa) “contributed to a little over 2 200 employees in 1994” (Jones 1997 p 36). It was noted “despite the reduction of employment levels, the terminal operations were still labour intensive with one employee costs typically accounting for 55-60 % of total costs” (Jones 1997 p 36). An important component of this exercise also revealed that the terminal accounted for “relatively small transfers out of the Durban area except in the case of equipment purchase, hence a relatively high proportion of total estimated annual expenditure of R165 million remained within the city’s economy” (Jones 1997 p 37).
- *The stevedoring industry*, which has fallen victim to the increase in container activity and therefore experiencing steady decline in the labour market. The contributions to the city was estimated to be in the region of 1 650 in 1994, a fall from 3000 four years prior to the survey. It was also indicated that the “Durban-based employees at the port accounted for roughly 70 % of national stevedoring employees with an estimated worth of R85 million according to salary bills in 1994” (Jones 1997 p 38).
- It was illustrated by Jones that the main *clearing and forwarding industries* of the city comprises of around 80 small residual business as well as 56 grouped businesses that fall under the Durban Association of Freight Forwarders and Warehouseman (DAFF), and handles an estimated 87 % of traffic passing through the port (Jones 1997 p 38). It was also highlighted that employment levels contributed to the city was in the region of 3600 persons estimated worth of R130 million, whilst still undergoing negative growth trends (Jones 1997 p 38).
- *The ships agency businesses* in the city was concentrated within four entities and sustained a total of 37 establishments that provided approximately 1300 – 1400 labour intensive jobs during that survey period. The majority of costs to the industry were incurred inside of the Durban area therefore highlighting the city’s potential for retaining high incomes (Jones 1997 p 41).
- *The Ship chandlers* closely related to serving the needs of the shipping industry is a very competitive market comprising of approximately 17 units in the city. “The total Durban-based employment was estimated to be between 450 and 500 persons in 1994” (Jones 1997 p 41).
- During the survey period it was estimated that “*the bunker fuel industry* supplied an annual total of approximately 1.7 to 1.9 million tons of fuel to Durban callers generating revenues in excess of R1 billion annually, but having a modest labour force



of a little over 100 people” (Jones 1997 p 43). The propensity for the port to attract more of this type of commodity is determined by the operational performance of its accommodating berths. The industry is susceptible to dangers of delays at the port and thereby affects its pricing structure. This will ultimately undermine the ports competitive edge (Jones 1997).

- *The private road haulage industry* was estimated conservatively to be in the region of 1500 persons, a far cry “from the 3500 people employed by the Harbour Carriers Association in the mid-1960s when the University of Natal conducted its last major survey of the port” (Jones 1997 p 44).
- *The ship repair and ship building industries* “accounted for 225 dockyard workers employed by Portnet, 412 persons by Mediterranean Shipping Company (private company), and 114 persons from two smaller but formidable marine contractors with a total estimated worth of R20 million” at the time (Jones 1997 p 45).
- *Container handling activities*, according to the survey was a broad industry that covered a range of port ancillary industries and contributed to “approximately 9000 – 10000 jobs for the city’s residents” during the survey period (Jones 1997 p 46).
- *Other port-related activities*, according to the survey have been disaggregated into the specific categories of terminal operators as well as approaches to elicit information from other port-related industries were not available (Jones 1997).

Although the findings of the survey was incomplete due to the lack of a fuller spectrum of directly port-related industries, the research does highlight that “the activities of the port sustain at least 360 establishments in both the public and private domains, and that in excess of 24 000 jobs were created in the city in first-round activities immediately linked to the port” (Jones 1997 p 47). Jones notes that these figures have been ‘assembled’ to an extent without several other industry specific adjustments and other measurements, and by “assuming a multiplier of 2.4 to the findings, then the Port of Durban emerges as a substantial source of both employment and expenditure, supporting a minimum of 31000 jobs for the city’s residents and generating aggregate annual local expenditure of around R3.5 billion” (Jones 1997 p 49).

**6.3.2** “*Indirectly port-related industries* are made up principally of port users (producers of exported commodities and users of imports) located in the eThekweni (previously Durban) area” (Jones 1997).

According to Jones, ‘there is also the *‘broad family of port users’* that is located in the metro due to the presence of the port” (Jones 1997 p 50). These include: the commercial fishing industry; recreational fishing and boating community; the naval base; and most importantly the large range of both local exporters and local consignees of imported commodities utilising the port (Jones 1997 p 50). The survey also indicates that “indirect-port related employment especially that from a significant role-player such as the petroleum industry, centred around the SAPREF and Engen refineries, provide employment for some 1,800 employees and daily contractors” (Jones 1997 p 50). Other role-players ancillary to the petroleum industry such as “a host of activities associated with the blending and distribution of oil products, most of whom are located in the Island View area of the port, create another 500-plus jobs (Jones 1997 p 50). “All of these activities owe their day-to-day livelihood to the port and would not exist in its absence. If these activities and their linkages are pulled into the port ancillary net, they raise total port-related employment towards the 40,000 mark” (Jones 1997 p 50).

As this section does not aim to outline the deficiencies experienced by Professor Jones in his survey, it does however illustrate that the findings from the survey suggests that the “overwhelming candidate for attention at the Port of Durban, is container traffic, where recent growth has been shown to have stretched port capacity to and beyond its elastic limits” (Jones 1997 p 55). Jones also highlights the significance of ‘multi-purpose traffic’ comprising of a mix of unitised, breakbulk and parcel bulk cargo carried in single versatile vessels” (Jones 1997 p 55). It is therefore an important point of consideration that the underlying the motivation for increased container and multi-purpose handling at the Port of Durban, especially given the ‘World Banks’ accreditation that these commodities during the 1995-2000 period would be of significant value to ports on the Indian Ocean Rim, of which the Port of Durban plays an important role.

The main outcome of the survey was a rather conservative calculation of port activities impact on job creation. The methodology was based on Jones’ calculation of total annual traffic base of all types of cargo handled at the time equated to around 41 million tons, handled directly or indirectly by approximately 32 000 jobs. This suggests crudely, that for every 1300 tons of cargo handled, one job is created (Jones 1997). The estimate for container handling in isolation was surveyed “to be

contributing to 9000-10000 jobs plus a further 3000 jobs in backward linkages to the container industry” (Jones 1997 p 56). Using these estimates as a determinant for total container-handling contribution to employment, it was calculated that approximately “one job is created in Durban” “for every 70 containers passing through the port” (Jones 1997 p 56).

The question from this point onwards is “What does this signify in terms of new proposals for increasing the amount of activity at the Port of Durban, for the eThekweni Metropolitan area?” Table 14 below, outlines the activity from 2003 up to an expected increase in activity by 2005 based on growth scenarios for the two types (containers and breakbulk/neo-bulk) of commodities handled at the Port of Durban as discussed earlier. The table illustrates that there could be potentially, a total of approximately 8,954 jobs to be created from the increased port activities at the Port of Durban by the year 2005.

It is important to note that the point of this exercise is merely an attempt to outline the potential of increased activity on the city in general, and by no means to imply that those (approximately 8,954) jobs will be available by the time these developments have taken place. It is essential to note that the maritime industry is continuously evolving and technical improvements through information technology and other mechanical innovations could however influence the outcomes of future projects. The findings of this section does facilitate an important discussion, that is, the ability of the increased activity to generate and facilitate competitiveness for firms in the eThekweni Metropolitan area.

**Table 14: Summary of expected cargo volumes in 2005 at the Port of Durban and possible job creation for the EMA**

Type of commodity handled	Current handling capacity per annum	Long-term forecast analysis per annum (Approximately)	Increase expected per annum (Approximately)	Possible job creation for eThekweni
Containers (‘Salisbury scenario’: upgrading Durban container terminal and conversion of Pier 1 for container handling)	1.3 million TEUs	1.9 million TEUs	600, 000 TEUs	Approximate increase of 8,570 jobs in the next 2 years
Breakbulk/Neo-bulk (Theoretical capacity)	6 million tons	6.5 million tons	500,000 tons	Approximate increase of 384 jobs in the next 2 years
				<b>A total of Approximately <u>8954</u> Jobs for the EMA</b>

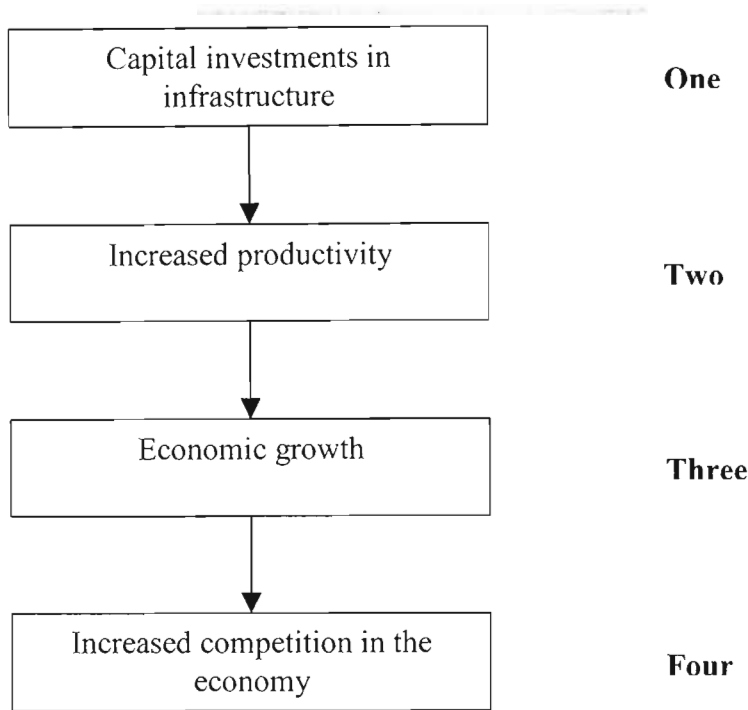
#### 6.4 The Port as a facilitator of competitiveness for firms in the EMA

It is important to remind the reader at this point of the potential of the port in contributing to employment and the potential for ship owners, operators and cargo owners to inject additional spending into the city from the increased activities. These additional injections do have the capability to increasing the competitive landscape for firms in the same economic system. Table 15 below, sourced from an Internet search on the transport sector ([www.cga.state.ct.us/pri/year2000studies/htm](http://www.cga.state.ct.us/pri/year2000studies/htm)) has outlined the effects of capital investment on economic growth. Blocks one to three have been directly taken from this website, with block four being added for the benefit of outlining the aims of



this section. Whilst local industries take advantage of improved access to the world market via port improvements at the Port of Durban, increased competition in the local market will continue to rise. In accordance with specialist interviews, it was asserted that the increased activity at the Port of Durban would increase productivity for those firms related to direct port-related industries as well as indirect port-related industries in general (Jones, Robins, Erksine, van Coller: Interviews 2003).

**Table 15: Relationship between capital investments and growth**



*Source: Adapted from [www.cga.state.ct.us/pri/year2000studies/htm](http://www.cga.state.ct.us/pri/year2000studies/htm)*

The Port of Durban has created favorable circumstances for particular industries in the city which previously was based largely on commerce, but since then the port has played a crucial role in the development of manufacturing (Katzen 1961 in Morris et al 2002). The port is handling more containerized cargo than all South Africa’s other ports combined, and as Morris outlines, the city has been the logical place to establish industries, which depend on imported production inputs which ultimately gave rise to the establishment of the chemical, textile, clothing, automotive, food and beverage, and printing and stationary industries in the city (Morris et al 2002). “Some of the city’s leading manufacturing sectors, including food, chemicals and paper are already considered internationally competitive” (Harrison 1995 in Morris et al 2002). Jones also highlights that “exports through the Port of Durban are dominated by primary products, semi-beneficiated mineral products

(ferro-alloys), processed petroleum products and chemicals, and by intermediate or semi-manufactured goods such as paper, wood pulp and steel” (Jones 1997 p 20). It is therefore important to highlight the opportunities that the port opens for firms to operate in the city whilst at the same time could provide the potential for sectoral clustering within the city (Morris et al 2002). “The most obvious clustering of industry is within the Southern Industrial Basin, and at Pinetown-New Germany to the west of the city” (Morris et al 2002).

In addition to the above argument, through the various specialist consultations/interviews it was noted that the increased activity at the Port of Durban would improve the competitiveness of the firms in the eThekwin Metropolitan area in several ways. Two of which, discussed below (6.4.1 and 6.4.2), are considered to be of immense relevance to this dissertation so as to outline the ‘*platform*’ the port creates for the firms in the city to compete from (Iyer, Jones, Persad, Robins, van Coller, van Heerden, Interviews October and November 2003). It is imperative to outline at this point that it is beyond the scope of this dissertation to identify those firms or type of industries that would benefit from the improvements suggested at the Port of Durban, but rather to outline the extent at which this interaction may take place in the local setting.

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#### **6.4.1 Competition in property market**

As noted earlier, the port-city interface development proposals are a key part of the city’s renewal attempts, thus the changes expected in the use of the land would obviously increase the value of that given parcel of land as well as adjacent sites (Iyer, van Heerden: Interview 2003). The property development impact is greater than in the past due to the changing accessibility of the site, as well as the proximity to other supporting amenities and public facilities. This provides an opportunity for businesses that thrive off public interaction e.g. retail stores (Iyer, van Heerden: Interview 2003). The tendency therefore could be opportunities for anchor tenants (large companies) to occupy that public domain to capitalize on the level of interaction between the consumer and the supplier. Thereby competition for the best sites would ensue in the proposed development. In the case of the waterfront developments, an integral part of the interventions are in the form of a small portion, but equally important residential component, which, in turn also impacts competitively in the property market.

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#### **6.4.2 Competition for business activity**

It can be noted that the investments undertaken by the Port of Durban and the eThekweni Metropolitan council collectively, could have an impact on business activity in the city in general (Interviews 2003). It was gathered that the majority of businesses would benefit from the increased exposure to local and world markets either through increasing port activity or improving the tourism industry, some might be unaffected, whilst others gain indirectly (Interviews 2003). Cumulatively for this city, this could be substantial as local spending increases, and putting figures on these benefits is a challenging task that this dissertation does not aim to achieve. The issues that do emerge however, is that there would be a rise in overall business activities in the city prompted by port improvements. In some instances these activities may affect some relocation of firms back into the central business district through the incentives such as those offered by property development initiatives of the city (van Coller: Interview November 2003). Others may well be drawn to proximity of new businesses starting up in the city because of the increase in trade activity (Jones: Interview October 2003). Firms may also take advantage of the increased port traffic, capacity and the improved efficiency at the port, which ultimately lowers transaction costs. These forces influence the client or customers accessibility to the products and thereby relocate to the city. The result of which is increased spending in the local setting (Interviews 2003).

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One may then conclude that port improvements have the potential to generate a clustering of firms and or businesses, especially within the EMA. In order to maintain the impact of this trend these developments whether aiming at renewal or in the strict sense for port productivity, should strive towards locating in the central business district or other established metropolitan nodes.

The next section outlines the ability of the port in providing a gateway to the national as well as international markets for firms in the EMA, by virtue of its role in the Dube Trade Port – a logistics hub proposed at La Mercy.

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### **6.5 The Port and the Industrial Development Zone**

As was asserted in previous chapters, globalisation has to a large degree manipulated the manner in which the Port of Durban has changed enabling it to cater for increased economic activity and facilitate access to foreign markets for businesses in general. Apart from the port's attempt to

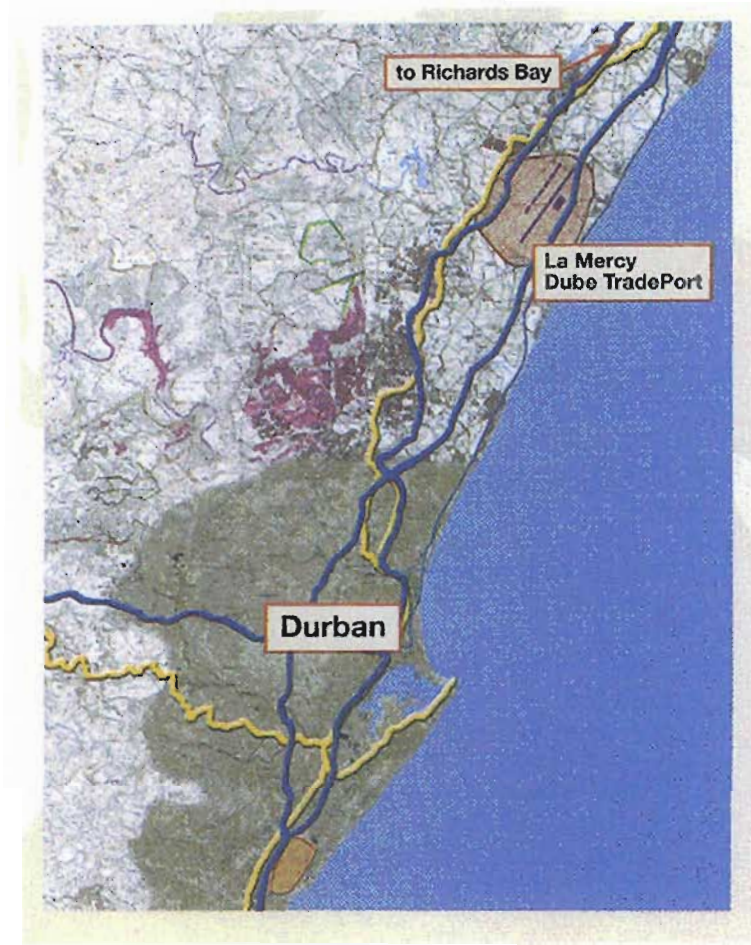
encourage competition, the South African Department of Trade and Industry (the DTI), has initiated a national program to encourage international competitiveness in many of the countries formal business sectors. The resulting Industrial Development Zone (IDZ) is to be a purpose-built, industrial estate linked to an international airport or port, which contains a controlled Customs Secured Area (CSA) that is exempt from duties such as value added tax (VAT) and import duty on machinery and assets ([www.dti.gov.za](http://www.dti.gov.za)). “In keeping with international trends in export-oriented zone development, the DTI provides an enabling business environment that facilitates quick decision-making processes, attractive benefits and high quality inputs at competitive rates, as well as labour standards that give easy access to world markets” ([www.dti.co.za](http://www.dti.co.za)).

