

**The Role and Purpose of a Port in the Context of a Changing  
Economic Environment**

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## **DEDICATION**

This work I dedicate to my loving grandmother for her love support and inspiration throughout my life. Even in your absence you will inspire me.

## EXECUTIVE SUMMARY

The impact of economic globalisation and the ensuing growth of world trade is presently the most important factor reshaping transport networks and port systems. As globalisation further develops, world trade and in particular sea borne trade will continue to grow. To cope with such an ever-growing world trade, ports will play a critical and indispensable role. Expanding trade volumes and shifting markets continue to challenge all elements of the logistics chain necessary for a seamless flow of goods from producer to consumer and pose particular challenges to seaports.

The role of the transport sector in any modern economy is to generate a broad infrastructure and set of associated services that integrates diverse social and economic actors within and beyond the nation.

Globalisation encompasses four particular phenomena, among others, that are especially relevant to South Africa's transport sector, given the role of transport as the key facilitator of international trade:

- Falling tariff barriers to international trade
- Diminishing non-tariff barriers to trade
- Reintegration into the global economy
- Changes in the South African economy

These factors create very new and challenging circumstances for the transport sector and in particular the port systems.

The functions of ports has evolved over the past few decades to be regarded as logistical platforms, by taking on the additional roles of facilitating value adding activities and the transshipment of goods. Ports have thus become less of a compulsory point of change over from maritime transport to some other mode of transport and a strategic point in the organisation of foreign trade, a principle link in the integrated transport and economic chain.

Essentially the theme underlying this study is a focus on the importance of ports as energisers of the economy and facilitating trade. The objective being to identify the different roles of ports and their structures in a changing world economy.

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# THE ROLE AND PURPOSE OF A PORT IN THE CONTEXT OF A CHANGING ECONOMIC ENVIRONMENT

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## CHAPTER 1: INTRODUCTION

### **Introduction: The nature and purpose of this study.**

The impact of economic globalisation and the ensuing growth of world trade is presently the most important factor reshaping transport networks and port systems. As globalisation further develops, world trade and in particular sea borne trade will continue to grow. In 2001, world trade grew 3.9 % with world sea borne trade reaching over 5.83 billion tons. In terms of container traffic, world throughput is expected to grow to 122.7 million TEUs by the year 2011 (UNCTAD, Review of Maritime Transport 2002). To cope with such an ever-growing world trade, ports will play a critical and indispensable role. Expanding trade volumes and shifting markets continue to challenge all elements of the logistics chain necessary for a seamless flow of goods from producer to consumer and pose particular challenges to seaports. Port Authorities<sup>1</sup> around the world face a myriad of challenges as they struggle to remain viable in an increasingly competitive and dynamic environment. As an example, ports serve as a critical crossroads for America's foreign trade, most of which is shipped by sea. Valued at over \$620 billion in 1996, waterborne foreign commerce has grown to roughly one-tenth the size of America's seven-trillion plus Gross Domestic Product, this is in spite of America still having a relatively "closed" economy (U.S. Maritime Administration, A Report to congress on U.S. Maritime Policy, May 2000). Ports are bound by their customer's needs and desires as well as constrained by their geographic situation.

The role of the transport sector in any modern economy is to generate a broad infrastructure and set of associated services that integrates diverse social and economic actors within and beyond the nation. Approximately 97% of the world's trade as measured by volume is transported by sea. Therefore, it is essential that efficient and effective infrastructure exist in order to provide cost-effective maritime transportation ([www.pmaesa.org](http://www.pmaesa.org)). As a result of the changes in the political context that have opened South Africa to the world, economic reality for South Africa has evolved dramatically in the last five years. This means that South Africa is now

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<sup>1</sup> The term "port" will be used throughout this paper but will in general refer to the port authority or managing entity

exposed to the forces of globalisation and, as a result, has become far more linked into patterns occurring in the larger global economy. This manifests itself in nearly every aspect of the economy, from currency valuation to effective port systems. Given the role of transport as the key facilitator of international trade, globalisation encompasses four particular phenomena, among others, that are especially relevant to South Africa's transport sector namely:

- Falling tariff barriers to international trade;
- Diminishing non-tariff barriers to trade;
- Reintegration into the global economy;
- Changes in the South African economy

These factors create very new and challenging circumstances for the transport sector and in particular the port systems. In the last five years South Africa signed the GATT agreement and joined the World Trade Organisation (WTO). Concurrently, trade with all regions of the world has increased substantially since 1994, and this is especially true of trade with the SADC region.

South Africa, being strategically situated on one of the major world trade routes and served by modern ports, excellent road and rail infrastructure and communications, is the transport gateway for the whole of sub-Saharan Africa. The seven ports of the National Ports Authority form an integral part of South Africa's transport network, which are linked to the road and rail systems serving the interior of the country and sub-Saharan Africa. The seven commercial ports along South Africa's 3600 km coastline is managed by the National Ports Authority of South Africa (NPA), serving as landlord responsible for infrastructure, marine, property and other port related facilities.

The various initiatives to improve the national economy, as well as the increasing impact of globalisation, place a challenge on the entire port system. The National Ports Authority of South Africa as a major force within the South African Development Community (SADC) region aspires to turn the South African port systems into a world class provider and manager of infrastructure and other port

related facilities by continuing to be a major player in the facilitation of trade and brokering trade relationships to ensure that terminal operations are significantly enhanced to ensure efficiency and greater effectiveness. The NPA is therefore being repositioned to become a strategic partner to all port users. As an independent Ports Authority, the new NPA is geared to ensure that the competitiveness of exporting and importing entities in the South African economy can be harnessed. The port of Durban for example is strategically situated on the East Coast of Africa and is the most comprehensive port in South Africa. Known as the gateway to Southern Africa, the port is strategically located to serve not only its immediate hinterland, but also the vibrant industrial and commercial heartland of Gauteng. In addition, certain cargoes emanating from and destined for Southern African countries still move through the port. As a truly intermodal port, the Port of Durban is excellently placed on world shipping routes and offers road and rail links that are second to none on the African continent. In essence, the port is looking beyond its “traditional” boundaries into sub-Saharan Africa. It stands as one of the key support mechanisms in the African Renaissance, bringing wealth to the region and beyond. There are however many challenges for the modern port in the face of globalisation, trade liberalisation and an increase in world sea borne trade.

The primary objective of this study is a focus on the purpose and the different roles of ports within this changing and competitive world economy. The main objectives would be to explain:

- The role and purpose of a port, establishing the port as a trade facilitator;
- The different roles of a port in terms of lowering the general cost of transport and energising economic activity;
- The micro and macro aspects of a port;
- The need for port reform and the new ports bill

Chapter two shall be a focus on the international port context in terms of the world economic background regarding the trends in export and imports and the general growth of world trade. Having understood world trade patterns, Chapter three focuses on international trade and shipping, exploring the relationship between world trade

and economic growth and its implications on the port system. Chapter four explores the role and purpose of a port in terms of ownership and control and the emergence of a world transport system. Chapter five focuses on the role of seaports in international trade and the functions of ports in the world trade and transport system. Chapter six explores the macro and micro aspects of ports with a focus on Africa and finally Chapter seven focuses on port reform in South Africa and the proposed new national ports policy to be promulgated in South Africa soon.

The period under consideration for the purpose of this study shall be limited to the years 1999 to 2001.

## CHAPTER 2: INTERNATIONAL PORT CONTEXT

### 2.1 World Economic Background

#### 2.1.1 World Output

As can be seen from Table 1 during the year 2001 the growth of world output fell to 1.3 percent from the remarkable 3.8 percent achieved in 2000 and, for the first time since the oil price hike of the late 1970's, virtually all regions of the world experienced a simultaneous economic slowdown, despite this true growth resumed in 2002.