Each zone is designed to:

- Provide a location for the establishment of strategic investments.
- Promote and develop links between domestic and zone-based industries to optimise use of existing infrastructure, generate employment and create technology transfers.
- Enable exploitation of resource-intensive industries.

In reaction to the above program, the KwaZulu-Natal Department of Economic Affairs and Tourism (KZN-DEAT), has made an application to the national Department of Trade and Industry for a provisional IDZ designation at La Mercy, intended to create a logistics gateway in order to effectively participate in export driven activities and international trade for industries of the province. The IDZ will make the most of the existing transportation links to seaports and the inland rail and port terminal at City Deep in Gauteng. The Industrial Development Zone includes the Port of Richard Bay, the Port of Durban, in addition to the airfreight potential provided by the proposed King Shaka International Airport which will enable direct airside access for the movement of time-sensitive goods (perishable items in the fruit and flower industry including, clothing, metal products and machinery parts, and other products discussed in more detail by Velia and Valodia, 2003) on an international basis. The King Shaka International Airport (KSIA) proposed at La Mercy is intended to be an international logistics (for the processing and movement of freight) air *platform*, with a runway larger than that of the current Durban International airport, to create enhanced levels of service to move time-sensitive goods to the major world markets via the development of the adjoining IDZ (Persad, Erksine: Interviews 2003). A locality Map (2) bellows shows the position of the Port relative to the Dube Trade Port.



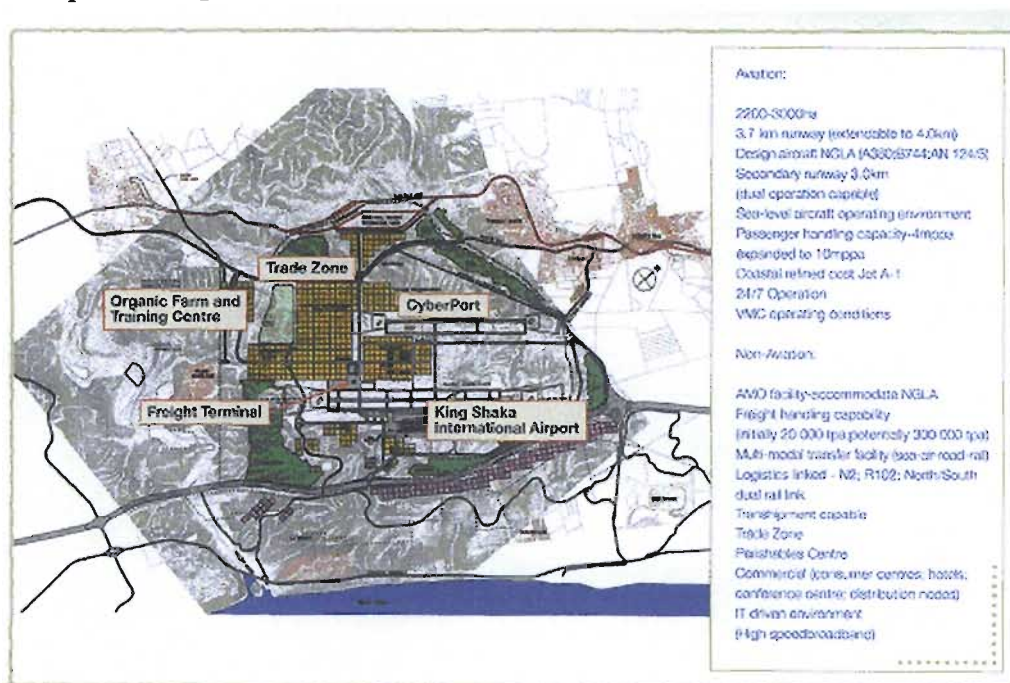
**Map 2: Dube Trade Port (DTP)**

**Source:** Erksine: Interview November 2003

The Dube Trade Port is KwaZulu-Natal's response to the IDZ program, with the aim of being a state-of-the-art multimodal logistics gateway located on the province's coastline (Velia and Valodia 2003). The Dube Trade Port (DTP) is motivated by the potential to capture financial resources related to the transport of goods produced in KwaZulu-Natal to Johannesburg International Airport, to be air-freighted. The other potential is that of decreasing the total logistic time as well as total cost to the customer. The impact on the national economy will clearly be felt through the lowering of logistics cost to GDP (Persad: Interviews October 2003). The Dube Trade Port (DTP) key objective is for the province and the country to be competitive in the global supply chain. To achieve this the provincial government has identified through the DTP as a logistics *platform*, which addresses the physical and

cyber<sup>31</sup> infrastructure requirements to create an internationally competitive environment. “This objective requires the development of an integrated multi-modal (sea air rail land) transportation capability, which must be complemented by the ability to process goods as an integral part of the transportation cycle” (Persad: Interview October 2003). A detailed view of the DTP is given below (Figure 2).

**Figure 2: Conceptual Diagram of the Dube Trade Port**



**Source: Erksine: Interview 2003**

The Key principal elements of this *platform* are:

- ❑ The Durban Port as a time definite node, with the adjoining Southern Industrial Basin
- ❑ The Dube Tradeport - providing an intercontinental air *platform* as a time critical node, with an adjoining trade zone/idz
- ❑ Richards Bay as a time definite node with an adjoining IDZ (Richards Bay IDZ)
- ❑ The City Deep bonded inland port and rail terminal in Gauteng (Erksine, Persad: Interviews 2003).

According to Persad, the final and critical element is the creation of an Integrated Freight Rail Link, which enables the movement of containerized freight to and from Gauteng (Persad: Interview October

<sup>31</sup> This means the usage of the international high-speed broadband connectivity via a dedicated feed off the SAT3/WASC/SAFE submarine cable system that provides direct links with Asia and Africa-Europe. The cable lands at Mtunzini just north of La Mercy, enabling a direct feed to the Dube Trade Port.

2003). In this way, “freight utilizing the dedicated freight rail capability can therefore be transported and or processed on a time critical and or time definite basis as part of a closed loop integrated system” (Persad: Interview October 2003). These infrastructure investments and solutions will need to be tied together through the creation of a Digital Trade and Transportation Network (DTTN) providing an electronic trading *platform*, which utilizes the SAT3/WASC/SAFE international undersea cable landed at Mtunzini (Persad: Interview October 2003). The cable provides a dedicated high efficiency voice and data transmission as well as enhances the ability to facilitate Customs and Regulatory procedures as part of an integrated operation (Persad: Interview October 2003). The creation of a Cyber Port and Cyber Village at this IDZ will try to address the issue of global connectivity and provide a means for the establishment of Information Technology (IT) and Information Services (IS) ventures in a hope to create a clustered community of IT and IT-related companies ([www.kzn-deat.go.za](http://www.kzn-deat.go.za)).

The strategic role of the Port of Durban therefore, is that of a gateway to the Dube Trade Port (DTP), given current and future port volumes, the DTP acts as a *platform* to attract new investments in value added logistics, services, tourism, agriculture, new forms of manufacturing utilizing new manufacturing techniques such as manufacture to order as well as allowing existing companies to expand through taking advantage to global markets. This could strengthen the comparative advantage of the eThekweni Metropolitan Area and Port of Durban alike, as these *platforms* are most attractive to global multi-national corporations seeking optimum logistics efficiencies.

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It is therefore important to note that the opportunities that exist for firms and or businesses in the eThekweni Metropolitan Area is a result of the port’s interaction with the province, country and the rest of the world by being a major element of the Dube Trade Port initiative. Similarly, the success of a port in facilitating competitiveness for businesses in general is based on the need for increased communication between the port, as well as different tiers of government. Of greatest concern, for the sake of this dissertation, is the relationship between the Port of Durban and the eThekweni Municipality. This is for that reason, the focus of the next section.

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## 6.6 Communicating for the ‘Future’

The history of the relationship between the city and the port has shown that planning so often has never gone hand-in-hand with port development. City management priorities tend to be in the order of space requirements for new developments, safety and quality of life for inhabitants, environment protection, and many more. Whilst at the same time the port competes with other ports for traffic and



by doing so consumes the resources of the city for logistics accessibility. Although today, these relationships are continuously changing as a result of the various strategies for port-city interface renewal.

If the relationships between the city and port are not favourable then considerable amount of challenges are posed for both entities. An example would be if the port aims to improve capacity and efficiency, but non-cooperation with the city could prove challenging as city traffic creates congestion at port entry points thereby resulting in transport delays and increased costs. Likewise, the city aims for better public waterfront access while safeguarding the public and maintaining port security, but non-cooperation with port authorities will continue to expose the city and its inhabitants to associated pollution and derelict visibility. Conversely, the strength of these relationships improves multimodal transport, better spatial planning, improved port industrial activities, sustainable practices for dredging and disposal, natural resources protection, improved water quality and overall environmental management (Robins 2002).

The Port of Durban and the eThekweni municipality have collectively initiated capital improvements, which are tending progressively to become areas of dialogue and co-operation. Applying the efforts of cooperation especially through the potential that exists is going to require the involvement of all local actors so as to create an enthusiasm, which will promote development, which is in turn economically and humanely sustainable. Accordingly, the issue is one of instituting these partnerships so as to facilitate the consultation processes and preserve joint interests between the eThekweni municipality and the Port. In response to this issue, the White Paper on National Ports policy (in Section 3 of the National commercial ports policy statement, under the heading “Development of commercial ports”) has noted the following:

“Port development cannot be considered in isolation, but should be integrated into any national, provincial and local economic and spatial development initiatives, and also support the RDP. There should be synergy among port development, and national and provincial economic and development strategies. Long-term location planning for ports should run parallel with provincial and regional economic development plans. The development of commercial ports must be integrated, with port facilities being planned together with other elements of the transport system. The planning and integration of port facilities into the broader transport network should be co-ordinated at the appropriate sphere of government. The port's national development framework plans should inform, and be included in, a provincial transport plan which, in turn, should form part of an economic development plan for the province. Naturally, they should also conform to any national spatial,



economic and other initiatives. Proper integrated planning must be done to ensure greater efficiencies are delivered by the transport system.” (White paper on national ports policy 2002 p 16)

It must be argued that the realization of this partnership has come from the national level, and compelled by legislation, when in actual fact it could have been a natural and mutual relationship that was extended from the past.

In addition to the above, the policy “advocates port and city co-operation through planning structures that will be facilitative and enabling of that particular intent. This shall be achieved by:

- Having the national port authority established as a planning and development coordinating body; and
- Ensuring that the planning of each port is localised as much as possible to allow for flexibility and rapid response to changing market conditions and customer demands within the context of the national commercial port development framework and stakeholder consultation through the local port consultative committee” (White paper on national ports policy 2002 p 16).

Further to this, chapter 11 of the National Ports Authority Bill<sup>32</sup> outlines (in Section [60.] 82.(1)) that “the Minister must appoint a Port Consultative Committee for each port” consisting of various role-players from different national, provincial and municipal department.(National Ports Authority Bill 2003 p 85)

In this sense it is important to highlight that “history” was made on Friday the 26<sup>th</sup> of September 2003, when the eThekwin municipality and the Port of Durban signed the “Memorandum of Understanding” between the two entities (The Mercury: network 08/10/2003 p 6). The importance of this partnership is to improve the operability of the port and city as well as to promote the port and city’s search for efficiency. The eThekwin municipality has a direct relationship with the port activity and the influence of this collaboration favours both entities in the social, economic, labour and tourist aspects. As indicated previously, the Port of Durban generates an important work source for the manpower of city, given its massive employment in the container shipment and other unitised cargo handled at the port.

The “Memorandum of Understanding” (MOU) was formulated to establish a Port-City forum, “to develop a sustainable and pro-active planning and co-operative framework” between the National

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<sup>32</sup> As introduced in the National Assembly as a section 75 Bill; explanatory summary of Bill published in Government Gazette No. 24261 of 17 January 2003.

Ports Authority (Port of Durban) and the eThekweni Municipality (Thaver: Interview November 2003).

The primary aim of the **Port-City Forum** is to create a common *platform* for engaging on various issues affecting the Port and City (Thaver: Interview November 2003). This *platform* for discussion will facilitate the identification of planning initiatives and development projects of common interest between the Port and City and will also create the *platform* for developing projects of common interest between the City and Port of Durban, that is, to identify sources of funding for these projects and proposals (Thaver: Interview November 2003). The Port-City forum's objectives is to "encourage and promote sound Port-City relationships whereby opportunities for networking and partnerships are enhanced; the sharing of best practices; the development of appropriate representation in both existing and future structures, and most importantly to act as a dispute resolution mechanism where the identification of contentious issues in strategic approaches can be resolved" (Thaver: Interview November 2003). The Port-City forum will comprise of three subcommittees of which the 'Mayor' of the city chairs the highest tier of the Port-City Forum, the 'Municipal Manager' and 'Port Manager' chair jointly in the second tier, and the 'Head of Economic Development and Facilitation' of the municipality, 'Manager of Planning and Development' (Port of Durban) or any nominee made by the highest tier of the Port-City Forum (Thaver: Interview November 2003):

- (1) The "**Strategic Leadership Committee**" (highest tier of the Port-City forum) will meet once a year under the chair of the Mayor of eThekweni Municipality (who shall invite national and provincial stakeholders), to deliberate on the following matters:
  - Annual programme
  - Identification of key projects
  - Joint investment plans
  - Agenda for relationship building between Port and the City
  - Joint strategic development for the greater Port Area/Port-city interface
  - Monitor progress on joint initiatives
  - Lobby for development in line with the strategic development framework
  - Sharing of high level strategic information between the parties
  - Any other issues of mutual concern, benefit and interest to the parties (Thaver: Interview November 2003)

(2) The “**Management Committee**” which will be chaired jointly by the eThekweni Municipality’s City Manager and the Port of Durban’s Port Manager. The committee shall meet four times a year to discuss the following issues:

- Allocation of resources for projects
- Management of the implementation of joint programmes
- Development of implementation plans
- Implementation of joint investment plans.
- Any other issues of mutual consent, benefit and interest to the parties (Thaver: Interview November 2003)

(3) The “**Project Committee**” which is coordinated by Manager of Planning and Development (Port of Durban) and Head of Economic Development and Facilitation of the eThekweni Municipality; or any nominees made by the “**Strategic Leadership Committee**” and shall meet at least once a month to discuss matters regarding:

- Project management
- Setting up working teams
- Any other assignment assigned to it by the “**Management Committee**”
- Any other issues of mutual consent, benefit and interest to the parties (Thaver: Interview November 2003)

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It can therefore be argued, that the historical context of relatively poor relationships between the Port of Durban and the local municipality has been challenged by the process of globalisation, which has “presented new opportunities for cooperation between both entities” (Robins 2002). The recent collaboration suggests increased potential for “greater alignment in the future”, as well as embracing “best practices” from global port-cities alike (Robins 2002). Hopefully, in time there would be a shared vision for both entities through this ‘Memorandum of Understanding’, so as to create a competitive position for the port-city in the future.

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## **6.7 Conclusions**

The number of inter-linked proposals, as indicted above, has reinforced the notion that the port is a major contributor to the success of the city. It therefore dispels to a large degree, previous arguments revolving around separation and de-localization of benefits (chapter three, section 3.2). Accordingly, it can be argued that these *platforms* that have manifested due to the various interactions of the port,

and have created favourable opportunities for the city to strengthening its policy for growth. In agreement with previous observations (chapter three, section 3.2.3), it can therefore be concluded that the Port of Durban and the EMA have moved into a positively new era – that is - consistently and continuously adding reciprocal importance to a shared living environment.

The section that follows integrates the findings of this dissertation so as to enable the reader to get an understanding of potential “*role of the Port of Durban in strengthening the platform for growth in the eThekweni Metropolitan area*”. The summaries are consistent with the issues discussed in chapter five and six of this research.



## CHAPTER SEVEN: CONCLUSIONS AND RECOMMENDATIONS

### 7 Synopsis

The aim of this chapter is to draw on the key points mentioned earlier in this dissertation in an attempt to highlight that the *“continued separation of decision-making about the port and the city’s urban development policies will result in the port not achieving its potential as a global competitor and as a result the city’s economic base declining”*. The first objective of this chapter is to outline the main points that contribute to the Port of Durban as being the *“premier container handling facility in Africa”*. Secondly, there is a need to summarize the impacts of the efforts to increase container-handling capacity as well as concessioning the Durban Container terminal for increased efficiency, on the eThekwin Metropolitan area. The combination of the two objectives outlines the main aim of this dissertation, that is, to illustrate the *“role of the Port of Durban in strengthening the platform for growth in the eThekwin Metropolitan area”*

The section below is a review of the observations acknowledged in investigating the Port of Durban’s influence on the eThekwin Metropolitan area.