**Table 1: World Output, 1990 – 2001 (percentage change)**

<i>Region/Grouping</i>	<i>Avg 1990-2000</i>	<i>1999</i>	<i>2000</i>	<i>2001</i>
<i>World</i>	2.2	2.6	3.8	1.3
<i>Developed Economies</i>	2.0	2.4	3.4	1.0
<i>Of which:</i>				
<i>United States</i>	2.8	3.6	4.1	1.1
<i>Japan</i>	1.1	0.2	2.2	-0.3
<i>European Union</i>	1.7	2.4	3.4	1.6
<i>Of which:</i>				
<i>Euro area</i>	1.7	2.4	3.5	1.4
<i>Germany</i>	1.6	1.5	3.2	0.6
<i>France</i>	1.4	2.9	3.5	1.9
<i>Italy</i>	1.2	1.4	2.9	1.8
<i>United Kingdom</i>	1.9	2.1	2.9	2.4
<i>Developing Economies</i>	4.3	3.4	5.4	2.1
<i>Of which:</i>				
<i>Africa</i>	2.2	2.6	2.7	2.7
<i>Latin America</i>	2.9	-0.2	3.9	0.4
<i>Asia</i>	4.4	4.6	5.8	1.2
<i>Economies in transition</i>	-3.0	2.7	6.0	4.3
<i>China</i>	9.3	7.1	8.0	7.3

Source: UNCTAD – Review of Maritime Transport, 2002

Developed market-economy countries were most affected by this economic deceleration and achieved only 1 percent growth. The best performers were countries belonging to the European Union, whose economies grew 1.6 percent, with fairly wide disparities. The United Kingdom's economy grew 2.4 percent, well above the average, fuelled by domestic demand supported by decreases in short-term interest rates and a buoyant real estate market. At the other extreme, the German economy expanded by only 0.6 percent, slowed by sluggish expansion in its eastern region. The United States economy performed slightly below the world average, with growth of 1.1 percent. The weakest performer in this group of countries was Japan, whose economy entered into a recession in the second quarter of 2001 and contracted 0.3 percent during the year (UNCTAD, Review of Maritime Transport, 2002).

The growth of economic output for developing countries was 2.1 percent, which is well above the world average. As can be seen the highest growth occurred in African countries, which repeated their performance of 2000, expanding 2.7 percent. North African countries such as Morocco, Tunisia and Algeria fared particularly well and expanded 5.4 and 3 percent respectively. Three other countries in West Africa – Cameroon, Ghana and Nigeria – expanded more than 3 percent. The output growth of economies in East Africa was below the continent's average. South Africa managed to expand output by 2.1 percent, while Zimbabwe recorded a significant contraction of 7.5 percent. Overall, the rate of economic growth of African countries over the last three years has exceeded the average growth rate of the last decade. The output of developing countries in Asia expanded 1.2 percent, slightly below the world average and a significant drop from the 5.8 percent expansion of the previous year. Slowing United States demand for Asian exports together with the contraction of the Japanese economy placed a heavy burden for these economies. The impact was particularly heavy in traditional hubs of regional economic activity: Singapore and Taiwan Province of China contracted by 2.2 percent, while Hong Kong (China) and Malaysia expanded by a meagre 0.2 and 0.1 percent respectively. In spite of depressed international commodity prices, strong domestic demand and investment in less open economies such as India, Indonesia, The Islamic Republic of Iran, Pakistan and the Philippines contributed to expand output by 5.4, 3.0, 4.1, 3.3 and 3.4 percent respectively. The Republic of Korea and Thailand managed to achieve satisfactory output growth of 2.7 and 1.5 percent respectively. The star global performer of the

year was China; its output growth in 2001 was 7.3 percent, lower than that of the previous year but up from that of 1999. Domestic demand and investment together with a steady FDI (Foreign Direct Investment) maintained high levels of economic growth (UNCTAD, Review of Maritime Transport, 2002).

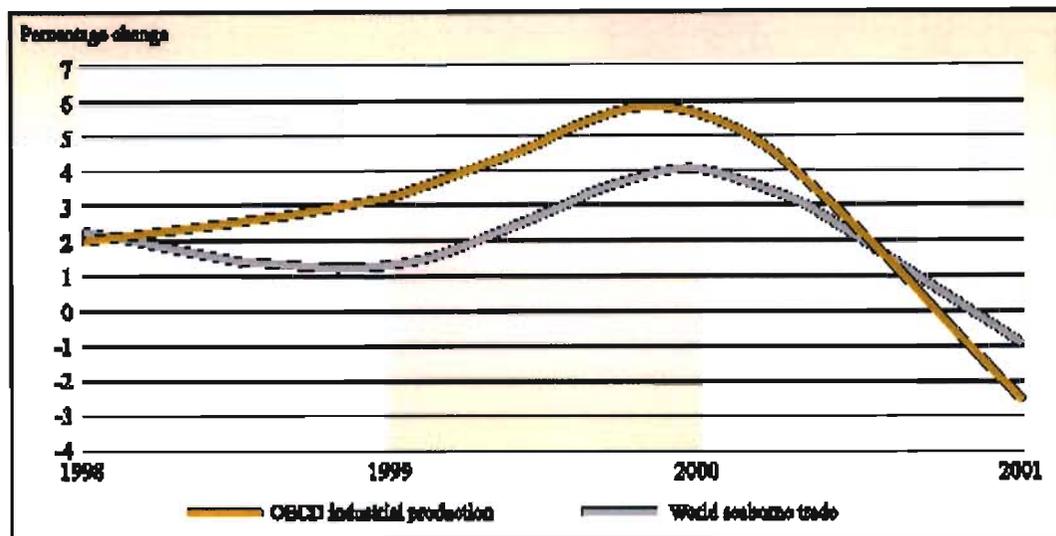
### **2.1.2 Trends in Imports and Exports**

Recent data from the World Bank, UNCTAD and WTO support the view that world trade recovered well during 2002 and beginning 2003. Increased consumer confidence and the need to re-build business inventories in the major economies could lead to this result. However, it is likely that in the future the expansion of world trade will lag behind world output because of demand and investment in the IT sector and increased transport costs resulting from higher insurance and security costs after the events of September 11. Moreover, the structure of exports from developing countries is likely to continue the shift from commodities to manufacturing exports, leading to greater use of containers. The war in Iraq could have substantial effects on the overall projections of world trade.

The industrial production index (1995 = 100) for OECD (Organisation for Economic Co-operation and Development) countries, another fundamental indicator for the global maritime transport sector, averaged 117.7 in 2001, a decrease of 2.6 percent from the average index for 2000 as can be seen in Figure 1. This decrease contrasts with the 5.6 percent increase achieved in 2000, when the index reached 120.8.

The poor results in 2001 were attributable to slowed economic activity in The United States, where the index reached 125.4 in the first quarter and declined steadily to 120.0 by the fourth quarter, a decrease of 4.3 percent over the year. The OECD outlook for the end of 2002 beginning 2003 indicated a mild recovery, however, once again the war on Iraq could have a significant effect on this index.

**Figure 1: Annual change in OECD industrial production and world sea borne trade, 1998 - 2001**



Source: OECD, Main Economic Indicators

## 2.2 The Changing World Economy

Recent analyses of the world economy have often used the term “globalisation” to describe the latest tendencies of world output and trade. This term summarises the wave of liberalisation of the world market and the increasing importance of capital flows worldwide. The growing world economy, liberalisation of trade and the flexibility of moving capital worldwide have, among others, created new opportunities and challenges to national economies and social policies. There is not one country in the world which can afford an isolated position from the globalisation process.

Analysis of the world output shows that there has been a dramatic change in production patterns from 1960 to 1990. While industrialised countries have experienced the biggest shift from manufacturing to service activities, in developing countries the main shift was from agricultural to manufacturing activities. Consequently, the structure of the world trade has also changed as can be seen in Table 1, for instance “the share of manufacturing in total world export, rose from 61%

in 1970 to 71% in 1990". The process has been particularly evidenced in the Asian region (Coltof, H, "Port Organisation and Management in Developing Countries", 1999).

**Table 2: Manufactures as a percentage of total exports**

	<i>1970</i>	<i>1980</i>	<i>1990</i>
<i>World</i>	60.9	64.2	71.1
<i>Developed Countries</i>	72.0	70.9	78.0
<i>Eastern Europe</i>	59.1	50.2	43.9
<i>Developing Countries</i>	18.5	18.5	53.9
<i>Asia</i>	28.4	23.5	65.5
<i>South and South-East Asia</i>	43.4	51.5	77.7
<i>Latin America</i>	10.6	14.7	30.8
<i>Africa</i>	7.0	4.0	15.1

Source: ILO World Employment

Regardless of the relative stagnation of the world output, major issues of globalisation have been rapidly increasing in world trade as can be seen in Table 2, and growing export-to-GDP ratios, especially in developing regions. This obviously creates vast opportunities for South Africa and the South African National Ports Authority, especially within the African continent.

This wave of trade liberalisation is likely to continue with the completion of the Doha agreement and the establishment of the World Trade Organisation (WTO). Other important features of the world economy during recent years have been the increase of foreign direct investments and the role played by multinational enterprises on this process. Foreign investments of these companies have grown faster than world output, trade and national investments.

With the advent of globalisation the following considerations should be considered:

- Time of delivery of goods and “distances” are shrinking rapidly as a result of faster communications and transportation systems at a considerably lower cost;
- Policies of many governments promoting the abolition of the state involvement in the exchange control and the globalisation of capital markets;
- Growth of regional trade arrangements in some geographical regions such as the European Union, NAFTA (North American Free Trade Agreement), MERCOSUR (South American Free Trade pact involving Brazil, Argentina, Paraguay and Uruguay) and the ASEAN (Association of Southeast Asian Nations), has allowed a standardisation of trade regulation, an expansion of the market coverage, production and consumption pattern to overseas countries.

The need to comply with modern business and trade practices provided the major thrust to economic reforms in developing countries. Furthermore, in many developing countries, efforts to adjust their economies to the requirements of the global market have brought about an undesirable social impact. Negative effects experienced over short-term periods in the economic reforms process, do not necessarily mean that benefits from trade liberalisation and foreign investments are refuted. For example, as far as some developing countries are concerned, foreign investment has been accompanied by the introduction of new technologies, economic diversification, new job opportunities and expansion in the GDP. Moreover, the shifts from agricultural to manufacturing activities and changes in the structure of exports have been other consequences of foreign capital flows.

#### *What does this mean to a port?*

The perspective of national, regional and global structures and their potential influences on specific port systems will be governed by a mixture of general forces and the different ways these ports systems, belonging to different areas and cultures, might react.

The effects of globalisation have resulted in:

- A huge increase of world trade;
- New requirements as to the facilities and services for the competing port systems and interrelated national and regional ports;
- Additional new requirements in the field of value-added services facilities in major ports.

### 2.3 Maritime Transport

“Shipping is an exciting business, surrounded by many false beliefs, misconceptions and even taboos...the facts of the matter are straightforward enough and, when stripped of their emotional and sentimental overtones in clinical analysis, are much less titillating than the popular literature and maritime folklore lead one to expect.”

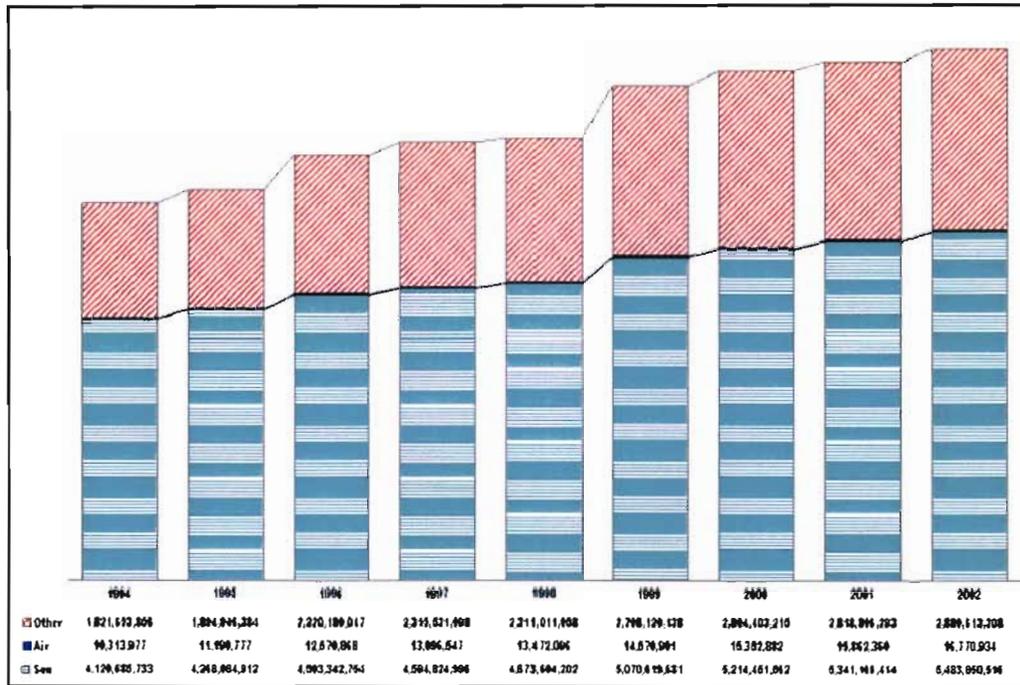
(Helmut Sohem, “What Bankers always wanted to know about shipping but were afraid to ask”)<sup>2</sup>

Sea transport is a fundamental part of a properly functioning economic system. In particular the “port is not simply landing places or just a group of terminals, but a sophisticated and integrated system to provide a full range of services for the maritime industry and more widely logistics activities.

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<sup>2</sup> Address to the Foreign Banks Representatives Association, Hong Kong, 1986

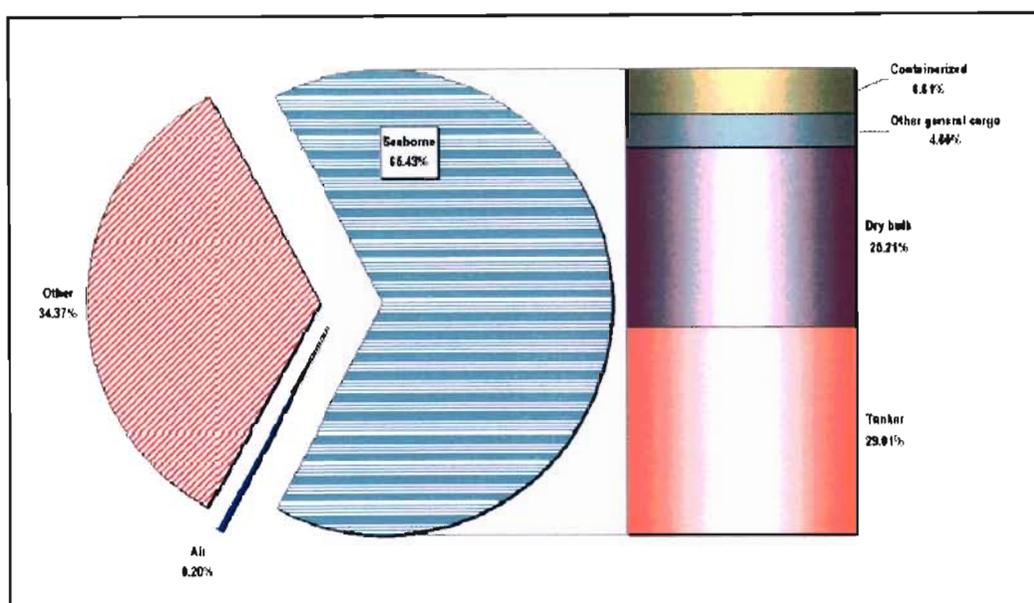
**Figure 2: World Trade by mode of transport, 1000 metric tons**



Source: [www.trainmar.com](http://www.trainmar.com) - Jan Hoffman and Sashi Kumar “Globalisation: the maritime nexus”

As can be seen from Figure 2, sea transport constitutes the largest mode of transport in metric tons over the past nine years as compared to air and other modes. This is further depicted in figure 3 where sea borne trade is the largest in terms of world trade by type of transport service with dry bulk and tanker being the largest services worldwide.

**Figure 3: World Trade by type of transport service, percent of metric tons**



Source: [www.trainmar.com](http://www.trainmar.com) - Jan Hoffman and Sashi Kumar "Globalisation: the maritime nexus"

### 2.3.1 The Economic Principles of Maritime Trade

As explained earlier, sea trade is one of the greatest economic success stories of the last 50 years. Although the trend looks simple, it conceals a trading world seething with change. The general maritime growth path was irregular. Despite the two deep recessions in the 1970s and 1980s, regional trade was constantly on the move. Two of the biggest trading regions, Western Europe and Japan, went through a cycle of growth until the early 1970s and stagnation for the next two decades. New high growth economies emerged in other areas, notably in Asia and North America. The commodity composition of trade changed; some trades grew rapidly, many stagnated and some declined. There was also a steady upward movement in the size of ships used for the transport of commodities such as grain, sugar, non-ferrous metal ores and forest products. Businesses with a long-term commitment to sea transport like ports need to understand these changes and its implications on world sea borne trade.