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The Port of Durban has had a history of having a separate legal jurisdiction apart from the city in which it resides due to it being under the control of the national government. “The port enjoyed the freedom to develop on environmentally sensitive areas, restrict public access, place sensitive and high risk facilities close to residential areas and continue ad hoc arrangements with regard to facility development and cargo handling choices” (Robins 2002). This was true only in the era prior<sup>33</sup> to democracy, where the masses (politically referred to as non-whites) had but little-to-no voice when it came to matters of the state. The city was equally at fault as it gave little attention to opportunities in terms of working closer with the port (Robins 2002). Post-apartheid improvements for container handling had however been publicly scrutinized through the Integrated Environmental Management study (IEM, 1996) as well as the Biophysical Impacts survey (of 1998) for container handling. Although these surveys presented opportunities for a *‘platform for a common development vision’* for

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<sup>33</sup> During the Apartheid era, that is up until 1994.

the city and port, missed opportunities presented the city as an obstacle to the competitiveness of the port.

This relationship has been (characterized by obstinacy by both entities) to the detriment of port-city interface zones. Although this may be true of the past, new city catalyst projects (Golden Mile projects as well as casino developments) have created substantial property development opportunities for the Victoria Embankment and Point Waterfront areas to be integrated into the city mainframe thereby alerting port authorities to the need for continual alignment. This has been met with a degree of success in so doing creating a public and private *'platform for social interaction'*. This *platform* refers to new clustering opportunities within the central business district and the opportunities to build partnerships and networks within the city and beyond. The potential therefore exists to reinforce the city's position in the national and global economic system.

The new national bureaucracy of South Africa has been instrumental in trying to alleviate the pressures of globalization on national assets, especially those industries that are state-operated, by amending laws and policies that stunted growth and redistribution. It has been noted that the advent of containerization has increased pressures at the Port of Durban in terms of capacity and operational efficiency. The key issues (from a planning and development perspective) has been the ability of the port to compete for global (and notably, national) container traffic; the capability of the port in accommodating future container vessels; the capacity constraints at the container terminal; the impact on other cargo handling facilities (trade-off between container handling and break-bulk cargo); land resource needed for increased capacity; and more importantly the operational capability of container handling (management and equipment utilization issues). The White paper on national ports policy (2002) has motivated the development of the Port of Durban as a competitive player in the global port system. The Moving South Africa (a transport strategy for 2020 by the department of transport) also has the view that the port should become the proposed container hub port for the Indian Ocean Rim countries, and therefore be a competitive entity on this trade route (Department of Transport 1998). Although these motivating factors were considered when planning for improved container handling at the port, the fundamental impact to the benefit of the city has emanated from of the new national policy on commercial ports (White Paper on national ports policy). The national policy has given support to overcoming alignment issues between port plans and city plans by stipulating that "development of commercial ports must be integrated, with port facilities being planned together with other elements of the transport system" in addition to promoting "port and city co-operation through planning structures" such as the "local port consultative committee" (White paper on national ports

policy 2002 ch. 11). As a result the most important ***‘platform of alignment and communication’*** was produced through the signing of the “Memorandum of Understanding” between the Port of Durban and the eThekweni Municipality. This new port-city relationships comes at a time when port improvements<sup>34</sup> relate to increasing container-handling capacity from current (2003) 1.3 million TEUs per annum to 1.6 million TEUs by 2005 (or 1.9 million TEUs by the conversion of Pier 1 for container-handling – ‘Salisbury scenario’) so as to relieve congestion in the future, and to meet demand ahead of time. It also becomes relevant at a time, when the South African government pilots a privatisation program at the Port of Durban with an aim to concession state-owned port terminals to private operators in an attempt to improve operability of these terminals. The objectives of this program being to enhance management structures, increase port productivity, increase labour up-skilling, improve and induce competitive tariff structures and improve overall port efficiency. These objectives on the other hand cumulatively contribute to aim of maintaining the status of the *“Port of Durban as the premier container handling facility in Africa”*.

## 7.1 The Port of Durban as the *“premier container-handling facility in Africa”*

Under the custodianship of the NPA, the Port of Durban is in the process of upgrading facilities for improved container handling in an attempt to maintain its status as the ‘premier container handling facility in Africa’ whilst at the same time retaining its domestic share of the breakbulk/neo-bulk and petroleum products handled. The South African government has sequentially identified the Port of Durban’s container terminal as the pilot in concessioning public-owned-operated port terminals to private operators in a bid to improve the capacity and efficiency of these terminals and also to meet with the growth in global container traffic. This section summarizes the motivations for these improvements, i.e. the simple comparative and competitive advantages of the port of Durban over other ports in the South African maritime supply chain.

The Port of Richards Bay does not have a dedicated container terminal with little motivation for container vessels to employ that port other than it being a deep-water facility. The Port of Durban has minor limitations in accommodating current container vessels, but<sup>35</sup> does have limitations in accommodating the new generation of post-panamax vessels. The Port of Maputo has draught restrictions greater than the Port of Durban over and above it being susceptible to continuous silting. The increased costs of logistics and dredging as well as the inability of the Mozambican government to inject funds into the port is threatening the competitive relationship between the Port of Maputo and

<sup>34</sup> A full account of the proposals is dealt with in chapter five.

<sup>35</sup> Entrance channel to be widened and deepened by 2006.

the Port of Durban. There are also potentials to facilitate partnership between the two facilities so as to eradicate competition in the future.

Port Elizabeth has container-handling capability but landside links with the industrial hinterland of Gauteng, together with the limited size of the local market, makes the facility a poor choice for terminal development. The Port of Ngqura however has the potential to impact on the container trade with its new generation facilities (probably within 10-15 years) but its primary aim is to serve as an industrial processing and development zone for large manufacturing and processing plants (proposed to be completed by 2005), similar to that of Richards Bay. There is also a lack of certainty as to the direction in which the Port of Ngqura is headed, even while it holds promise as an international trans-shipment center, there exists competitive speculation from other Southern African ports as to whether the facility's benefits offsets its costs over and above the bureaucratic barriers to development. "In particular, the opportunity costs of Coega have yet to be fully factored in, insofar as the project will consume large quantities of water and electricity which may be better utilized elsewhere" (Bond et al 2000 p 6). In the long-term however it is envisaged by the NPA that there would be competition between the ports of Durban and Ngqura for container handling.

In terms of other ports in Southern Africa, Beira handles approximately five per cent of the total cargo handled at the Port of Durban in terms of gross tonnage, the deepwater port of Nacala less than ten per cent of that, and Dar-es-Salaam between 10-12% of what the Port of Durban handles annually. "More notably, in the southern hemisphere, the Port of Durban outperforms all the South American ports, while the traffic bases of the Port of Durban, Melbourne and Sydney emerge as broadly similar in quantity terms, but with the ranking in the order noted above" (Jones 1997 p 13).

The Port of Durban is therefore the shipper's port of choice in terms of continuous access to the hinterland. The future supply and demand for container services in the region may seem to be in favour of the Port of Durban but the National Ports Authority Regulator as well as competition commission has the ability to balance out these effects. Other ports in the system may be able to absorb losses through extreme cross-subsidization by the government's rail operator, Spoornet, to offset logistic costs, but this issue is highly contestable.

Other positive factors for the Port of Durban are based on its ability to capitalize on its geographical location on the Indian Ocean rim, being the first port-of-call from the East (Asian and Australia). Shippers favour the Port of Durban because of the current modern cargo-handling capabilities of the



port in comparison to the rest of South African ports. The critical success factor however is the continuous functionality (management) of these facilities for improving efficiency and thereby securing cargo-handling rates. Apart from the previous reasons an added potential that has been noticed is that of the major carrying lines which now organize their activities around global “hub-and-spoke” services that interlock at sub-regional trans-shipment nodes such as the Port of Durban (being a trans-shipment gateway for neighboring landlocked countries).

The port is also blessed with excellent climatic conditions that facilitate cargo-handling operations. The new name-day-service at the port enables the largest shipping lines to fulfill their service performances. Other choice determinants include the total logistic costs being lower as compared to the rest of South African ports due to the availability of a developed multimodal platform in the eThekweni metropolitan area, especially with the proposals to develop the Dube Trade Port at the King Shaka International Airport. Container handling is a more appropriate candidate for scarce port space than other bulk or neo-bulk cargoes that offer lower economic linkages and multipliers (Jones 1997). Other comparative advantages at the Port of Durban include the potentials that exist in the local market (EMA) for containerized cargo. An estimated 40 to 50 % of container cargo is associated with the eThekweni metropolitan area and is seen as an opportunity in itself.

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### 7.3 Strengthening the “platform for growth”

The aim of this section is to highlight that the *“plans by national government (via the National Ports Authority of South Africa) to increase container handling capacity and improving efficiency at the Port of Durban will impact positively, as an aggregate plan that generates the greatest public and private benefit to the eThekweni Metropolitan area”*.

As pointed out earlier, the Port of Durban has created various ‘platforms’ from which the city and the port can align future initiatives. At this point, it is imperative to note the indispensable role the Port of Durban performs in creating a ‘platform for employment’ for the inhabitants of the eThekweni Metropolitan area. As indicated, in the 1994-95 period (Jones survey of the Port of Durban), the port contributed to approximately 32 000 jobs from direct port-related industries only, let alone the indirect port-related jobs. It is therefore imperative to point out that the potential for job creation in the

container industry is remarkable<sup>36</sup> (estimated to be around 8954 jobs for inhabitants of the EMA) given the proposals for improved handling capacity at the Port of Durban

The Port of Durban is therefore considered to be a necessity in the evolution and future of the city. The potential for the port to elevate the city's image to a world-class destination for tourists and multi-national corporations alike has never been so strategic as it is now, creating a **'platform for competition'** as it performs the function of a gateway to national and international markets via the proposed 'Dube Trade Port' (DTP), a high-tech multimodal transport system (incorporating communications-cable for information and road, rail, air and water for goods) at the Industrial Development Zone (IDZ) along the provincial (KwaZulu-Natal) coastline at La Mercy.

As a result of the Port's quest to be a competitor in its own right, a number of key **'platforms'** were created for the eThekweni Metropolitan Area (EMA) to exploit so as to create an overall **"platform for growth"**. The main points outlined go so far as not to deny the fact that the Port of Durban plays an indispensable role in the local community, but also the success of the port rests upon its relationship with the eThekweni Municipality. It can therefore be said that ***"continued separation of decision-making about the port and the city's urban development policies will result in the port not achieving its potential as a global competitor and as a result the city's economic base declining"***.

This chapter also brings this dissertation to a close by providing some conclusions and considerations for the Port of Durban and the eThekweni Municipality in the future as well as sets the stage for future areas of research. The following section is a 'critique of the planning approaches' noted in the research.

## 7.4 Conclusions

It can be said that the investments in port infrastructure proposed by the South African government for the Port of Durban, presents opportunistic enhancements to the local economy and also employment. The case presented herein also demonstrates the ability of the port to provide **'platforms for engagement'** for the city's economy. This dissertation has thus highlighted the primary goal of national government to realize economic resurgence through the development of the country's commercial ports. However, as this may point out to be case at the Port of Durban, the benefits would only materialize if trends in the maritime industry prevail over inflexibility of the South African

<sup>36</sup> Refer to Chapter Six: section 6.3 and table 6.3 p 121 for a detailed account of this analysis.

economy. That is to say, the potentials that exist owing to the ‘more recent strengthening of the currency’, to export more goods in its export-led growth initiative over the next few years

As it is not within the scope of this dissertation to dwell on economic, fiscal, monetary policy issues or any other bilateral agreements, it is important to note that with the strengthening of the local currency becomes an increased barrier to trade. Irrespective of how long this trend prevails, the assumption put forward is based on the affordability of the goods produced in South Africa during the planning period (that is planning for container growth) being much cheaper than it is currently or going to be in the future. “The growth rates for 2002 were revised from 3 per cent to 2.6 per cent, and showed that the weak ‘Rand’ in 2001 had a more pronounced impact on the economy than previously thought” (The Mercury: Business report 27/11/2003 p 15). The main conclusion is therefore, that planning for the future can have serious negative impacts especially if these planning curves could easily be translated into overcapacity. Port planning should for that reason acknowledge that overcapacity in addition to a lack of capacity can be translated into the price of goods handled, and more importantly, a terminal with overcapacity will have higher average costs than a terminal with a more favourable operation measure.

This implies that the planning initiatives by the NPA should be viewed as providing a ‘*reserve-capacity*’ (probably by upgrading Pier 1 for container-handling) for future growth rather than overcapacity. It is also important to note that planning for increased capacity is not always the case, as highlighted earlier, a smaller facility (than the Port of Durban) in Hong Kong, is more efficient than the Port of Durban. Space is not always the problem when it comes to increasing productivity, as indicated by CSX World Terminals chief operating officer in a local newspaper “ships are being unloaded in Durban ‘*like the Phoenicians*’ did it” (Sunday Tribune: Business report 24/08/2003 p 2). An Internet search revealed that one of Asia’s largest container ports (name undisclosed) embarked on “an investment programme to upgrade its port authority infrastructure and embrace new technologies and systems to maintain a competitive edge and improve the quality of service for customers”, in doing so the terminal would be serviced by a new generation of quay and bridge cranes. This equipment aims at improving yard productivity and lowering costs by the ability to stack containers nine-high and have a 55-meter outreach to handle ships that are 18-TEUs wide ([www.cellstack.com](http://www.cellstack.com)). Accordingly, the website reveals that crane driver efficiency is improved by up to 300%, when the system is fully functional. The ability of the quay crane to offload containers onto a flatbed truck, then carted to a bridge crane, which automatically picks up the container, scans and places it in an

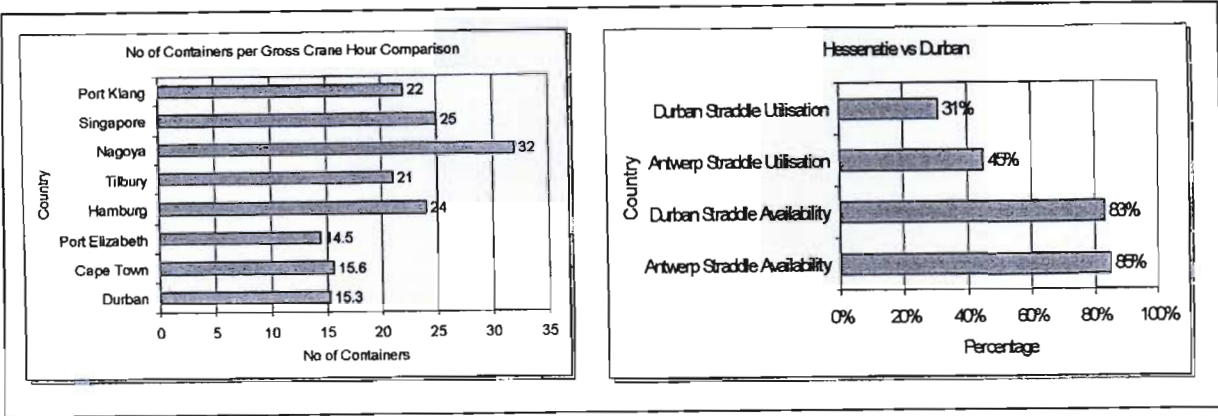
automatically allocated position owes its success however, to sophisticated camera equipment available on these bridge cranes ([www.cellstack.com](http://www.cellstack.com)).

The major bottleneck in terms of equipment utilization was experienced at the Port of Durban container terminal through a multiplier effect caused by the anti-privatization (of state-owned assets) campaign by organized labour in October 2002. The strike had given rise to backlogs and ultimately delays in the Port of Durban, with an inevitable increase in the total logistic cost. Concurrently, when the South African government aims to concession off port terminals so as to privatize cargo handling and equipment, various objectives are in mind to negate these backlogs. The main objectives at the Port of Durban have been to increase efficiency by utilizing private operators utilization capabilities and decreasing costs to government. The government aims to promote the port's status by concessioning to private international operators, in this way there would also be a reduction of political interference in operations at the port. The benefits of private operators can be in the form of introducing modern labour practices that are rewarding and productive. The other factor contributing to the reform of terminals in South Africa is for the promotion of public ownership and involvement in the shipping industry especially through the inclusion of the "Black Economic Empowerment" Charter into the concessioning process. The most debatable and sensitive issue is that of trying to de-politicize labour (remove cargo-handling labour from government employment) especially at the Port of Durban.

The World Bank has noted, "the performance of state-owned enterprise can be improved without changing ownership, but substantiation from both developed and developing countries demonstrates that, on average, good performance has been difficult to execute—and even harder to sustain (World Bank 1992 in Haarmeyer 1993 p 22). It can therefore be argued that the South African government's inability to invest in such innovative technology is presented in its case for the concessioning of the Durban Container terminal to achieve this type of efficiency explained above. The crude benefits of privatizing the Durban Container Terminal can be illustrated by using the example of comparing the crane productivity of the South African container terminals with international container terminals such as Port Klang, Singapore, Nagoya, Tilbury and Hamburg.



**Figure 3: Straddle carrier utilization in selected Ports compared with Durban**



*Source: Figure 1.4 from SAPO p 8 (Chetty: Interview October 2003)*

As indicated, these ports rank higher in terms of efficiency of container terminals, and more importantly because of equipment utilization. The success of these terminals has illustrated the success of the dramatic increase in the involvement of private operators in container terminals over the last decade. There are five major terminal operators in the world concentrating on the container handling operations, these are Hutchinson Port Holdings (HPH); P&O Terminals of Australia a subsidiary of P&O Nedlloyd shipping; International Container Terminal Services Inc. (ICTSI); Stevedoring services of America; and the Ports of Singapore corporation (PSA). A brief background of these operators can be found in Appendix 7.