In a study conducted by Martin Stopford, Maritime Economics, where a logarithmic plot of more than 100 countries revealed that a correlation exists between the volume of imports and exports of a given country. This is important from a viewpoint of trade analyst as it provides insight into sea borne trade. The most obvious explanation of a country's sea borne trade is the size of its economy. The bigger economies are likely to generate more trade. In the same study conducted by Stopford, where the relationship between sea borne imports and GNP was examined, as the level of GNP increases so do does the level of imports. A further analysis of the same study fitting a linear regression model of sea borne imports on GNP found that 69 percent of the variation in sea borne imports is explained by variations in GNP. There are three reasons why rich countries with high GNP might be expected to have a higher level of imports than a poor country with low GNP namely:

- A larger economy has greater need in terms of the raw materials and manufactured goods which are shipped by sea;
- Along the road to economic development, local resources are likely to become depleted, leading to the need for imports;
- A country with a high GNP can afford to purchase imports and has more to export in return.

South Africa's trade liberalisation efforts, the effects of globalisation and the projected increase in world sea borne trade would have great implications on South African ports and port systems, especially the port of Durban, which is presently standing at the crossroads after establishing itself as the major general cargo port of the African continent. The impacts of this trend in the context of international trade and shipping and its implications on ports shall be further explored in the next chapter.

## CHAPTER 3: INTERNATIONAL TRADE AND SHIPPING

### 3.1 Changes in International Trade

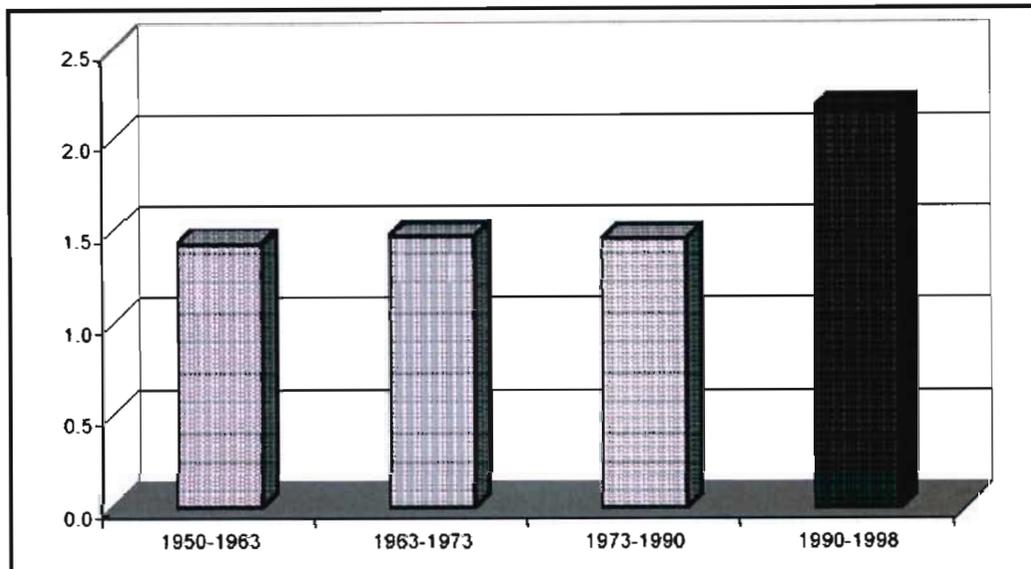
The past ten years has been a period of great and rapid changes in the port and shipping industries. These changes have been felt most profoundly in the liner-shipping sector, where containerisation continues to make a vital contribution to the region's rapidly growing international trade in the globalisation process.

It is impossible to understand properly the changes that have occurred within the liner shipping and ports over the last decade without understanding the context in which these changes have taken place. The fundamental underlying factor has been an increased reliance on international trade as the primary engine of economic growth and development. This is a major ideological shift: many economies have in the past pursued development strategies that have emphasised self-sufficiency and the protection of domestic markets. However, in the recent past as explained in the previous chapter there has been a growing consensus that the route to prosperity lies in integration within the global economy.

The establishment of the World Trade Organisation (WTO), with the prominent role it has subsequently played in the liberalisation of trade, is perhaps the clearest and most important institutional outcome of this trend. However, the adoption by regional associations and many governments, of policies that are designed to enhance trade between their constituent economies has played an important supporting role. Partly through such multilateral institutions; partly through bilateral agreements; and partly through unilateral initiatives, most governments including South Africa have adopted policies that reduce barriers to both trade and capital flows. While reduction of trade barriers has increased the volume of trade, relaxation of restrictions on capital flows has accelerated the shift from low to higher value commodities. Greater acceptance of foreign direct investment (FDI), particularly in manufacturing, has induced many global and regional corporations to relocate some or all of their production to countries with lower labour costs. This trend commenced with the relocation of simple manufacturing processes from low valued commodities, but has since progressed to manufacture of intermediate and higher value goods and components,

particularly of electronic components. The impact of these changes can be seen in Figure 4.

**Figure 4: Relationship between world trade growth and world economic growth over the post-war period**



Source: [www.wto.org](http://www.wto.org)

The rate of world economic growth fluctuated greatly during the post-war period: from around 6 percent for much of the 1960s to a little over 2 percent during much of the 1970s. However, from 1950 through to 1990 the relationship between economic growth and growth in the value of international trade stayed almost constant: the value of trade grew approximately 1.5 times as fast as the world economy. The last decade has seen a major change in this ratio: the value of trade is now growing at approximately 2.2 times the rate of growth of the world economy. The concept of trade elasticity becomes important which is the percentage growth of sea trade divided by the percentage growth in industrial production. According to Stopford, the trade elasticity of last thirty years has been positive, averaging 1.4, meaning that sea trade grew 40 percent faster than world industry.

While there have been important changes in the hardware of the liner shipping industry, especially in the size of ships, there have also been some significant changes which, although less visible, have been just as influential. This includes both the regulatory environment in which shipping lines operate and the way in which shipping lines themselves organise their activities.

To understand these changes that have taken place in the regulation of liner shipping, we have to analyse the broader political and economic trends. Over the past 20 years there has been an increasing tendency toward economic liberalism as explained earlier in the shaping of industry policy, and there has been increased reliance on competition as the primary force of economic activities. Any industry structures or arrangements that are seen to diminish competition or interfere with customer-supplier relationships are seen as suspect in this environment and the activities of shipping conferences fall into this category. In line with this trend, governments have in general looked at the activities of shipping conferences less favourably, and sought regulatory changes to redefine the limits of collaborative arrangements between carriers.

Articles 85 and 86 of the European Treaty are of the most direct interest and concern to liner shipping. Article 85 prohibits “any agreements or concerted practice between undertakings which may affect trade between member states and which have as their objective or effect the prevention, restriction, or distortion of competition within the Common Market”. Article 86 lays down that “any abuse by one or more undertakings of a dominant position within the common market.... shall be prohibited....”

Council Regulation 4056/86 provides block exemption for shipping conferences from Article 85 and 86 of the Treaty of Rome 1957. Regulation 4056/86 states that exemption will apply only if the agreement, decision or concerted practice does not cause detriment to ports, transport users or carriers within the European Common Market. Detriment is deemed to exist if the rates and conditions of carriage applying to the same goods in the area covered by the agreement differ according to the country of origin or destination or the port of loading unless such rates can be economically

justified.<sup>3</sup> These policies have shaped the environment within which global liner shipping countries have shaped their strategies. This has also created new and expanded challenges for shipping companies, and advances in global communications and logistics management have increased performance expectations of all transport enterprises. The response from shipping lines has been with new forms of collaboration, some broader and more diffused than traditional arrangements, others narrower and deeper. Cooperation between container shipping companies in many different forms such as slot purchase, slot exchange, vessel sharing agreements of joint services has been an essential feature of the industry for a long time. These forms of carrier cooperation tended to be on a trade specific basis. However, in recent years there has been a growing trend towards carrier alliances on a global basis. Carriers entered into partnerships that covered their operation worldwide-or at least on the main East-West routes-rather than on a single trade lane. This offered significant additional advantages in container logistics and the rationalisation of port terminals, while allowing shipping lines to retain their distinctive marketing identities and ownership.

The latest development, however, has been a wave of mergers and acquisitions<sup>4</sup> that are clearly visible in statistics on the degree of concentration in the liner shipping industry. In 1998, the top 20 container lines controlled approximately 35% of the total global TEU capacity.<sup>5</sup> This figure crept up, slowly but apparently inexorably, until by 1996 it had reached around 50% of total global shipping capacity. Then, between 1996 and 1998 the share of the top 20 lines leapt to 70%, as the merger wave began in earnest. From 1998 to 2000, there has been a further significant increase, so that nearly 80% of total global capacity is now controlled by the top 20 lines as can be seen in figure 5.