Although this section illustrates the positive objectives of pursuing container terminal concessioning, the converse can be illustrated, more importantly for the sake of this dissertation, via the impact on labour. It must be noted at this point that interviews conducted with the South African Port Operations (Chetty October 2003), that the issue of labour would be provided by the concession agreement to guarantee safeguarding of the existing workforce for up to five years. Although noted, the issue of increased privatization as indicated earlier would be a tremendous injection of funds for mechanical equipment such as the quay cranes discussed earlier. This state-of-the-art type equipment would undoubtedly increase efficiency and ultimately consume less of a workforce. The container-handling employment projections from increased activity that were outlined in chapter six would therefore not hold as new operators infiltrate the market. Therefore it is necessary at this point to emphasize that this exercise has to a large degree been one-sided and has not dealt with all the issues of concessioning, especially the negative aspects.

In parallel with the critique of the planning approaches of the Port of Durban, is a critique of the planning approaches of the city as a development facilitator of the port-city interface waterfront developments. It is important to note that these developments provide potentials for the following factors, which are integral aspects of waterfront developments.

Waterfront property is considered as being attractive to developers and buyers because of its increased access to the waterfront, scenery, recreation and transport. Whether the site caters for recreational, residential, commercial, or industrial, these properties provide increased tax revenues, which translate into extensive revenue for the city. In addition to property tax, waterfronts generate increased tourism especially if attractions contain historical and or cultural additions. In this case the influx of foreign income helps bolster the local economy. Redevelopment projects create local job opportunities in the short term during construction and in the long term through new business units set up in the vicinity. An increase in employment opportunities therefore impacts positively on the local economy through endless multiplier effects, but as it appears that these development proposals present a growing call for reinvestment into the city (especially from businesses and small-medium-to-micro-enterprises), these developments, (in particular that of the Point redevelopment), to an extent has a sense of '*grandeur*' that the harsh realities of the city may impact negatively upon. Arguably, the application of the planning model to South African port cities should be the subject of numerous discussions. It is in the belief of this dissertation that it is a liberal model, which leans on market forces for the revitalization of the area where demand dictates what is set up there. Those involved in the renovation procedure are part of the local economy and have created profit-driven situations for the city and port but at the same time respecting traditional functions of the port and the local context to a certain extent. This dissertation has the view that the South African City [especially eThekweni] will require complex models, which are characterized by mixing of cultures and an association between the historical African city and the typological urban inventions of the First-world metropolis.

These developments do exhibit, to an extent, an embracement of the 'complexity of our new and past political positions', but it does have a feeling of imbalance between the desire for profitability and immediate economic development and a strong demand for planning, which respects social, cultural and environmental considerations. The proposals at the port-city interface undoubtedly have displayed the concern for a mixture of planning interventions (historical, cultural, social overtones) but it runs a risk of creating of an overly specialized area that would more often than not, generate social change within the inner-city, with the arrival of a new population, new users who are socially different, wealthier and from the tertiary sector of the population? What about catering for the lowest income

group in the South African context to consume, and more importantly what benefits will accrue to the lowest income groups in South African society?

However, in the interviews with the various planners for the waterfront developments it was established that these developments have an element that generates a series of multipliers in the longer term. The proposals have an element of sustainability (longevity), which causes a ripple effect to the lowest income bracket through the generation of increased revenue for the city. As this may seem to be a top-down approach, the Point development plan (in particular) is very much a public-open space facility that does not create any restrictions to even the lowest income bracket. The urban design interventions have an element of familiarity (history and culture) that transcends all users to the same level of interaction.

The final analysis in this section is on the creation of 'round-tables' for port-city interaction. As was outlined earlier, failure to confront the issues of joint planning and institutional coordination would result in the inability of the Port of Durban to be competitive, in addition to challenging the progression of economic growth in the city. It should be noted that up to present, there is a lack of a 'common development framework/plan' (other than waterfront development) between the port and the city, especially regarding the recent proposals at the Port of Durban for improved capacity over and above the eThekweni municipality's provision of supporting infrastructure such as roads and land use management. It is in the opinion of this researcher, that the most crucial goal of the "Memorandum of Understanding" is that of "collectively developing projects and identifying sources of funding for these projects and initiatives". Thus, the Integrated Development Plan (IDP) for the eThekweni municipal area can be aligned with the Port of Durban's port development framework. Like this implementation can occur through joint ventures by the port and city, even if the former is currently run by the national government. The ensuing development framework/plan would influence areas of future development and decision-making with regards to the potential to convert of areas outside the existing port precincts into back-of-port areas such as Jacobs and the South Durban Industrial Basin. In a similar manner this relationship could assist the port in increasing its capabilities to address back-of-port logistic issues<sup>37</sup>.

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<sup>37</sup> These have been the Level two issues that have not been dealt with adequately by the NPA and Municipality because port improvements still being in the infancy stages. Surely plans or considerations would be made soon. In total respect of the issue, this research has not dealt with it adequately, because of the limited resources/information regarding proposals for these areas have been obtained for the sake of this research.

The most important issue however that would indicate the level of alignment between the 'Port Development Framework' and the 'IDP' would perhaps be that of the "Dig-out Port" at the current Durban International Airport site, for port operations, as most of the port land is currently utilized and the only opportunities rest with land owned by the city. It is for that reason that this research argues that the "Port Development Framework" is a short-term planning framework that does not investigate the longer-term effects of the container industry on the issue of space utilization adequately. The framework is consequently a direct representation of the changing trends of the maritime industry, which could easily be inconsistent with the "Integrated Development Plan" for the city. This could result in a contradictory common vision, and ultimately render these 'round-tables' back into tiny little 'wood-chips'.

In partial departure however it is important to note that the proposals referred to above provide the opportunities to support the principles contained in the "Long-term Development Framework of the eThekweni Municipality". The three key pillars of the City strategy are:

- Meeting basic needs
- Strengthening the economy
- Building skills and technology

In the view of this researcher, the proposals outlined so far would induce a potential multiplier effect on economic activities in the city. Put simply, the port generates employment through increased activity and their employees generally spend a considerable portion of their salaries on local businesses, providing local businesses with income. This income, in turn, provides employment to others in the community who in turn spend portions of their salaries on local goods and services. As successive rounds of spending occur, additional income is generated in the region. The incomes generated by the city indirectly help fund projects that supports the priority of the municipality to ensure that the residents live in a safe and secure environment, receive free basic services and decent shelter. The proposals herein are an example of building upon the strengths that the city possesses i.e. the Port of Durban located within its immediate environs.



## 7.5 Some recommendations for moving forward

This chapter concludes with some recommendations for the Port of Durban and the eThekweni Municipality to engage in the future. The list below outlines the most influential views (of this dissertation) based on the findings of this research. The recommendations are organized under some of the key issues discussed in chapters four, five and six.

### **(Level one<sup>38</sup>: planning and development issues)**

- The port needs to be a major competitor in the world container trade otherwise it would be relegated to a secondary spoke status
  - The Port of Durban should pursue merges with the rest of South African ports so as to create a competitive port system instead of a system of competing ports
  - The government should therefore focus on key ports so as to create a degree of specialization at each port
  - The Port of Durban should consider the issue of Inter-port competition principally for regulating the increasing potential in monopolization of container-handling within the port
  - In the interim, the South African government should consider concessioning the ‘Durban Container Terminal’ to one of the Top five operators in the world
- The port has limitations in accommodating future (post-panamax) container vessels to meet demand ahead of time

It is evident that the project to widen and deepen the harbour entrance would go ahead as planned, and that the analysis has been met with significant specialist review, but in its implementation and maintenance, there should be continual monitoring and evaluation so as not to impact on the natural environment on the long-term. Special consideration should be given to the following impacts:

- Shipping movements
- Sand Bypassing

<sup>38</sup> In hierarchical order, Level one, being the main (primary) issues.

- Wave penetration
- Tidal Movement
- The capacity constraints at the Durban container terminal vs. the future growth in industry (design capacity and operational layout)

The new concessionaire should consider the feasibility of a high-speed specialist or value added container terminal with intent to impose operational the costs onto the service provider if performance is poor. In this way, the operator is forced to drive up efficiencies at the port and reduce bottlenecks<sup>39</sup>.

- The potential to improve capacity may impact on other cargo handling facilities at the port. Containers vs. breakbulk/neo-bulk

Although it is apparent that market forces dictate the level of support given to a specific commodity handled at a port, there is also a need to maintain flexibility and resilience within the port industry. If operations were entirely left to the prevailing trends in the maritime industry then serious consequences of overcapacity and over-specialization can occur. It is therefore recommended that the National Ports Authority Regulator should also control the restructuring of port real estate directed at the container industry especially ‘if there are possible cross-subsidizations’ by the new concessionaire of NPA to develop the port further for this type of commodity handling. In addition to this, the researcher has strong opinions regarding a ‘stand-alone or separate regulator for the Port of Durban’ in exception to the other ports, more importantly during its concession period.

- The provision of increased capacity requires extensive land that is currently unavailable at the port

A potentially positive development is the proposed ‘Dig Out Port’ to be built on the current airport site in city’s industrial heartland, the Southern Industrial Basin. If properly supported by infrastructure upgrading and appropriate policies this development could potentially give the city a strong competitive advantage in attracting and supporting export-oriented manufacturers. The port would have a specialist function targeting world markets that Industries in South Africa and the eThekweni Metropolitan area could take advantage of.

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<sup>39</sup> The issues of which are discussed in chapter five.

- The Port of Durban is functioning below its container handling operational potential.  
Management vs. equipment utilization

The South African Port Operations should consider building a terminal within the Port of Durban so as to compete with the new concessionaire (intra-port competition). Options for this venture could be in the freeing of Pier 1 for container handling. This will therefore serve as a training exercise for the South African Port Operations in terms of improving on their efficiency. The skills developed could therefore be juxtaposed into the South African ports system so that the terminals could be managed in a more competitive way. The concessioning period will therefore serve as a skills development exercise enabling the government to reassess their position after the lease to private operators is terminated.

#### **(Level two: value-adding and logistic (back of port) issues)**

- Bayhead

Preserve the ability to utilize the abandoned Bayhead Marshalling sites for future considerations, especially for creating a logistic park in the vicinity for value-added benefits. A recommendation for reducing road and rail port congestion is to provide sorting facilities in the Bayhead area. Containers would be transferred by rail (if tracks can be upgraded) to a sorting, de-stuffing, distributing and or warehousing facility immediately after they are unloaded from the ship, where they would be sorted and placed on over-the-road trucks and trains for delivery to their destinations. Containers destined for ports would follow the reverse course of action. Trains could operate as often as needed, almost eradicating port "dwell time" for containers. The Bayhead vicinity can be integrated with the Jacobs area and also the South Durban Industrial Basin for creating a logistics platform. This would have several multiplier effects on the city and also towards the renewal process for these areas. The city can mobilize these developments using tax incentives as a prop.

- Maydon wharf

It is recommended that this area could be integrated well with the logistic platform scenario envisaged for Bayhead. The municipality alike could lever or manoeuvre industries through property and or tax incentives to encourage small port ancillary businesses. This would fit neatly into plans to re-model Maydon Wharf. The Maydon Wharf area has the potential to be integrated with the South Durban

Industrial Basin would create a corridor linking value-adding industries with warehousing facilities at the wharf. Apart from this, there should also be a joint agreement between the city and port to implement a study for the feasibility of an additional road/entrance to the port to serve the growing area around the Maydon Wharf complex

- Overland transport

The Durban to Johannesburg road and rail (currently slower mode) corridor and should be the subject of feasibility into a high-capacity/speed inter-modal rail link between the ports of Durban and the City Deep terminal in Gauteng. The line could be fully upgraded to improve transportation efficiency as well as generate economic development and safety benefits. The Moving South Africa project categorically states that the total logistic costs to customers should be lowered so as to remain competitive.

**(Level three: port and city issues)**

- Port-city interface / waterfront developments

It is recommended that the Port of Durban should be continuously identifying the similarities in the role of ports as Intermodal points as well as tourism, that is to say for the understanding of urban development and change, more importantly for future policy formulation and analysis. At the moment there should be coordinated appraisal via the Port-City forum.

Other project specific initiatives include:

- Encourage access to the Port through the Stanger Street entrance and south connections in the Maydon Wharf vicinity to relieve inner city traffic during peak hours

- Natural environment

The Port of Durban may be the most important resource of the region. Its preservation as a viable marine habitat will have long lasting effects on the future quality of life of the city. All development projects in the port must consider their impact in the function of the bay. In addition, projects should be designed to take advantage of the natural beauty of the shore, by providing public access and preserving vistas for the enjoyment of the citizens.



- Create a Habitat Plan for the port-city interface areas as well as the port area
- Integration of Natural Features and Areas with Recreation and Leisure Planning.
- Port and city collaboration
  - The Port-City form should consider adopting a broader vision for the future to generate more interest and support for the Port and City's operations.
  - The Port-City Forum should consider producing Port-City projects Plan for a long-term assessment of proposals
  - The Port-City Forum and the eThekweni Municipality should consider re-adjustments to their relationship on issues involving the Port to reduce the likelihood of future conflict between the Port and the City especially considerations for a "Dig Out Port"

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The section above has tried to outline some considerations for moving forward, but although limited, it is not within the scope of this research to discuss the technical issues related to the ports ability to adapt to market volatility. It is for that reason that this dissertation highlights the need for more research into the impact of the change in market developments on the Port of Durban for improved capacity. There should also be research on port-city relationships elsewhere in the world especially with private sector involvement in port operations. The most important area of concern in the view of this dissertation is the impact of private sector participation in ports with special consideration to the impact on labour, and could be the point of departure for new areas of research regarding the role of the port in strengthening the platform for growth.

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<http://www.imaritime.com/resources/>

KwaZulu-Natal Review (2001/2002) [www.kwazulu.net](http://www.kwazulu.net)

[http://www.sacob.co.za/Confidence/back/Dec\\_2001.htm](http://www.sacob.co.za/Confidence/back/Dec_2001.htm)

[www.ports.co.za](http://www.ports.co.za)

[www.npa.co.za](http://www.npa.co.za)

[www.sapo.co.za](http://www.sapo.co.za)

[www.polity.org.za](http://www.polity.org.za)

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## **Interviewees**

Glen Robins: Former head of City Enterprises and acting head: Economic Development eThekweni Municipality. He is now a research fellow at the University of Natal Durban. School of Development Studies

Denny Thaver: Economic development unit: sustainable development cluster

Trevor Jones: Professor of Economic and maritime economics at the University of Natal Durban

Rohan Persad: CEO Dube Trade Port (PTY) LTD

Hamish Erksine: Dube Trade Port

Jon van Coller: Vancometrics: Economic and Business Analyst – strategic planning consultants



George Brian Jonkers: National Ports Authority: Planning and Development

Mervin Chetty: South African Port Operations: Executive Manager – Corporate Strategy and continuous improvement

Nathan Iyer: Iyer Rothaug Collaborative: Town Planning consultants for Point Development

Nadus van Heerden: eThekweni Municipality – Urban Design Planner for Victoria Embankment

## Appendix One

### Container handling options for the port as indicated in the Integrated Environmental Management Study (IEM unpublished 1996)

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#### Phase one: Upgrade Pier 2 (operating as the Durban container terminal) to Optimum capacity

This would entail improving operational efficiency and maximize benefits within the container terminal through the 205-extension. The project would provide an additional capacity of 70,000 TEUs/annum (capacity in 1996: 880,000 TEUs/annum), thereafter no additional capacity from the terminal would be required.

#### Phase two: Convert Pier 1 (multi-purpose terminal) for Container handling

This project deals with converting Pier 1 into a dedicated container terminal. The terminal capable of handling break bulk cargo as well as containers fully operational since the end of August 1996 (container handling capacity of 100,000 TEUs/annum in 1996), would be conveniently positioned alongside the existing container terminal thereby creating various opportunities for the sharing of maintenance facilities and reefer yards and also allowing for the diffusion of transshipment boxes between the two terminals (Port development framework: March 2003). The project also constructs new berths and an infill at Point Berths D to G in order to accommodate existing multi-purpose cargo at Pier 1 (Port development framework: March 2003).

#### Phase three: Expanding Pier 2 Container Terminal by creating two new berths

This involves the extension of the north arm of Durban container terminal by the construction of two new berths 206 and 207 and also includes dredging a new channel through the base of the sandbank into the Maydon Wharf channel. According to the NPA, this element of the container development is technically and financially the preferred development option (Port development framework: March 2003). The project however, cannot be implemented until a habitat recreation programme is pursued (Port development framework: March 2003). The potential of this project yields a theoretical capacity of 250,000 TEUs/annum and improves efficiency of the existing terminal. This is due to the realignment of stacks relative to berths. Other benefits include improving the scale of economies

(having 5 continuous berths) allowing for good quay wall and crane utilization due to improved flexibility; a new navigational channel permitting larger vessels into the Maydon Wharf and ship repair sites; as well as provide an opportunity to incorporate the South African Container Depot (SACD) site into the Pier 2 Container terminal, providing additional capacity for a relatively low level of investment (Port development framework: March 2003). Existing supporting infrastructure (roads, rail, terminal, workshops, administration buildings etc) is adequate to serve this development (Port development framework: March 2003).

**Phase four: Relocate South African Container Depot (SACD) and development of the site for container handling**

The SACD container freight station has the potential to be incorporated into the newly extended Pier 2 terminal (with its new 206 and 207 berths) to increase capacity of the terminal. The site could be developed to accommodate terminal transfer areas and reefer stacks to free up valuable container staking area and improve flexibility. According to the NPA, there is also the potential to introduce buffer areas to manage lower terminal dwell-times (Port development framework: March 2003). The project could provide an additional capacity in excess of 125,000 TEUs/annum (Port development framework: March 2003).

**Phase five: Eastward expansion of Pier 1**

The container capacity of Pier 1 can be increased by an additional 467,000 TEUs/annum through expansion of the pier in an easterly direction. The project would create new berths as well as a new stacking area. The project does however constitute a number of drawbacks such as creating an inefficient terminal layout at the expense of three deepwater berths (Port development framework: March 2003). It is also envisaged that the anchorage of the port would be lost and the project requires special mooring arrangements because of the close proximity of the berths to the navigational channel (Port development framework: March 2003). Conveyor systems would have to be provided for the malt silos and the Marine maintenance depot would have to be relocated (Port development framework: March 2003). Consensus amongst all stakeholders showed that this development would be the last feasible option within the port.

**Phase Six: Creating a Continuous Quay by infilling the space between Pier 1 and Pier 2**

The out-of-date pier-type design of the Durban container terminal in the past has resulted in an inefficient terminal design. The preferred ship-to-shore operational method of modern day terminals require continuous quays, and renders the Z-shaped Pier 2 design unsuitable for contemporary handling operations (Port development framework: March 2003). The Durban container terminal has for some time viewed the opportunity of reclaiming and filling the space between the Pier 1 and Pier 2 area. This would create a continuous quay and increased stack area. The consequence however, would be the loss of existing deepwater berths. The proposal for this project is therefore dependant on the approval of the Pier 1 eastward expansion that would increase the number of berths on the eastward site. The development is also based on a strategic phase-in of space reclamation (Port development framework: March 2003).

**Phase seven: Re-developing Salisbury Island for container handling**

The area that houses the navy has sufficient area, good road and rail access and waterfront for a medium size terminal, is viewed as a potential container-handling site. The redevelopment of Salisbury Island constitutes construction of quay walls and a minor in-fill of the bay (negligent environmental impact). The potential of this area was explored extensively during the Integrated Environmental Management process (IEM unpublished 1996). The project however requires a relocation site for the navy but within the location of the port and at the expense of the NPA. The costs of relocation have therefore influenced the feasibility of the site in the short to medium term, but in the longer-term efforts to review the acquisition process should be considered (Port development framework: March 2003).



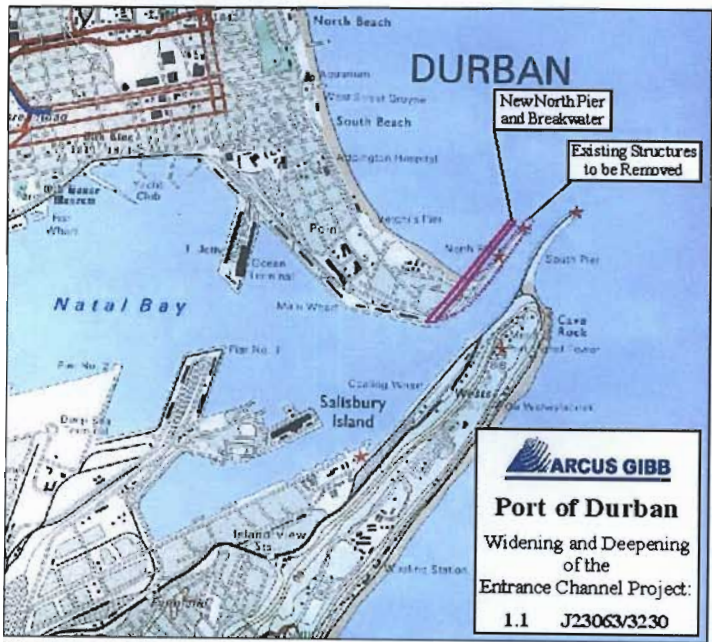
**Table 5: Ships likely to visit the ports of South Africa and their draught requirements**

Capacity in TEUs	Beam (m)	Design draught (m)	Comments
3101	32,20	13,1	Panamax
4000	32,20	12,2	Panamax
4014	37,30	14,0	Post-panamax
4112	32,20	12,5	Panamax
4318	32,25	13,5	Panamax
4500	37,00	12,5	Post-panamax
5000	40,00	12,5	Post-panamax
6000	43,00	12,5	Post-panamax
6458	43,00	14,0	Post-panamax

*Source: Adapted from Official Yearbook of the South African Institute of Marine Engineers and Naval Architects (2001) in table 4 van Niekerk et al 2002p 8*

It is evident that the vessels that are expected in the future would be precluded at the Port of Durban. Figure 3 below, shows the extent of the widening of the entrance channel at the Port.

**Figure 3: Channel widening sketch**



*Source: Arcus Gibb 2003*

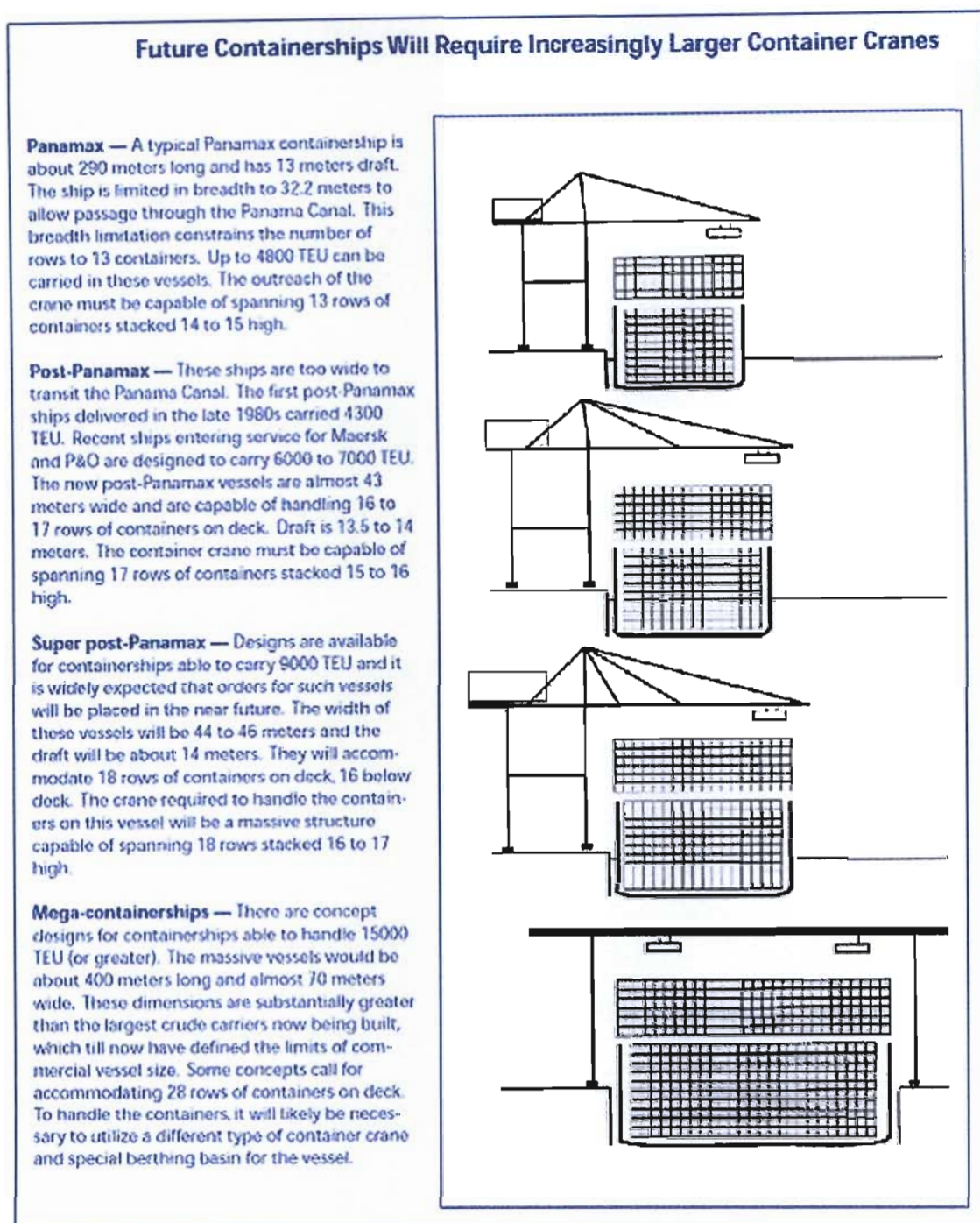
Table 6: Vessels ordered as of February 2001

Post Panamax Ships on Order as of February 2001				
Company	No. of Ships on Order	TEU Capacity	Total TEU	% of Total
Cosco	17	5,250-5,618	92,323	12%
CMA/CGM	12	6,250-6,500	77,000	10%
K Line	12	5,500-5,608	66,216	9%
MSC	10	6,408-6,700	66,416	9%
NYK	11	6,200	68,200	9%
NOL	10	5,500	55,000	7%
Hapag Lloyd	6	4,805-7,200	38,495	5%
Costamare	5	4,890-6,252	29,698	4%
CP Ships	6	4,800	28,800	4%
Evergreen	5	6,000	30,000	4%
Hyundai	5	6,500	32,500	4%
Mitsui OSK	5	6,000	30,000	4%
OOCL	5	5,468-7,400	31,250	4%
P&O	4	6,788	27,152	4%
Yangming	6	5,500-5,551	33,202	4%
Nord Deutsche	4	5,551	22,204	3%
Conti	2	5,600	11,200	1%
Lloyd Triestino	2	5,364	10,728	1%
Maorsk	1	9,146	9,146	1%
Undisclosed	2	5,750	11,500	1%
Total	130		771,230	100%
Source: Fairplay Newbuildings, January 2001				

Source: (Box 8) World Bank Port Reform Toolkit Module 2: 2001 p 23

This table reaffirms the strategies of the global shipping alliances to reduce port calls by employing larger vessels with larger loads. It should be noted the number of ships on order has increased since this last survey was done. The results however are not available in this dissertation.

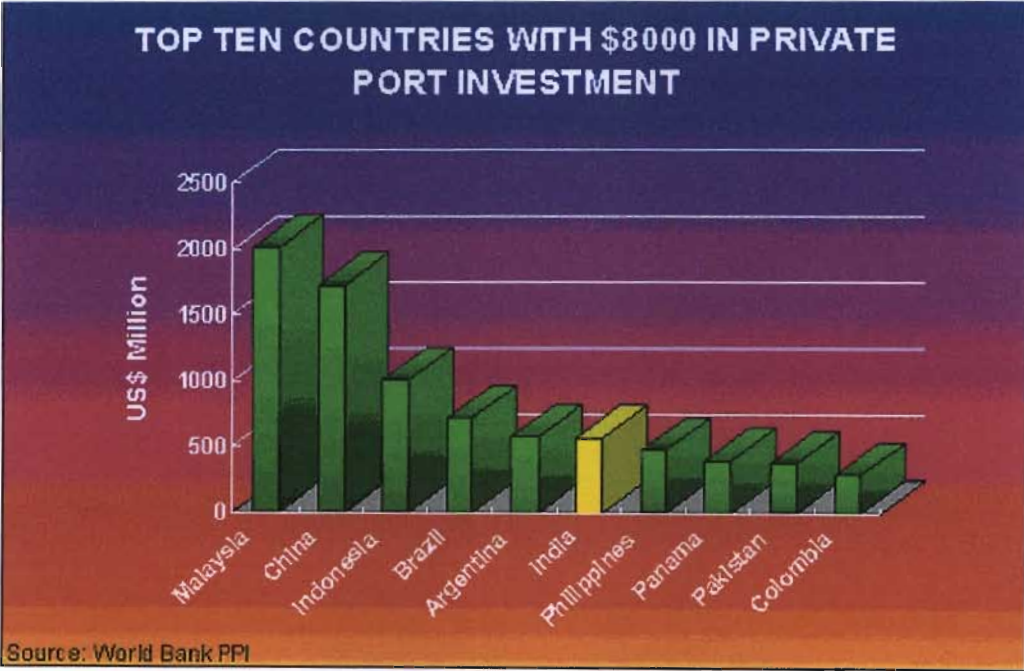
Table 10: Dimensions of future container cranes



*Source: (Box 10) World Bank Port Reform Toolkit Module 2: 2001 p 26*

It is highly unlikely that Durban will ever be able to accommodate mega-container carriers at the Port.

Table 12: Top ten countries with \$8000 in private port investment



Source: Chetty: Interview October 2003

This table indicates the overwhelming acceptance of private investment in ports in many developing countries.

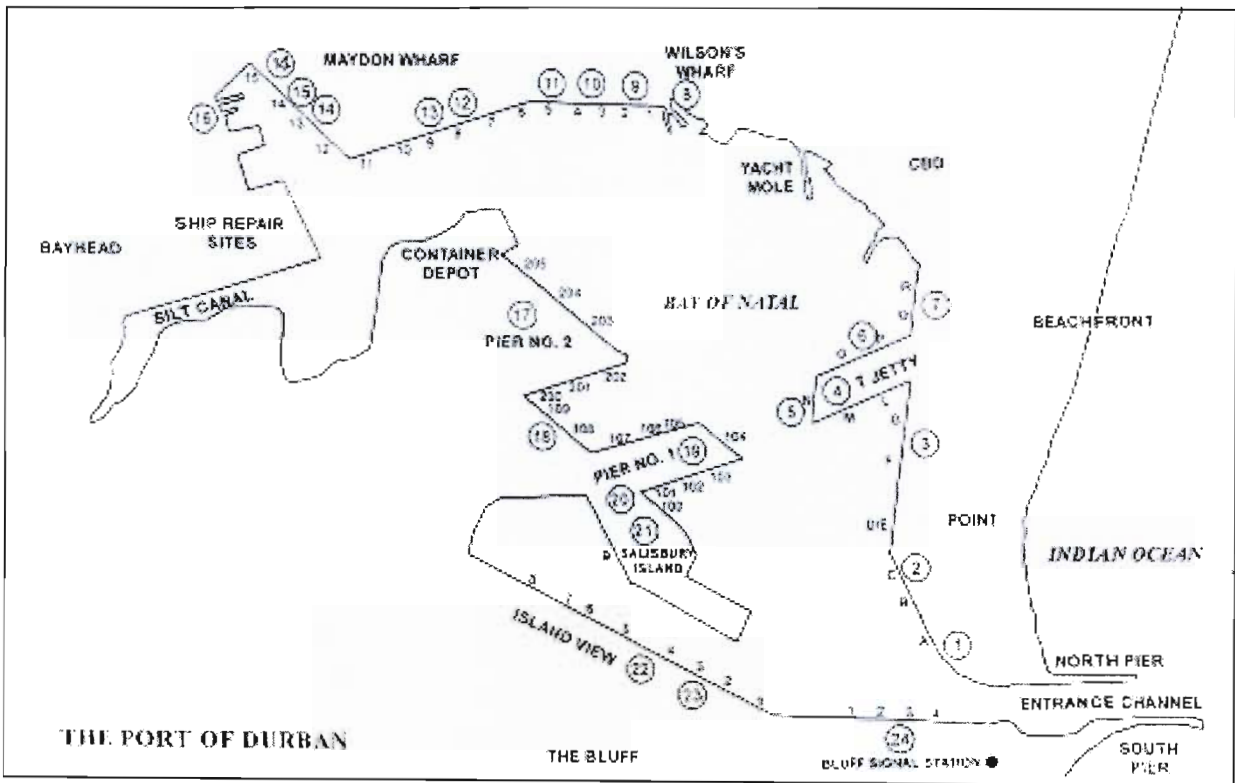


## Appendix Two

### Options for Additional Breakbulk/Neo-bulk capacity and container handling capacity:

- Re-modelling Point berths D to G,
- Relinquish Point berths A and B for new passenger and Waterfront development,
- Converting Pier 1 for container-handling,
- Re-modelling Maydon Wharf

Map 3: Detailed layout of Durban harbour



- |    |  |    |   |
|----|--|----|---|
| 1  | Proposed Point Waterfront  | 14 | Rennies & Grindrod Forest Products Terminal (Berths 13 & 15)    |
| 2  | Durban Granite Terminal (Berth A)                                | 15 | Brunner Mond Bulk Soda Ash Terminal (Berth 14)                  |
| 3  | City Terminal (Berths D-G)                                       | 16 | Prince Edward Graving Dock and Ship Repair Facilities           |
| 4  | Rice Terminal (Berth M)  | 17 | Durban Container Terminal (Berths 200 - 205) Pier No 2          |
| 5  | Passenger Terminal (Berth N)                                     | 18 | SAPO Coastal Terminal (Berths 108 & 109)                        |
| 6  | Capespan Citrus Terminal (Berths O & P)                          | 19 | Combi-Terminal (Berths 101 -107)                                |
| 7  | City Terminal: Car Terminal (Berths Q & R)                       | 20 | SA Breweries Bulk Malt Terminal (Berth 100)                     |
| 8  | Wilson's Wharf (Fish Wharf)                                      | 21 | Salisbury Island  |
| 9  | Bulk Sugar Terminal (Berth 2) Maydon Wharf                       | 22 | Island View Storage and van Ommeren Bulk liquids (Berths 4 & 5) |
| 10 | Unilever Terminal (Berths 3 & 4) Maydon Wharf                    | 23 | Durban Bulk Shipping (Berth 3)                                  |
| 11 | Rennies Multi-purpose Bulk Terminal (Berth 5) Maydon Wharf       | 24 | Rennies Bulk Coal Loading (Berths 1-4)                          |
| 12 | Pure Cane Molasses Terminal (Berth 9) Maydon Wharf               |    |   |
| 13 | Agriport/Portnet Grain Terminal Maydon Wharf Specialist facility |    |   |

## Point Berths

**Berth A:** the currently dedicated granite terminal with a theoretical capacity of 400,000 tons of cargo per annum will be utilized for a passenger terminal and waterfront development. It is also envisaged that no cargo will be handled at this berth (Port development framework: March 2003).