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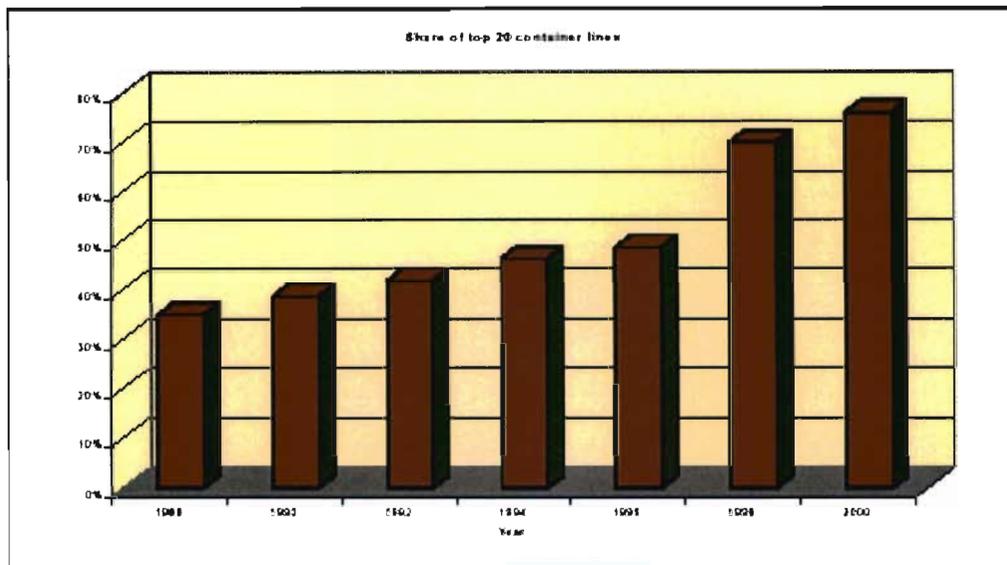
<sup>3</sup> The commission has noted that external competition to conferences is an essential factor in the granting of the block exemption. Any restrictive agreements between conference lines and non-conference lines are therefore a cause for concern. OECD, Maritime Regulatory Reform – Comments by Delegations, DSTI/DOT/MTC (99) 17, p.3

<sup>4</sup> Although the majority of the carriers acquired have been second-or third-tier operators, some significant carriers, including APL and DSR-Senator, were taken over by NOL and Hanjin respectively. P&O Containers and Nedlloyd Lines merged in 1997 to create P&O Nedlloyd Container Line, which later too over Blue Star Line and Tasman Express Line. Evergreen became the second largest carrier in the world, in terms of TEU slots under its control, through the takeover of Loyd Triestino in 1998. In 1999, MAERSK Line acquired the international shipping operation Sea-Land to form a company controlling 9.2% of the world container shipping fleet.

<sup>5</sup> Includes cellular fleet only

Shipping lines have been desperately searching for ways to improve client service. Some of the major changes have been adopted by most if not all major lines into improving service quality and lowering costs. Larger vessels have been introduced in order to lower costs. The introduction of multiple strings on major trade routes has enabled lines to improve transit times between important port pairs. Heavy investment in information technology and the use of multimodal services have reduced documentation and expedited processing.

**Figure 5: Share of top 20 lines in total global capacity**



Source: Containerisation International, November issue

However, the poor market conditions that dominated most of the 1990s convinced major operators that concentrating purely on the provision of line haul services on the sea leg was an inadequate business strategy. Essentially, this approach trapped the line into supplying a pure commodity that was easily replicated by competitors whenever markets appeared to be recovering, which led to repeated entry and low profitability.

The response was to seek ways to ‘add value’ through diversification and enhancement. Different lines have sought to do this in different ways. Many, led by the American lines, have sought to establish seamless intermodal services, extending their operations to include inland haulage and offering door-to-door transportation. Some, including P&O Nedlloyd, have developed other elements of the logistics chain, expanding their warehousing, cold storage and related activities. Most have taken advantage of more flexible regulatory regimes to move away from strict adherence to standard tariffs into price/service packages tailored for particular customers. Those lines with the capacity to do so have sought to negotiate global service arrangements with clients, protecting themselves by packaging a range of services that new entrants would find very difficult to emulate. Finally, many lines sought to improve the quality of the service that they offered to customers by increasingly sophisticated cargo care, improved information systems allowing continuous container tracking, and the introduction of a range of e-commerce initiatives.

### **3.2 Implications for Ports**

As part of their response to the new challenges, shipping lines have also made greater demands on port facilities, in terms of both capacity and performance. The most obvious and frequently cited impact of the increase in vessel size is the need for greater channel depth. This is certainly a real issue. However, the post-Panamax vessels have tended to be designed in such a way that most of the increased capacity is provided by increasing the beam rather than the length or draft of the vessels: the first post-Panamax vessels were actually shorter than the first Panamax vessels, and required less draft. The emphasis of greater breadth has, however, had important implications for terminal investment. Ports and terminals that wished to be candidates for calls by such large vessels have needed to acquire cranes that are taller with a longer outreach – and of course more expensive. This has been accompanied by an increase in the size of container terminals as the demand for land backing has risen in line with increases in vessel size. Larger vessels also bring with them a need for better handling performance and container management in order to ensure that the time spent in port does not become excessive. This need is met in part by investment in increasingly sophisticated information technology system. In the intensified port

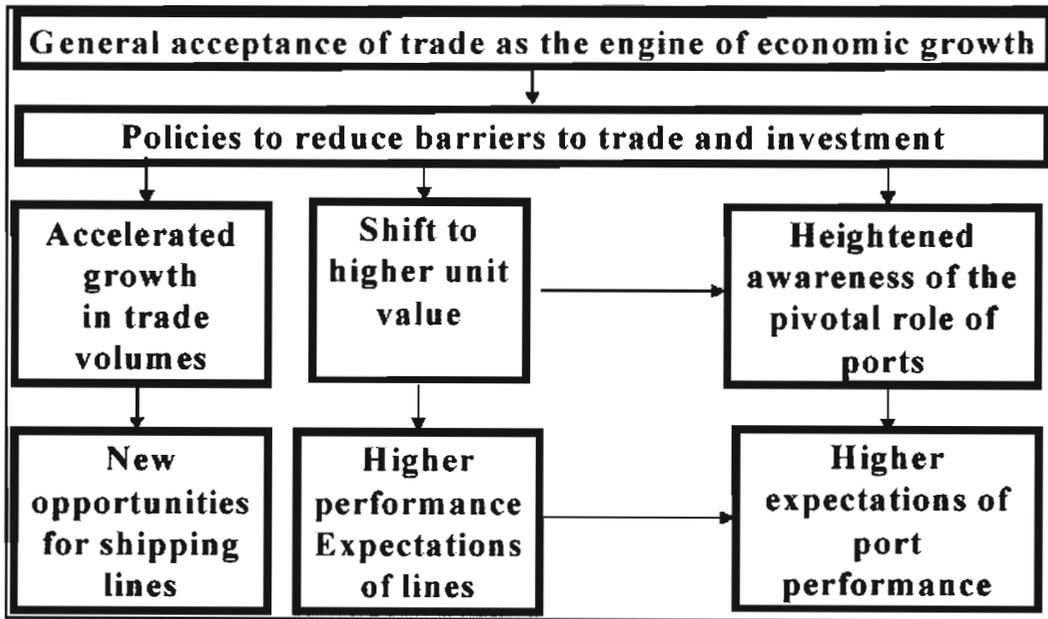
competition, international container terminal operators are extending the scope and scale of their activities and are operating terminals in ports around the world. Hutchinson Port Holdings (HPH), whose original stronghold was in Hong Kong, has developed a wide range of investments on the Chinese mainland, and has expanded its terminal operations to a total of 159 berths in 28 ports around the world. PSA (Port of Singapore Authority) Corporation of Singapore currently operates terminals in 10 different ports and continues to maintain its expansion strategy. Around 48 million TEU, or 21 per cent of the world container throughput, was handled at the terminals operated by PSA and HPH in 2000 (United Nations, “Regional Shipping and Port Development Strategies”, 2000). Australian-based P&O Ports has a lower global throughput, but an even more diverse and growing range of port investments, which includes facilities in China, SE Asia, India, the Middle East, Europe and Africa. The developments of the last decade or so have seen a shift in the balance of power between shipping lines and ports – a shift in favour of shipping lines. The greater volumes that are now controlled by a single line or alliance mean that the capacity of an individual line to seriously affect the business of even a major port is now much greater than it has been in the past. The most dramatic recent example of course is Maersk Line’s transfer of its business to the new port of Tanjung Pelepas. This decision of a single shipping line is expected to cost Singapore – the world’s premier hub port – approximately 15 per cent of its total business. One of the main considerations in this and a number of other recent shifts is control – more and more lines are seeking dedicated terminal facilities and direct control over landside operations.