**Berths B and C:** cumulatively, these two berths have a theoretical capacity of 600,000 tons/annum and 15,000 TEUs/annum, and are presently used as a multi-purpose facility. These berths would feature a new tug basin and together with berth A, would not handle cargo in the short to medium term (Port development framework: March 2003).

**Berths D to G:** these dedicated break-bulk terminals with a current theoretical capacity of 235,000 tons/annum would be constructed into new multi-purpose terminals comprising of 4 berths at 450,000 tons/berth/annum thereby having the ability to handle an annual throughput of 1,800,000 tons of cargo and 40,000 TEUs (Port development framework: March 2003).

**Berth L:** this berth that has an opportunistic capacity of 300,000 tons of bagged cargo (rice, beans, wax) per annum, would be relinquished when berths D to G are constructed (Port development framework: March 2003).

**Berths M and N:** berth M also with a current theoretical capacity of 300,000 tons of bagged cargo per annum, together with berth N (currently a passenger terminal) would be converted into a new Break bulk facility with fully mechanized operations on a large scale and having a theoretical capacity of 600,000 tons of cargo per annum cumulatively (Port development framework: March 2003).

**Berths O and P:** restricted back up areas of these berths does not initiate further construction. These berths would remain dedicated citrus handling areas in the short to medium term, having a theoretical current and future capacity of 875,000 tons of cargo per annum (Port development framework: March 2003).

**Berths Q and R:** the flexibility of handling motor vehicles at most berths in the Point area due to the improvement in vessel handling capability of available berths render these terminals construction-free in the short to medium term. Cumulatively handling 350,000 tons of cargo, 10,000 TEUs and 144,000 vehicles per annum, these facilities would remain as multi-purpose and motor vehicle handling facilities (Port development framework: March 2003).

The Point berths after modifications, would handle 3,625,000 tons of cargo and 40,000 TEUs per annum in the future (theoretical capacity) from a current theoretical capacity of 3,060,000 tons of cargo and 25,000 TEUs per annum (Port development framework: March 2003).

## Pier 1

Conversion of Pier 1 berths 100 to 107 from a multi-purpose/break bulk terminal to a dedicated container terminal would have a future theoretical capacity of 327,000 TEUs per annum. Currently the facility handles 2,700,000 tons of cargo and 30,000 TEUs per annum. The container terminal would be completed in 2004 (Port development framework: March 2003).

## Maydon Wharf

- ❑ Consolidate the sites from berths 6 to 15 to establish 3 separate multi-cargo terminals (fenced, removal of internal roads and own vehicle reception areas)
  - Create a common user rail terminal at the back of the multi-cargo terminals
  - Public traffic and pedestrians excluded from operational area
  - Deepening of certain berths when due for replacement

The capacity analysis of the Maydon wharf indicates that an additional capacity of 80,000 tons of cargo and 25,000 TEUs per annum could be handled in this area. This would prove critical to avoid a shortfall in the ports ability to adequately handle all break bulk cargo once Pier 1 is converted for container handling (Port development framework: March 2003).

**Berth 6 and 7:** berth 6 is currently a dedicated steel terminal with a current handling potential of 600,000 tons per annum, could be combined with berth 7 to form a multi-purpose terminal. This combination could unleash a future theoretical capacity of 800,000 tons of cargo and 5000 TEUs per annum. Berth 7 with its current capacity of 100,000 tons of cargo per annum is currently a break bulk facility (Port development framework: March 2003).

**Berths 8, 9 and 10:** currently handling only bulk cargo (grain), berth 8 could combine with berth 9 to handle bulk products. Currently Berths 9 and 10 combined is a multi-purpose/break bulk/neo-bulk terminal having a handling capability of 800,000 tons of cargo and 20,000 TEUs per annum. Re-modeling Maydon Wharf would convert these berths into a dedicated multi-purpose terminal with a future theoretical capacity of 1,300,000 tons of cargo and 30,000 TEUs per annum (Port development framework: March 2003).

*Berths 13, 14 and 15:* in the remodeling initiative these three berths which cumulatively have a handling capacity of 800,000 tons of bulk and neo-bulk (paper at berth 15) cargo, could have a theoretical capacity of 1,000,000 tons of cargo and handle 10,000 TEUs per annum, if converted into a multi-purpose terminal (Port development framework: March 2003).



## Appendix Three

### Options for Additional Bulk liquid capacity at Island View

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#### The liquid bulk industry at the Port

Bulk liquids are categorized and zoned separately as hazardous and non-hazardous commodities, thereby confining them to separate locations. There are dedicated terminals for the handling of Bulk Liquids at the Port of Durban, and best-planning practice initiates the isolation of the hazardous commodities away from the waterside. Hazardous cargoes include petroleum, chemicals, liquid petroleum gas (LPG) and liquid natural gas (LNG) whilst non-hazardous commodities are generally edible oils.

Bulk liquid products require only jetty structures since these products are piped, but in some instances where large vessels are handled at a berth, the need for continuous quay structures arises (Port Development Framework 2003). The area designated for these activities do however require a stringent brigade of safety measures during berthing operations as well as the loading and the unloading of these products. The liquid bulk industry comprising of approximately 156 hectares of land is situated in the Island View (IV) area of the port via a leasing agreement. Dry bulk cargo such as maize, fertilizer and mineral phosphates is handled in this area.

The critical issues facing the liquid bulk industry are consistent with other terminals throughout the port. As noted earlier, larger vessels with greater drafts are calling more regularly thereby creating a demand for larger berths and increasing depths alongside these berths. From this issue, another concerning the huge demand for space as throughput increases (even at low growth rates), is affecting operations at the port. Land utilization is at a ceiling point of 100% capacity, thereby requiring the need for increased access to space for tank-farm operations in the future. The third issue that is specific to the Island View berths is that most of the infrastructure present at this locality is reaching the end of its service life thereby calling for immediate upgrades. Altogether, meeting the challenges at the Island View, involves increased pressure from new environmental legislation (Port Development Framework: March 2003). The new pipe-rack system has however, doubled the additional capacity for pipelines along the berths (Port Development Framework 2003).

Loading and discharging of products at the bulk liquid berths is normally assisted by large buoys that have been anchored offshore and connected by pipelines on the seabed to the landside storage facilities. Storage tanks are the most costly of infrastructure at these terminals; the most utilized of all facilities however, is the Berths at the Island View area.

### **Liquid Bulk Cargo Volumes**

It is envisaged that growth in the chemical industry is expected to be 60 to 80% in the short to medium term with a marginal growth of 5 to 6% in the long term. This figure, based on a highly consultative process because of the variability and the extent of market competition, has been determined for planning purposes for the future capacity provision of the port (NPA 2003). This industry is also expected to have the largest impact on the Island View area of the Port (NPA 2003).

Petroleum products on the other hand are expected to maintain a steady growth of 0.5% to 2% over the long term. This figure is highly dependant on the government's long-term view on the import and export of 'white' fuels. From a planning perspective however, a conservative figure of 5% of crude was moving through the port (NPA 2003).

### **Island View Operational Performance**

The operational performance of the Island view terminals are co-dependant on the Berth occupancies as well as land utilization by tank farms and processing plants. The area primarily used as a multi-user and multi-product use has high operational berth occupancies leading to increased waiting times of vessels and thereby increasing port-user costs.

Petroleum and chemical products are pumped efficiently at 1500 tons/hour whilst LPG is pumped at 500tons/hour. According to the NPA (2003), it is difficult in quantifying the exact commodity type and quantity moving through the quayside at a specific point in time. This is due to the ineffectiveness of data systems coupled with effective management required to reduce port costs and improve port dues (NPA 2003).

## **Liquid Bulk action plans for the future**

The NPA has initiated the assessment of the liquid bulk industry to address the current position of the industry and navigate developments in the short, medium and long term. The draft Strategic Development Plan (SDP) for the liquid bulk industry has outlined possible options for the Island View operations, based on a 20-year projection (Port Development Framework: March 2003).

The trends prevailing in the last 5-year cycle combined with leaseholder perspectives and market research has been instrumental in identifying two scenarios for the liquid bulk industry. The low-growth scenario is based on the slow performance of the market whilst the high-growth scenario accommodates the recent trend in high growth cargo performance as well as the market and port-user confidence (Port Development Framework: March 2003). The projections indicate that before the year 2020 the port will be expected to handle between 7.5 million (low-growth) and 10 million (high-growth) tons of liquid cargo per annum (Port Development Framework: March 2003). The details of a program to address the issues at the Island View facilities are outlined below.

### **Short Term – 1 to 5 years**

- Technical planning and design of infrastructure and berth layout
- Secure and prepare property for tank farm development
- Upgrade security
- Environmental monitoring
- Upgrade berths 1, 2 and 9

### **Medium term 6 to 10 years – Review Island View land utilization with the option of replacing petroleum tanks with chemical tanks**

- New jetties/quays at berths 4, 5, 6 and 7
- Prepare tank farms at Maydon Wharf

### **Long term - > 10 years**

In the long term the port would review the Island View land utilization with the option of replacing petroleum tanks with chemical tanks (Port development framework: March 2003).

## Appendix Four

**A brief description of ports in the same national supply chain that have the potential to absorb growth multipliers from the Port of Durban's collective hinterland, especially those of competing for container handling operations**

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### **The Port of Richards Bay**

The development of a deep-water port in the Kwa-Zulu region was primarily based on the pressure to alleviate severe congestion constraints on the existing ports of South Africa but more importantly to relieve the Port of Durban (Fair 1991). The Port of Richards bay was developed due to the suitability of the lagoon for deep dredging; the availability of large tracts of land for shore-based industries; the ready incorporation of Richards Bay into the existing rail infrastructure link with Durban; and the crucial factor being the locational advantage it had for serving the eastern Transvaal (Gauteng) coalfields and the PWV region via a relatively short rail distance, it has since expanded into other bulk and breakbulk cargoes (Fair 1991). There is an adequate road system to Gauteng, Swaziland, Mozambique and Mpumalanga, and an excellent road south to Durban. The port occupies 2,157 ha of land area and 1,495 ha of water area at present, with the potential of increasing both as required making Richards Bay potentially one of the largest ports worldwide.

The central feature of the port of Richards bay is the Richards Bay Coal Terminal (RBCT) and is instrumental in guaranteeing the country's position as the second largest exporter of steam coal in the world. Exports are the main activity of the port and in 2002 the port was handling 90 million tonnes of cargo annually. The Port of Richards Bay handles about 1000 containers per month but mainly functions as the center of operations for South Africa's aluminium industry. Richards Bay has also the largest sand mining and mineral processing operation in the world. There are currently 21 berths in service including those at the privately operated Richards Bay Coal Terminal but excluding the dredger and tug berths. The entrance channel is dredged to a permissible draught of 17.5 metres with a -19,5m depth. Richards Bay consists of a Dry Bulk Terminal, a Multi Purpose Terminal and the privately operated Coal Terminal. Other private operators within the port include several wood chip export terminals and a bulk liquid terminal.

The port's operations as noted is not dedicated to extensive container handling but the land availability and resource permitted could have a denting effect on the Port of Durban since the port has limited



constraints accommodating post-panamax vessels as well as the provision for quay extensions to harness 700 00 TEU's (noted in chapter 4) annually.

### **Port of Cape Town**

The Port of Cape Town was developed in April 1652 as a result of the Dutch sending Jan van Riebeeck to Table Bay to create a victualing station for ships going to and from the Netherlands to the East. The port is situated in Table Bay at Longitude 18° 26' E and Latitude 33° 54' S and lies 120 nautical miles northwest of Cape Agulhas (the most southerly point in Africa). Cape Town has two business units for cargo handling purposes. Being the second most important container port in South Africa only to Durban, the container terminal contains five deep-sea berths (of which four are in normal use for container ships) and two coastal container berths serviced by a 35 tonne and six 40-t gantry cranes. The multi-purpose terminal handles fruit, steel, paper, maize, wheat, rice, timber, coal, scrap and other general cargo, as well as passenger cruise ships. Passenger ship calls are a competitive market for the port of Cape Town over other port cities in South Africa as accommodating vessels make use of the Victoria & Alfred Waterfront with its added tourist attractions. Cape Town, caters for general cargo on a common user basis, and has become an important repair facility, especially for the west coast oil and diamond mining industries as well as large Asian fishing fleets that use it as a transshipment logistics and repair base. The port has good rail and road connections inland to other centres. The port consists of two 'docks' - the larger outer Ben Schoeman Dock in which lies the container terminal, and the older inner Duncan Dock containing the multi purpose and fruit terminals as well as a dry dock, repair quay and tanker basin. The depth at the entrance channel is 15.9 meters chart datum, and depth varies between 9.9 meters to 13.9 meters in the port. Cape Town Container During 2001, the terminal handled 471,112 TEUs, its highest ever volume of containers, of which 242,084 were imports and 229,028 were exports ([www.ports.co.za](http://www.ports.co.za)).

There are 34 berths in total including lay-by berths at the port, however operations are susceptible to strong winds that interfere with cargo and ship handling. The Port of Cape Town only handles a limited amount of containerised cargo as compared to Durban harbour. The most influential reason is that of logistics costs, as the Port of Durban is closer to the Gauteng hinterland than Cape Town by road and rail.

## **Port of East London**

Historically known as Port Rex, this general cargo port was developed partially due to good rail and road connections with the hinterland (Free State and Gauteng) and north and south to KZN and Port Elizabeth respectively. East London is South Africa's only residual river port and situated at the mouth of the Buffalo River in the East Cape Province, this common user facility (operating on a first-come-first-served basis) consists of a multi-purpose terminal (including the container terminal), bulk terminal (grain elevator) and new car terminal opened in September 2000. The car terminal has an annual capacity (and design throughput) of 50,000 vehicles a year at present and includes a four-storey parking facility connected by dedicated road to the adjacent Daimler-Chrysler factory. The parkade has the potential to be increased to an 8-storey facility to enhance the throughput to 180,000 vehicles a year. The port boasts the largest export grain elevator in South Africa, which has recently been converted to handle imports in addition to exports. The multi purpose terminal on the East Bank handles mainly containers and is geared to lever 90,000 TEUs a year. During 200,1 it handled 60,180 TEUs, of which 29,862 were imports and 30,318 exports mostly for the motor industry ([www.ports.co.za](http://www.ports.co.za)). The port does however encounter operational difficulties lacking gantry cranes, thereby compelling ships to use their own gear at the facility. The port entrance is dredged for ships up to 12 meters and draught at the berths vary from 8.5 meters to 10.4 meters alongside. The port can accommodate vessels of up to 245m and passenger ships are accommodated at whichever berth is most suitable and available.

The Port of East London's competitive advantage is based on its reliance on maize and copper as a base for its exports. The port's ability to grow is directly related to its immediate but economically depressed hinterland, and also the increased rail distance to the potentially lucrative Gauteng traffic. It does however pose as an attractive site for a port-based export zone (Fair 1991).

## **Port Elizabeth**

Founded by Bartholomew Diaz in 1488 the port was only given harbour status in 1825 with the appointment of a harbour master and collector of customs a year later. This man-made general cargo port on the western perimeter of Algoa Bay, 384 nautical miles southwest of the Port of Durban and 423 nautical miles east of Cape Town at Longitude 25° 42' E, Latitude 34° 01' S was South Africa's principal port of exports in the 19<sup>th</sup> century. The port became a modern facility in the 1930s and since then was predominantly handling agricultural products such as deciduous and citrus fruit in addition to the annual wool crop making the fruit terminal as one of the main features of the port. Apart from

this, the port has also dedicated manganese terminals and a container terminal, which has recently played an important role in the wealth of the harbour. The container terminal has four quayside gantry cranes and is supported by a number of straddle carriers. Motor vehicle components form about 50 % of the container traffic at Port Elizabeth, with other commodities including steel, machinery, wool, and agricultural products making up the balance. The port's container terminal has three berths totalling 925m in length and a storage area of 22 hectares with 5,400 ground slots for stacking purposes. The container terminal has a capacity of around 375,000 TEUs and has the benefit of being able to load railway trains directly under the gantry cranes, without containers having to be double handled, thus speeding up delivery to inland destinations. The port has adequate rail and road links with other parts of the country and handled 156,883 TEUs during 2001, of which 90,247 were imports and 66,636 were exports.

The key component of the success of Port Elizabeth is that of being an alternate port-of-call to container ships whenever either the Durban or Cape Town container terminals are congested. The entrance channel to Port Elizabeth is maintained at a depth of 14.5 meters chart datum and a width of 310 meters. Limitations on vessels using the port are 11 meters draught for passenger and dry cargo vessels, 11.2 meters for container ships, 12.1 meters for ore carriers and 9.6m for tankers, all according to berthing. "Port Elizabeth faces losing its container and manganese ore business to the new Port of Ngqura (Coega), which is programmed to open in 2004/2005 and will have to re-invent itself if it is to remain a major port" ([www.ports.co.za](http://www.ports.co.za)).

### **The Port of Ngqura (Coega)**

Against the current economic backdrop in South Africa, the container ports of Port Elizabeth, Durban and Cape Town have been viewed to offer a short-term solution to growth as they are nearing capacity. The need to provide further container capacity has contributed towards the opportunity for the economic development of a deepwater port at the mouth of the Coega River channel in the protected Algoa Bay to serve as South Africa's eighth port ([www.ports.co.za](http://www.ports.co.za)). A total of 32 berths have been identified in the fully developed port with the port developing further up the Coega River valley and southwards along the coast, five berths of which (initially), totalling 1,800m of quay wall is proposed - two for containers, two for dry bulk and breakbulk cargo and one for liquid bulk cargo and making the main breakwater the longest in South Africa ([www.ports.co.za](http://www.ports.co.za)). Construction of a rail link between the Coega project and the existing Port Elizabeth - Gauteng main railway line has received approval and is due to commence as soon as Spoornet project engineers complete feasibility studies.

The existing railway line, as well as the N-2 road highway, passes through the Coega Industrial development-zone. The future Port of Ngqura and adjacent Coega Industrial Development Zone (IDZ) 20km east of Port Elizabeth has undergone negotiations to secure the sophisticated Pechiney French aluminium smelter and Eskom is proposing to upgrade the provision of electricity to the region. The negotiations driven by the Coega development corporation is engaged in a number of initiatives to market Coega as the investment destination of choice within South Africa. The Coega project incorporates a massive 12 000 hectare development zone and a R2.5 billion deepwater port at the mouth of the Coega river ([www.ports.co.za](http://www.ports.co.za)). The new deepwater construction will be capable of serving Panamax dry and liquid bulkers and the new generation of cellular container ships. The project is regarded as the catalyst that will unlock the development potential of the IDZ by providing the necessary access to international markets. Situated on South Africa's Eastern Cape coast, equidistant from American, European and Pacific Rim destinations, it has an emphasis to serve both local and international markets. Comprehensive studies have been completed to establish technical and environmental feasibility of the port. An environmental management system will be implemented to manage every aspect of the natural, physical and socio-economic environment of the project. The port will be able to accommodate vessels up to 80000 deadweight tonnages ([www.ports.co.za](http://www.ports.co.za)). Two breakwaters and five berths will be constructed- two container and three general bulk cargo berths, each of 300 meters in length. Construction is expected to take about three years. The port was conceptualised initially as a 'dirty' deep-water bulk port, handling manganese and other bulk ore exports that would be re-directed away from Port Elizabeth and the city but all that changed following an initiative by P&O Nedlloyd to develop a container terminal at Coega. Whilst the concession process isn't finalised, the emphasis on the new port has switched to clean cargo with a strong prominence on containerised cargo ([www.ports.co.za](http://www.ports.co.za)). The political imperatives of building the new port now appear to have outweighed all other considerations and the prognosis for Port Elizabeth as a viable port appear reduced. The key challenges for the Coega project however is the expropriation of land, as it will relocate up to 300 families. The South African port operations aim to relocate its manganese depot and tank farms from Port Elizabeth to Coega as part of the project and reposition Port Elizabeth for the shipment of vehicles, components and containers.

According to the Coega Development Corporation (CDC), the advantages of Coega are:

- Land resources capable for accommodating industrial parks customized for heavy, medium and light industries
- Purpose-built infrastructure
- New deepwater port creating a gateway to international markets

- Terminals for containers, general cargo and bulk cargo
- Inter-modal transportation linkages
- Economic clusters centered on backward and forward integration
- Customs-secure areas
- One-stop-shop investor facilitation
- Customized employee training programmes ([www.coega.co.za](http://www.coega.co.za))

The port at Coega has the ability to provide fierce competition with the Port of Durban in the long-term, but in the short to medium-term the two could compliment each other (Port development framework: March 2003). Facilities proposed at the port would facilitate easy movement of containerized cargo to and from Gauteng but in the short term increased cross subsidization is required to fulfill such growth. The National Ports Authority of South Africa is building the modern deepwater port while the Coega Development Corporation is developing the entire landside infrastructure for the Industrial Development Zone.

### **Port of Maputo**

“The port of Maputo in southern Mozambique is situated on the northern bank of the Matola River (previously Rio Espirito Santo) about 60km from the open sea within Maputo Bay (formerly Delagoa Bay) at Longitude 32° 34' E and Latitude 25° 58' S” ([www.ports.co.za](http://www.ports.co.za)). The Port of Maputo’s opportunistic location adjacent to the city enables its to be supported by road and rail connections with Swaziland and KwaZulu Natal (to the south west), Mpumalanga and Gauteng Provinces to the west, and Zimbabwe to the northwest. The port handles sugar from Swaziland and South Africa, and coal and citrus from South Africa.

The port is equipped to handle bulk cargoes of minerals, coal and agricultural products including sugar. Maputo has twelve berths totalling 2225 meters in length of which also encompasses the Maputo container terminal. The terminal is concessioned to and managed by P&O Ports Mozambique (MIPS), which makes use of a 300-m berth and two gantry cranes. “The port also handles a variety of other cargo including breakbulk (steel) and bulk products (grain). There are 80km of channel approaching the port; the northern channel has a width of 100m and depth between 9 and 12 meters when dredged, the south channel depth varies between 8 to 9.6 meters on the tide. The port has a theoretical volume capacity in excess of 15 million tonnes but in 2002 Business Day reported that volumes had dropped to 1.2 million tonnes” ([www.ports.co.za](http://www.ports.co.za)).



Maputo has the potential to be one of the Port of Durban's major competitors although it (Maputo) has been prone to silting in recent years. Continuous dredging is required to maintain port channel depths to 9.5 meters alongside the quay. The Mozambican government however has taken considerable steps to improve the status and capacity of the port, and in April 2003, a consortium owning 51 % of shares in the port was granted a 25-year concession to rebuild, manage and operate the port (Natal Mercury: Business report 24/07/2003 p6). The Maputo port development company coordinates improvements at the facility with recent proposals to increase the handling capacity of the port to 18 million tons a year by 2018. The ports ability to attract traffic destined for the Gauteng region however is hampered by logistical issues. According to the Natal Mercury, poor harbour facilities, high toll fees and the cost per kilometre to transport goods to and from Gauteng are higher than that of transporting between the Port of Durban and Gauteng (Natal Mercury: Business report 24/07/2003 p 6).

# Appendix Five

## Conceptual plans for Waterfront developments

### Victoria Embankment

Figure 4: Victoria Embankment precincts



Source: Victoria Embankment Waterfront Development Project: Progress report march 2003

This figure represents the concept of dividing the area into five precincts.

Point Development

Figure 5: Evolving spatial framework for the northern complex

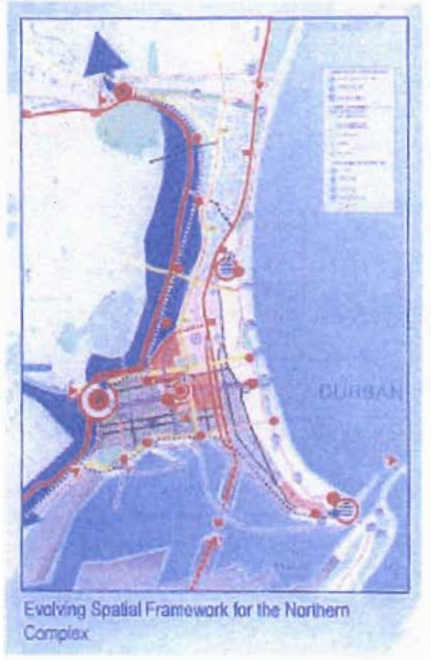
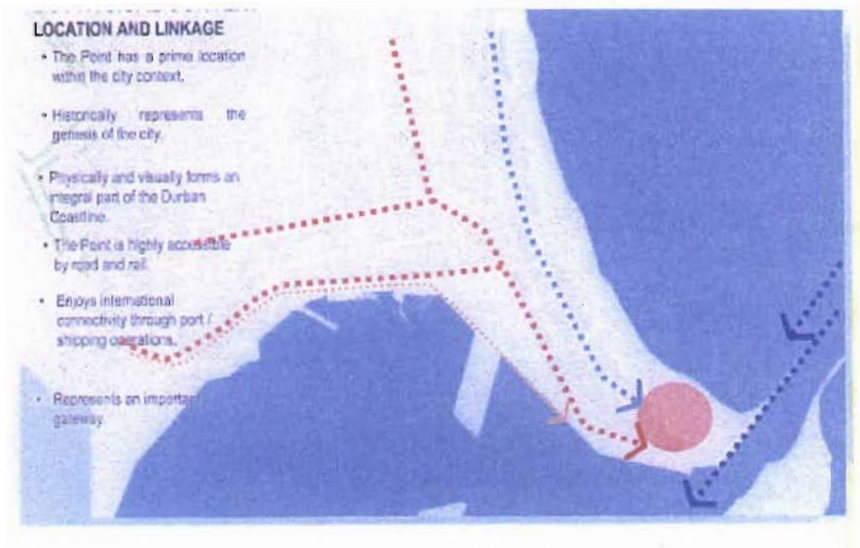
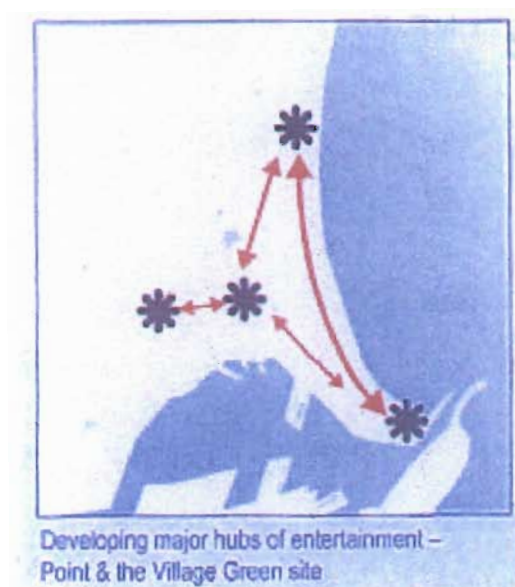


Figure 6: Linking the Point precinct with the Inner city precincts

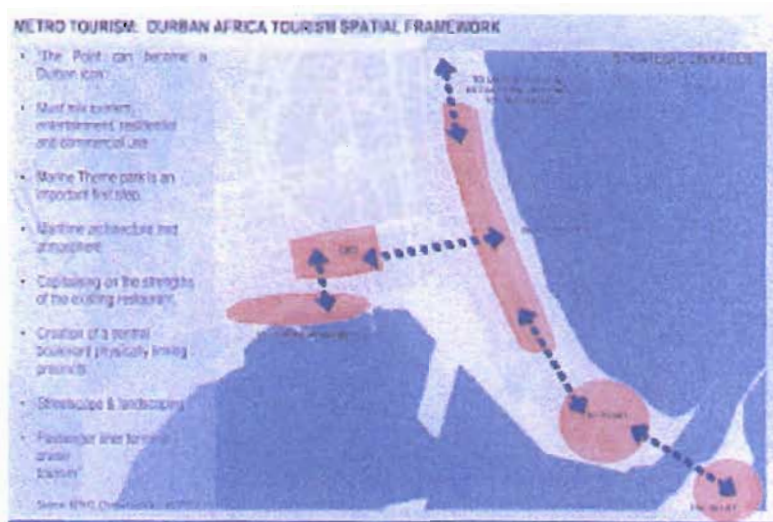


Source: Iyer-Rothaug 2003

**Figure 7: The “Golden Triangle” concept**



**Figure 8: Durban Africa tourism spatial framework**



*Source: Iyer-Rothaug 2003*

Figure 9: Integrating public access with port operations

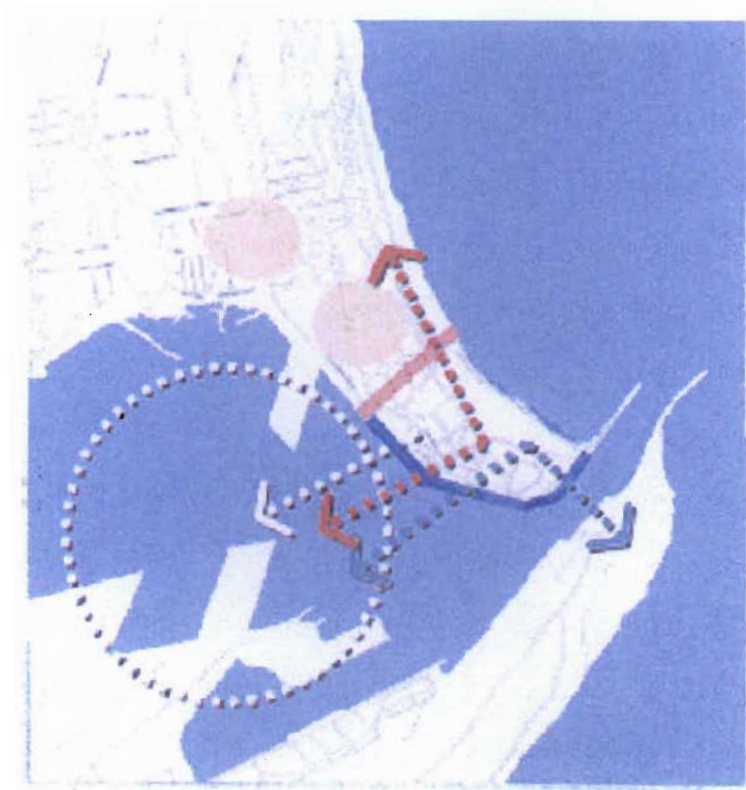
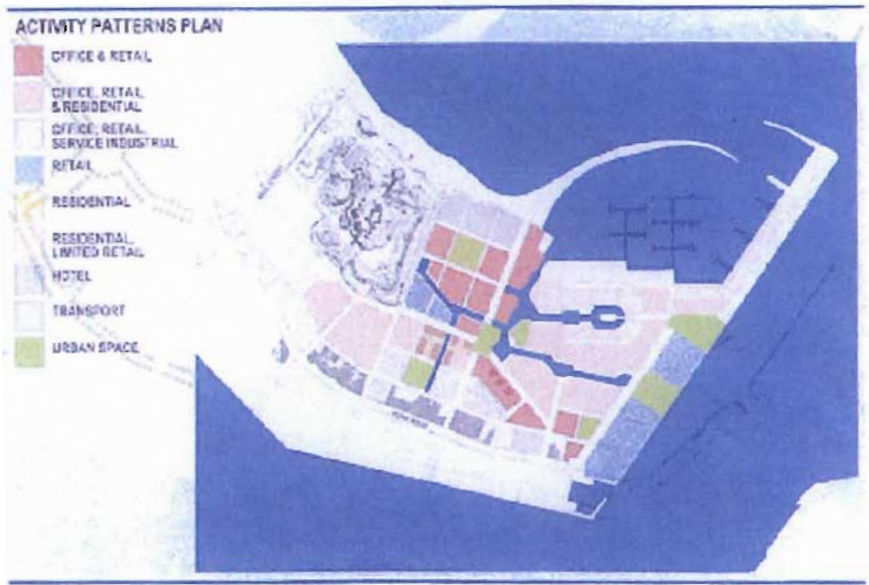


Figure 10: Activity patterns for Point Waterfront



Source: Iyer-Rothaug 2003



**Figure 11: An artists impression of the future development**



*Source: Iyer-Rothaug 2003*

## Appendix Six

### Direct and port-related employment resulting from cargo throughput

Vessel-related Activities		Cargo-related activities	
Marine Services	Pilotage Tugs Dredging services Port construction Berthing services Lighthouses	Cargo Services	Cargo infrastructure Bulk appliances Breakbulk cargo handling Container terminal Container cartage Pipeline services
Offshore Services	Towage Launch/helicopter services Offshore bunkering	Stevedoring	Shipboard cargo handling Specialized equipment Securing and lashing
Bunkering Services	Pipeline and barge Bunker brokers	Ships Agency	Freight canvassing Freight services
Ships Agency	Port husbandry Crew support Security	Clearing and Forwarding Agents	Documentation Customs clearances Financial services
Ships Chandler	Deck and engine spares Vitualling	Local, State and Federal Departments and Agencies	INS Customs Port Authority
Ship repairs	Dry-dock repairs Afloat repairs Painting and cleaning Diving services Marine surveyors Classification societies	Terminal Operators	Bulk Neo-bulk Combi-terminals Liquid-bulk handling Petroleum products Containers
Ship owners and operators	Owners and representatives Charter brokers Shipbrokers	Landside distribution	Railways Road haulage Warehousing
Legal and Insurance	P&I Owners Maritime lawyers	Container services	Construction / repair Container stuffing

Source: Adapted from Jones (1997).

## Appendix Seven

### Background of 'top five' terminal operators in the world

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Hutchinson Port Holdings (HPH) has an excellent track record, being the largest terminal operator, and operates approximately 20 container terminals globally. The operator has a monopoly over operations in Shanghai as a joint venture with the port authority. In its quest for a concession, HPH looks for multiple-berth facilities where the government provides adequate hinterland access and the market is already well defined. Although the company prefers complete ownership, there has been instances where it has been involved in joint ventures but seeking a major share in the company. The company began as Hong Kong International Terminals Inc. (HIT) and finances most of its expansion through project finance.

P&O terminals operate at least 19 terminals including that of the Port of Maputo. It has a large stake in joint-venture container terminals such as Tilbury and Southampton and more recently has expanded into South Asia. The international track record of P&O began in its participation in Bangkok Modern Terminals in 1988.

The International Container Terminal Services Inc. (ICTSI) began its record with the concessioning of the Manila Container Terminal in the late 1980s. The operator now controls about seven terminals and has more recently acquired a 30-year concession to operate the port of Rosario in Argentina, which is primarily a bulk port but with potential to be upgrade into a container handling facility. ICTSI has a propensity to seek monopolistic positions in ports and has won many concessions by submitting offers well above its competitors (examples at Vera Cruz, Subic) as well as attempts to reduce competition by buying out competitors (example of Buenos Aires).

The Stevedoring Services of America is a dedicated stevedoring company operating in the United States. It does however involve itself in container operations in addition to stevedoring activities, thereby handling over 0.5 million TEUs in its first operating year at Manzanillo, Panama.

The Ports of Singapore (PSA) after Hutchinson has progressed to be the fastest growing container handling authority in the world. The company currently operates at eight ports globally and is currently aiming at conquering the Indian market. The company has the ability to bid high for projects and take on concessions where others seem disinterested.