Finally, for most ports what comes in by sea must go out by land. Larger ships with faster discharge rates place increased stress on the land transport interface, and generate a need for faster and more efficient intermodal connections. These demands for enhanced port performance and increased investment in port facilities have in turn led to changes the port policy of many countries.

As a result there is a change in the basic paradigm of port-carrier relations. The traditional paradigm is that ports serve basically local trade, and shipping lines come to the cargo. Under the emerging paradigm, shipping lines serve regional, largely non-local trade, and the cargo is moved – by feeder or intermodal service – to the ship.

Figure 6 illustrates how these changes and their implications are integrated into economic growth.

**Figure 6: Changes in international trade and responses of shipping and ports**



Source: [www.unctad.com](http://www.unctad.com)

### 3.3 Container Trade Growth

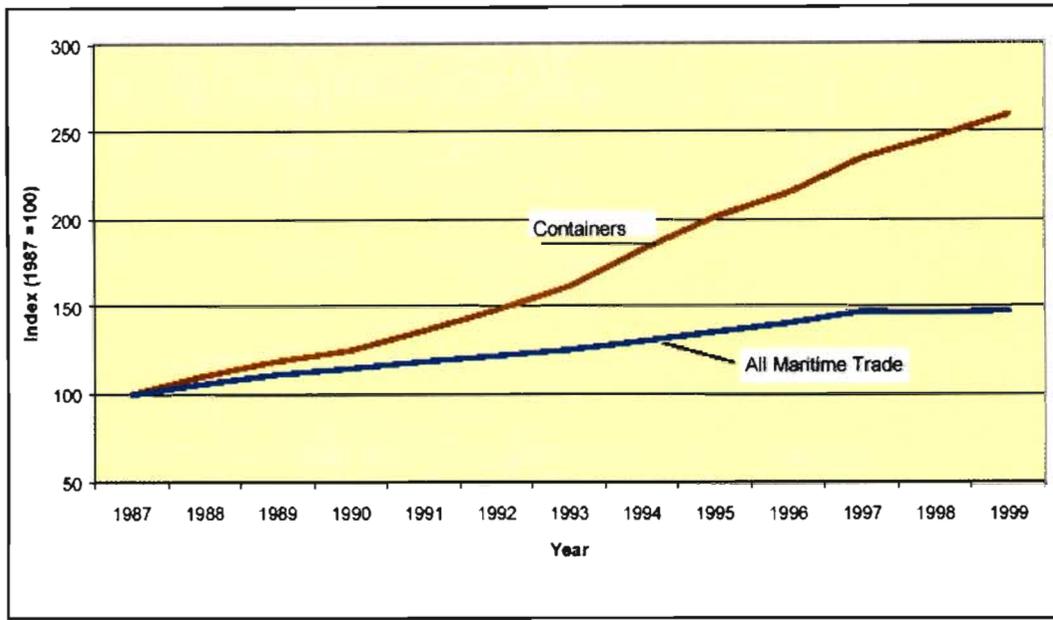
#### 3.3.1 Background

During the 1980s and 1990s, international container trade continued to increase at a rate far exceeding that of maritime trade as a whole as can be seen in Figure 7.

Total maritime trade volumes grew at an average of 3.3 per cent per annum over the period, with the result that, by 1999, total sea borne trade had increased by approximately 50 per cent over 1987 volumes. Containerized cargoes, by contrast, grew at an annual average growth rate of 8.3 per cent per annum over the same period, leading to an increase around 160 per cent in total maritime container movements. Due to the increasing importance of trans-shipment movements (the

transfer of cargo from one ship to another) the number of containers handled in the world's ports grew at an even faster rate - in excess of 9 per cent.

**Figure 7: Growth of World Maritime Trade (1987 – 1999)**



Source: Drewry Shipping Consultants, OECD Maritime Trade Statistics

During the 1980s, a large portion of the growth could be attributed by an increase in the container penetration rate. As more and more shippers became aware of the benefits of shipping in containers, and more and more ports developed the infrastructure and acquired the handling equipment needed to cater for container vessels, goods that had previously been shipped as loose cargoes gradually converted to containers. As the larger container markets mature - it was argued - the scope for further containerisation would reduce, and the rate of growth slow to the much lower growth rates that had traditionally characterised the general cargo trades (United Nations, "Regional Shipping and Port Development Strategies", 2000).

This did not happen, and there appear to be several reasons why it did not:

- As discussed in the previous chapter, liberalisation of international trade and the globalisation that has accompanied it, have accelerated the growth of international trade. At the same time, the change in the composition of international trade, with a shift away from basic commodities towards processed primary products and manufactured goods, also favoured growth in container volumes.
- Containerisation, combined with developments in information, food and other technologies, has expanded the range of trading possibilities, and again provided a stimulus to volumes. The most obvious instances are in the carriage of highly perishable goods.
- China has emerged as a major new container market. At the beginning of the 1990s, containerization was in its infancy in China. Rapid progress has been made, and volumes to and from China have grown enormously over the decade. The Chinese container market (excluding Hong Kong, China and Taiwan Province of China) has now overtaken Japan as the world's second largest container market, with only the USA producing more containerised imports and exports.

### **3.3.2 Future Projections**

In essence, the trends of the last two decades are expected to continue. Although current progress is disappointingly slow, a new round of world trade talks is still expected to commence soon, and this may well lead to further liberalization of world trade. Even without further progress, however, the commitments of the Uruguay round are likely to stay in place. The growth in trade in perishable foodstuffs facilitated by containerization continues to be strong, and there are signs also of strong growth in containerization of some commodities for which container transport has not until now been considered a real option. A small but rapidly growing part of international grain movements, for example, now takes place in containers (United Nations, "Regional Shipping and Port Development Strategies", 2000).

China is also expected to continue to be a major contributor to global container growth. Although some regions of China may now be regarded as mature, in many other regions - especially inland regions - the potential for further development is great. Moreover, there are other potential major markets, including India and Vietnam, which have the capacity to provide a further major stimulus to global container volumes.

Over the next ten years, total maritime trade is forecast to grow at between 3.5 per cent and 4.0 per cent per annum – a slightly higher rate than that was experienced through the 1990s.<sup>6</sup> Although there is some variation between the estimates of certain projections, expected growth rates for the container market generally lie in the range 6 per cent to 8 per cent per annum. Container growth rates are of course likely to be highest in less developed countries – such as China, India, Indonesia and Vietnam – where there remains considerable scope for the containers to increase their market share at the expense of more traditional cargo handling methods. However, even in those economies where containerization is mature, the rate of growth in container traffic is expected to exceed both the rate of economic growth and the general growth in maritime trade volumes.

### **3.3.3 Economic Assumptions**

Growth in the container trade is ultimately driven by economic growth. An underlying assumption of this study is that, for the next decade at least, the structural relationships between the growth in container trade and economic growth will remain basically unchanged. An expectation of future economic growth is therefore important.

The LINK Model, which is a research study between the United Nations and several universities worldwide, shall be used for this growth projection. The LINK Model provides estimates for all of the major economies at the level of the individual economy, and also estimates for clusters of smaller economies.

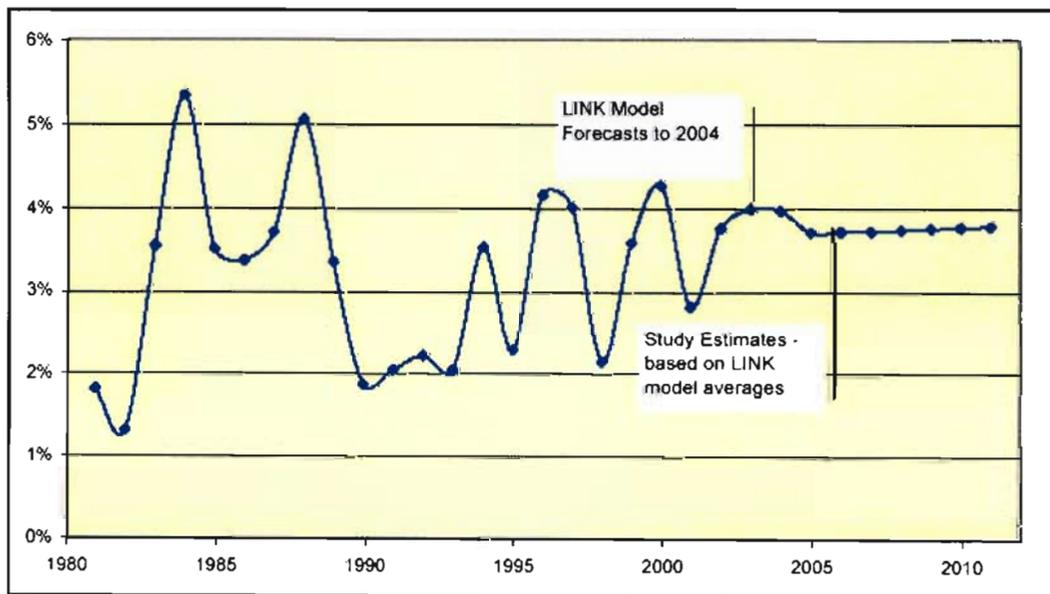
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<sup>6</sup> Standard and Poor, World Sea Trade Service

The LINK model projections however extend through only to 2004, whereas the study period runs through to 2011. In extending the forecast period, a very simple method was adopted in general: the average growth rate for the period during which the LINK project provided explicit forecasts was applied for the remainder of the forecast period. For some countries other sources available were also referred in estimating the GDP growth rates for the years beyond 2004. This was done for each economy independently.

The consequent economic growth estimates are shown in Figure 8. They embody a view of future economic growth that is reasonably optimistic. Since these forecasts were prepared in the first half of 2001, the short-run outlook for the world economy has deteriorated still further. Japan's economy has suffered further setbacks, and is in technical recession; economic growth in the USA has slowed sharply; and growth estimates for some major European economies has been revised downwards by a significant level.

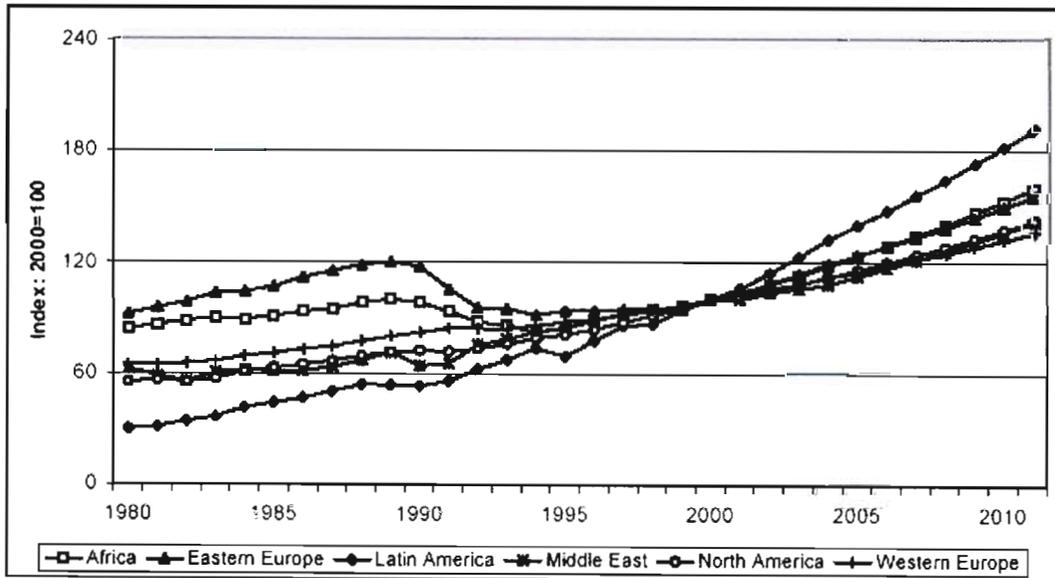
**Figure 8: Economic growth estimates underlying container forecasts**



Source: Study estimates based on LINK Model forecasts, April 2001, UNCTAD

The deeper economic slowdown will clearly impact on container volumes in the short term. It will not, however, necessarily invalidate the forecasts as depicted in figure 8. The horizon for these forecasts is medium term – 10 years from now – and although the timing of economic cycles during that period is impossible to predict, they will inevitably occur. Figure 8 shows that the average growth rates predicted for the 2000-2011 period are consistent with the average for the previous fifteen years, if the major recession of the early 1990s is excluded. The economic growth assumptions underlying the present projection may therefore be interpreted as hypothesising that growth will continue along a path similar to that of the recent past, and that, although there may be good years and bad years within the forecast period, there will not be a major, prolonged economic slowdown on the scale of that of the early 1990s.

**Figure 9: Forecast GDP growth by region**



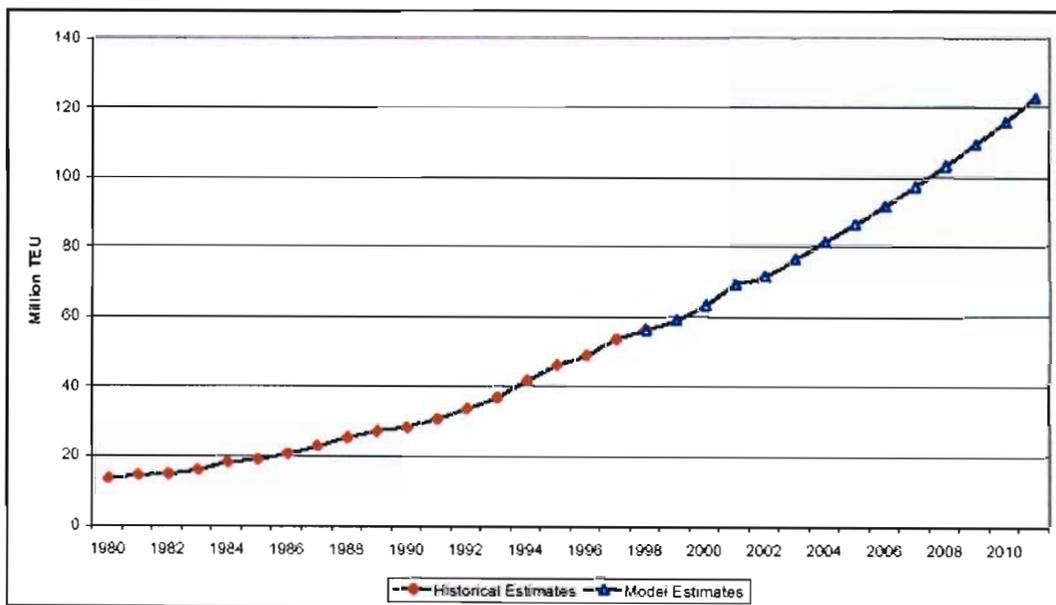
Source: Study estimates based on LINK Model forecasts, April 2001, UNCTAD

Figure 9 shows a breakdown of forecast economic growth rates by region. As can be seen from figure 9, the forecast embodies a positive outlook for the two regions that suffered the greatest economic difficulties during the 1990's: Africa and Eastern Europe. These projections have obvious implications on African and particularly South African ports.

### 3.3.4 Global Container Forecasts

Figure 10 shows the global container forecasts that result from converting economic growth rates into projected full container volumes. The volumes shown in figure 10 are full origin-destination containers only: that is, empty containers are not included, and each container is counted only once during its entire journey, regardless of how many times it may be handled.

**Figure 10: Past and Forecast global container volumes (1980 – 2011)**



Source: [www.unctad.com](http://www.unctad.com)

The total number of full containers shipped internationally is expected to grow to 122.7 million TEU by 2011, up from an estimated 59.0 million TEU in 1999, but at a slower rate of 6.3 percent per annum compared to 8.4 percent per annum that characterised the 1990s. A 6.5 percent per annum annual average growth is expected during the period of 1999-2006, falling slightly to 6.0 percent per annum in the following five years (UNCTAD, “Development and Improvements of Ports”, 1992).

These comparisons are summarised in Table 3.

**Table 3: Estimated and Forecast growth rates for container trade (1980 – 2011)**

<i>Year</i>	<i>Container Volumes (million TEU)</i>	<i>Compound average growth rate over previous period</i>
<i>1980</i>	13.5	-
<i>1990</i>	28.5	7.8%
<i>1999</i>	59.0	8.4%
<i>2006</i>	91.7	6.5%
<i>2011</i>	122.7	6.0%

Source: [www.unctad.com](http://www.unctad.com)

It should be noted that these forecasts depend critically on the assumptions that are made about future world economic growth as explained earlier. The study reveals that, for every 1 percent per annum increase or decrease in estimated global economic growth, the rate of growth in container volumes will change by approximately 1.5 per cent per annum.