## Appendix Eight

### Description of Interviewees

The list below indicates the names of the various people interviewed during between October and November 2003:

Glen Robins: Former head of City Enterprises and acting head: Economic Development eThekweni Municipality. He is now a research fellow at the University of Natal Durban. School of Development Studies

Denny Thaver: Economic development unit: sustainable development cluster

Trevor Jones: Professor of Economic and maritime economics at the University of Natal Durban

Rohan Persad: CEO Dube Trade Port (PTY) LTD

Hamish Erksine: Dube Trade Port

Jon van Coller: Vancometrics: Economic and Business Analyst – strategic planning consultants

George Brian Jonkers: National Ports Authority: Planning and Development

Mervin Chetty: South African Port Operations: Executive Manager – Corporate Strategy and continuous improvement

Nathan Iyer: Iyer Rothaug Collaborative: Town Planning consultants for Point Development

Nadus van Heerden: eThekweni Municipality – Urban Design Planner for Victoria Embankment

## Appendix Nine

### Explanations of terminology

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**Basin** - A partially enclosed or sheltered area where vessels may be moored or docked.

**Berthing services** - To moor a vessel alongside a quay.

**Breakwaters** - Wall built out into the sea to break the force of the waves and so protect a port from the effects of bad weather

**Break-bulk** - Loose, non-containerized cargo stored directly into a ship's hold, to unload and distribute a portion or all of the contents into a container

**Buoy** - Small floating body, anchored to the sea bed, which marks a channel or alerts shipping to dangers, wrecks or other obstructions

**Channel** - A navigable course through a body of water.

**Concession** - A type of concession is the Build-Operate-Transfer (BOT) contract by which the grantor (National Ports Authority) grants the grantee (Terminal Operator) the right to finance, build and operate a facility or an installation, for public use, for a limited period of time, after which the facility or the installation will be transferred to the grantor (National Ports Authority). The broad features of a concession agreement are that the grantee has overall responsibility for the service, i.e. operation, maintenance, management as well as capital investments.

**Dredging** - To remove sand from the seabed to increase the depth of water or to restore it to its former depth.

**Dry dock** - Enclosed basin from which all the water is pumped to enable vessels to be surveyed and repaired while out of the water

**Jetty** - Structure, often of masonry, projecting out to sea, designed to protect a port from the force of the waves but also used to berth vessels



**Lease** - A contract by which the right of use of an asset/property is conveyed to a person for a specified period, in return for rental.

**Licence** - To grant permission to provide a service.

**Neo-bulk** - Uniformly packaged goods, such as wood pulp bales, which store as solidly as bulk, but that are handled as general cargo

**Pilotage** - The act, carried out by a qualified person known as a pilot, of assisting the master of a vessel in navigation when entering or leaving a port or in confined waters.

**Port infrastructure** - The basic structure of a commercial port, including breakwaters, seawalls, channels, basins, quay walls, jetties, road, rail, services and utilities (e.g. water, lights, power, sewerage and telecommunications).

**Quay** - A solid structure alongside a navigable waterway to which vessels are moored for loading and discharging

**Seawall** - A strong wall near the shore built to protect the adjacent land from the sea

**Stevedoring** - To load, stow and unload cargo on board a vessel.

**Terminal infrastructure** - Terminal buildings, workshops, substations, surfacing, rail sidings and terminal services and utilities (e.g. water, lights, power, sewerage and telecommunication) within terminal boundaries.

**Terminal operations** - Handling cargo at the terminal, storing it and delivering it to the vessel at the load port or receiving it from the vessel at the discharge port, storing it and delivering it to the consignee

**Tug services** - Services performed by small, powerful vessels used for towing or pushing vessels in a port.



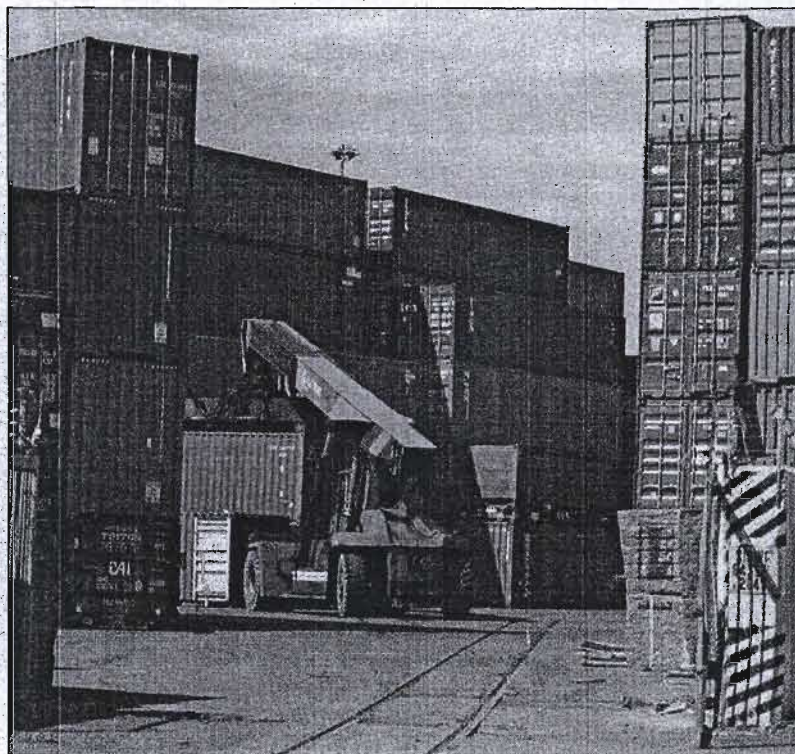
# HIGHROAD

THE MERCURY, OCTOBER 22 2003

## Infrastructure / Planning for the Future



Durban has established itself as a transport infrastructure flagship and is one of the world's most container handlers. But is the real estate along Maydon Wharf being used to best advantage?



NS

WHILE many South Africans are cynical about this country's prospects, there is strength universally the nation with more arrogance – namely Africa has “the best in Africa, if not in the Hemisphere”. In these claims a little y, two tentative emerge. a positive note, it is y true that few is side of the equator e with the quality and ansport, electricity, nications and other re networks – a factor y count to South antage. However, on a ie concern, it is not uch of an advantage onfers on the economy panies operating orders in today's world.

l is rapidly changing n for some time. tudy after economic own for more than two t resting on the laurels w materials or ulk infrastructure simply not enough. less, infrastructure ey ingredient to enable y to “be in the game” of conomy. i, do present re initiatives in the h up to the demands of omic processes which their way into virtually of our lives? ie greater Durban economic hub of KZN, a huge amount of

# Durban must build platform for growth

investment in infrastructure and services.

At face value, congestion appears nothing near that of other cities in the country, let alone the world.

The Port of Durban looms large as South Africa's transport infrastructure flagship, one of the world's most significant container, break-bulk and liquid cargo ports.

Few businesses operate without access to landline telephones, cellular communication and internet access. A world-class business environment such as those at La Lucia Ridge and Umhlanga New Town Centre could certainly not have been created had South Africa and the region not been able to offer supporting infrastructure that tenants have identified as a must-have in their operating environments.

But, close scrutiny of the infrastructure foundations in our region reveals some more than considerable flaws. Much of the bulk infrastructure networks, whether they be roads, sewer pipelines or quay walls, have reached the end of their life, while maintenance spending to extend the life of other assets is often way short of specified targets.

In more than a handful of cases, infrastructure has become obsolete because dynamics in a location have changed the nature of the businesses operating there.

Some of the most striking examples of these changes are to be found in Durban inner city,

Maydon Wharf and Jacobs.

Within the inner city, the downsizing of large corporate tenants and also the relocation of others to purpose-built office parks has presented a twin challenge.

This is: how to utilise existing buildings for new uses (such as housing or micro-businesses); and how to accommodate much more varied and complex requirements of new economy tenants.

Along Maydon Wharf, changing dynamics of cargo handling and rapid growth in goods handling within the port has rendered some of the private terminal operator facilities outdated.

## Virtue

Furthermore, business occupying premises on much needed port land which are only there by virtue of history are potentially obstructing the capability of the port to respond to new challenges.

A little over a decade ago, port authorities around the world still generated most of their income from maritime-based activities. Today, port operators need to add value to their ports through innovative back-of-port real estate management and logistics partnerships.

The area of Jacobs – once Durban's premier industrial estate – has, in the last decade, lost its reputation as an optimum location where trading manufacturing

business would locate.

A poor road network, sub-optimal site sizes, outdated structures and weak 24-hour public transport systems have threatened the area with decay and decline.

A major white goods manufacturer in the area explains that a decade ago its production and distribution systems only required occasional delivery of parts (large inventories were maintained), while scheduled weekly services delivered finished goods to warehouses around the country. Today, with just-in-time, reduction of inventories and production on demand systems, a handful of logistics movements a week have become an almost constant stream of traffic in and out of the plant, day and night.

It is case studies such as these which have spurred the eThekweni Municipality, together with parastatal and private sector partners, into action.

Innovative projects such as the West Street pilot to widen pavements and create dedicated public-space trading areas have reduced crowding out of pedestrians and formal retailers.

The port authority has engaged with Maydon Wharf tenants to find a long-term solution to one of the port's most critical zones.

This will see steady conversion of facilities and a step-by-step redesign to enable the area to offer the maximum to cargo owners, cargo intermediaries and others

connected with the port.

In Jacobs, a handful of pilot capital projects, such as that at the intersection of Quality Street and Chamberlain Road, are setting the scene for a substantial refit of the area and bringing on stream redeveloped plots of land for new investment. Such initiatives need to be stepped up a level to confront some of the costlier infrastructure repositioning projects which have been mooted for some time.

## Imperative

These are imperative, in our export-driven economy, to ensure our distance from major markets is not further hampered by a lack of synergy between transport nodes, areas of doing business and new forms of technology. The Monitor Company's report on strategic economic choices for Durban (2000) stressed the need to develop a “platform” for growth.

This platform must bring together hard infrastructure, and also successfully weave in improving skills, adoption and adaptation of technology and the capturing of unique cultural dynamics that could reinforce the competitiveness of the region.

Raphie Kaplinsky, a South African industrial and economic policy expert, in outlining the challenge developing countries face, quotes Rabbit as advising Alice from *Alice in Wonderland* that, “If you want to get somewhere else, you must run at least twice as fast as that”. Some sound advice for us in this region.

□ Glen Robbins is a Research Fellow at the School of Development Studies, University of Natal. He is a former head of City Enterprises and acting head: Economic Development in the eThekweni Municipality.

Appendix ten



# Appendix Ten

Newspaper clippings

## HIGHROAD

THE MERCURY WEDNESDAY OCTOBER 22 2003

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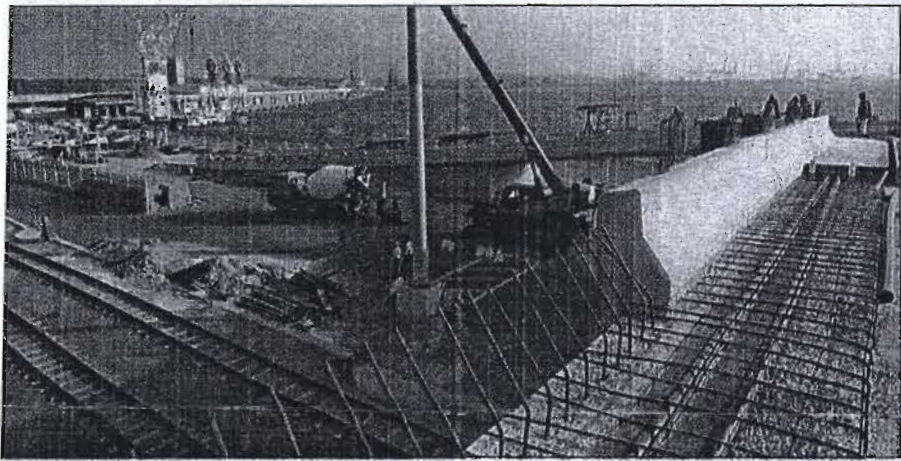
### Structure / Through The Lens



**BELOW:** Work is at an advanced stage to enable Durban harbour's car terminal to length to strength



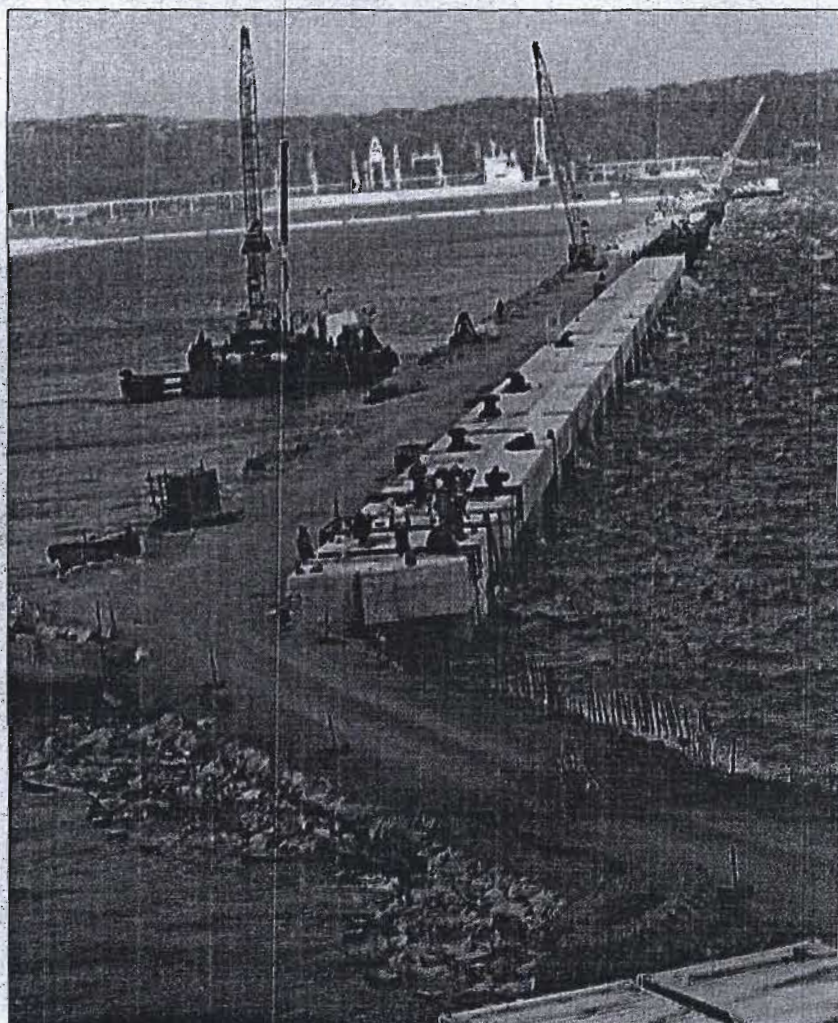
**ABOVE:** The new 'Toyota Bridge' at Prospecton for car exports. The bridge goes from Toyota's plant to a rail siding, making for quick and easy transfers to Durban harbour



**ABOVE:** Eighty-three bollards at the ready for the new quayside at the Durban harbour

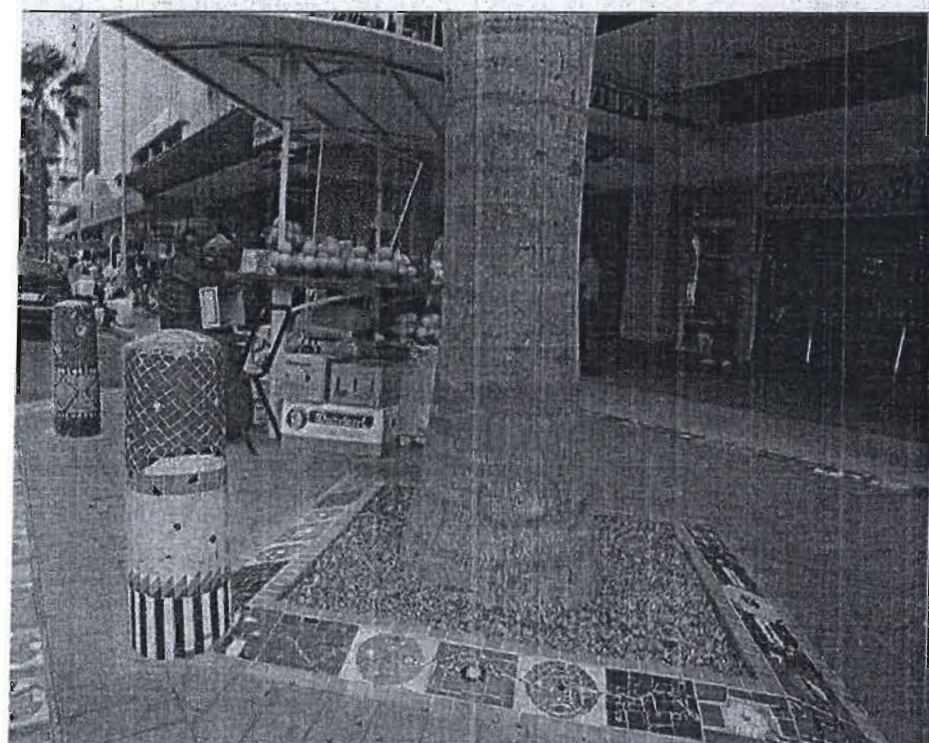
Appendix ten

## usy busy busy uilding KZN



**LEFT:** The harbour extension will create five new deep-water berths

PICTURES:  
PETER DUFFY



**RIGHT:** Cut out all the stops to make the Durban central business district more attractive. This is part of the new-look West Street