In light of these arguments, globalisation, trade liberalisation, increase in world sea borne trade and the projected increase of container traffic places significant challenges for ports. The nature, purpose and role of a port are thus important, which shall be explored in the next chapter.

## CHAPTER 4: WORLD TRADE PATTERNS

### 4.1 Recent Developments in International Trade and Transport

The main reason why many ports have a new role to play is that the environment in which ports exist and operate is changing. International transport of which port is an element is undergoing important organisational, technological and commercial evolution. In turn, this evolution in transportation is the result of changing international trade. It is difficult therefore, to analyse the new role of ports without first examining the new circumstances of international trade and transport, which will be expanded on from the previous chapter.

#### 4.1.1 Changes in world trade patterns

According to UNCTAD world trade has been growing faster than world production over the past thirty years. Today world production is more internationalised than before. This has led to changes in shipping; ports and land transport and form the new economic and technical environment of the world trade transportation system.

##### *Multiplication of world trade centres and groups*

Nowadays world trade routes are quite diversified. This is especially due to accelerating industrial activities in the Pacific basin. Japan took the lead, followed by the Republic of Korea, Taiwan Province of China, Singapore and Hong Kong (UNCTAD, Port Marketing, 1992). New economic powers such as Thailand, Malaysia, Indonesia and China came later. At the same time industrial centres in the eastern part of North America have been moving westward to the Pacific Coast forming the Vancouver - California industrial belt. In addition to this dynamic Pacific economic zone, new economic and trade centres are emerging in the southern part of North America, in Latin and South American countries such as Brazil and Mexico, as well as in the Middle East and some African countries.

Even in Europe changes are gradually being seen: industrial activities in the Ruhr area Wallonia and northeastern France have slowed down and a strong growth has been recorded in Baden – Wurttemberg, Bavaria and the Lyon - Grenoble areas. A high growth rate has been maintained in recent years in Italy Spain and Portugal. Therefore, a new world trade pattern has emerged which is completely different from the old one (UNCTAD, Port Marketing, 1992).

#### *New characteristics of world trade growth*

The multiplicity of world trade centres is merely one aspect of the changing situation. Until recently, raw materials were shipped from their source to industrial and manufacturing areas to be transformed into finished products. Nowadays, more and more raw materials are being transformed into intermediate and sometimes finished products in the producing country itself before being shipped overseas. For example, big petroleum refining has been built in oil exporting countries. There is also a dramatic increase in manufactured goods especially containerised cargoes. It is expected that this growth pattern will be maintained which signifies that the average value per ton of cargo transported on the international trade routes will become still more important in the future. The volume of container trade and as well as its share in world trade is expected to grow as was explained in the previous chapter.

#### *Internationalisation of world production and consumption*

The development of transport and communication has made the world smaller. Today, as compared to even ten, twenty or thirty years earlier, world transport and communication systems not only cover a much larger part of the globe but are much quicker, cheaper and easier to use. Accessibility to the production process and to consumption sources is now worldwide. People go abroad not only seeking raw materials and finished products but also cheaper and better production factors. The international division of work is seen not merely in different products but also within the fabrication process of the same product. Consequently, the multi-

national production system is extending rapidly (moreover, cargo-movement of semi-finished goods caused by this global production has met with fewer artificial trade barriers than have finished products). The era of semi-isolated national economies is fast fading as enterprises and governments search globally for technical capabilities, cheaper inputs and market access advantages. Decisions about labour, raw materials, plant location, transport distribution system, markets and delivery time are taken on a worldwide basis instead of a local one.

Consumption too is moving in the direction of globalisation. Starting in developed countries, people are buying all kinds of foreign made consumer goods. Cars and other high value durable goods are no longer the exclusive imported items they once were. Low-value imported products from basic daily foodstuffs to household wares and everyday clothing have entered ordinary family homes even in some developing countries.

With easier access to information regarding comparable goods from alternative sources that can satisfy the purchaser's needs, it will become increasingly difficult for producers to isolate markets and serve them on an exclusive basis. Globalised production and consumption will increase competition between substitutes and lead to an even greater emphasis on the control and reduction of costs related to the production and transportation procedures.

#### *New requirements of the world trade for transport distribution*

When the pattern of cargo flow changes, international transport has to adapt to the new requirements as follows:

- The multiplicity of world trade centres calls for an extensive transport network. A greater variety of transport services should be provided to link

the whole world trade complex consisting of big medium and small centres. A network expansion is the first requirement of this new trade.

- Semi-finished or manufactured cargo in trade requires substantial improvement in both speed and security. The time factor in transporting high value goods is so important that a significant and increasing proportion of these goods is moved by air.
- When international trade is involved not only before and after production but also during the whole production process, the transport service then assumes a very special role. Besides speed, security and other requirements, the reliability of delivery time and the frequency of transport services are of great importance. At the same time, a good information/communication system is essential.
- Since the new increase in world trade is often the consequence of reduction in the price of production factors, the cost of transport is of paramount importance. The cost factor is not merely for a particular mode of transport, but for the total cost of the integration of transport and distribution involved in the movement of goods from the producer to the final user.

#### **4.1.2 Emergence of a world transport system**

- World trade changes its pattern and develops in depth and in dimension. It is clear that if national economies are expected to develop by taking part in today's world trade system, concepts and practices regarding transportation and distribution are bound to change. These new concepts and practices are explained below.

#### *Integration of foreign trade and the transport chain*

This is a concept under which the transportation/distribution activities are considered as a sub-system of the whole production system. In a traditional industrial society the transportation chain of goods from the producer to the final

user was normally divided into several parts. Shippers rarely cared about onward transport matters in the receiver's country and receivers paid little attention to the pre-forwarding costs before their goods reached the ship's rail. This is no longer the way people look at their cargo transportation today. It is now the total or integrated transportation chain which matters. From the buying of raw materials at the site of their production to the delivery of products to the warehouse of the receiver, production, transportation, storing, distribution, information are all integrated into one unique network. When arranging cargo movement within the network, only the cost and efficiency of the integrated transport/distribution chain are taken into account.

### *Intermodalism*

This production-driven need for an integrated transport chain has led to intermodalism. The major objectives of intermodalism are to increase the speed of cargo distribution and reduce the amount of unproductive capital, whether in inflated inventory levels, inactive railcars or vessel delays at ports. Since new trade patterns require quicker, cheaper and safer transport of goods than in the past, the main obstacle was found to be at each transport mode interface, which caused delay and increased the cost of the whole transport chain rather than of "a moving part" of that chain (UNCTAD, Report by the Secretariat, "The Challenge of the Third Generation Port", 1992).

Due to containerisation, the intermodalism of foreign trade transportation has been possible on a large scale. Shippers entrust door-to-door transport to one multimodal transport operator who is a specialist dealing with different modes of transport and who has an international operating network. The intermodal transport of containers from Yokohama to New York requires just 14 days instead of three weeks by waterway (H.Yamada, "Strategy of shipping companies", 1990).

In developing countries intermodalism is also gaining ground, e.g. the sea/air transport centre in Dubai is of world class and the sea/land transport in Mexico or the trans-Andes land bridge in South America are very promising (UNCTAD, Report by the Secretariat, "The Challenge of the Third Generation Port", 1992). Apart from the changes in the legal regime and the terms of shipment, perhaps

the biggest change brought about by intermodalism to transport is the emergence of multimodal transport operators (MTO) and their increasing role in the choice and control of the transport chain. This has affected the activities of transporters, port operators, warehousing operators etc., which has resulted in competition between ports.

#### *Logistics of the transportation chain*

The concept of logistics is now widely accepted. Logistics is a procedure of optimising all activities that ensures the delivery of cargo through a transport chain from one end to the other. In order to optimise the whole system, the logistic approach is to decide when, where and how actions should be taken. One of the best illustrations of this is the well known "Just-In-Time" delivery - a logistic method based on precisely managed and controlled transport and information systems which aims to eliminate excess stock in the production process. Just-In-Time logistics is not only vital to an automobile assembly line, but also to farmers because they want to minimise the cost of holding inventory. It is especially true of the fertiliser business. A leading American fertiliser producer has changed his distribution system by customer demand for a more precisely-timed delivery of bulk fertilisers. In the port of Newcastle, Australia, a just-in-time coal export chain has managed to maintain small stocks, thereby reducing potential pollution, yet at the same time providing a rapid response to changes in demand levels ([www.pmaesa.org](http://www.pmaesa.org)).

#### *Trans-shipment*

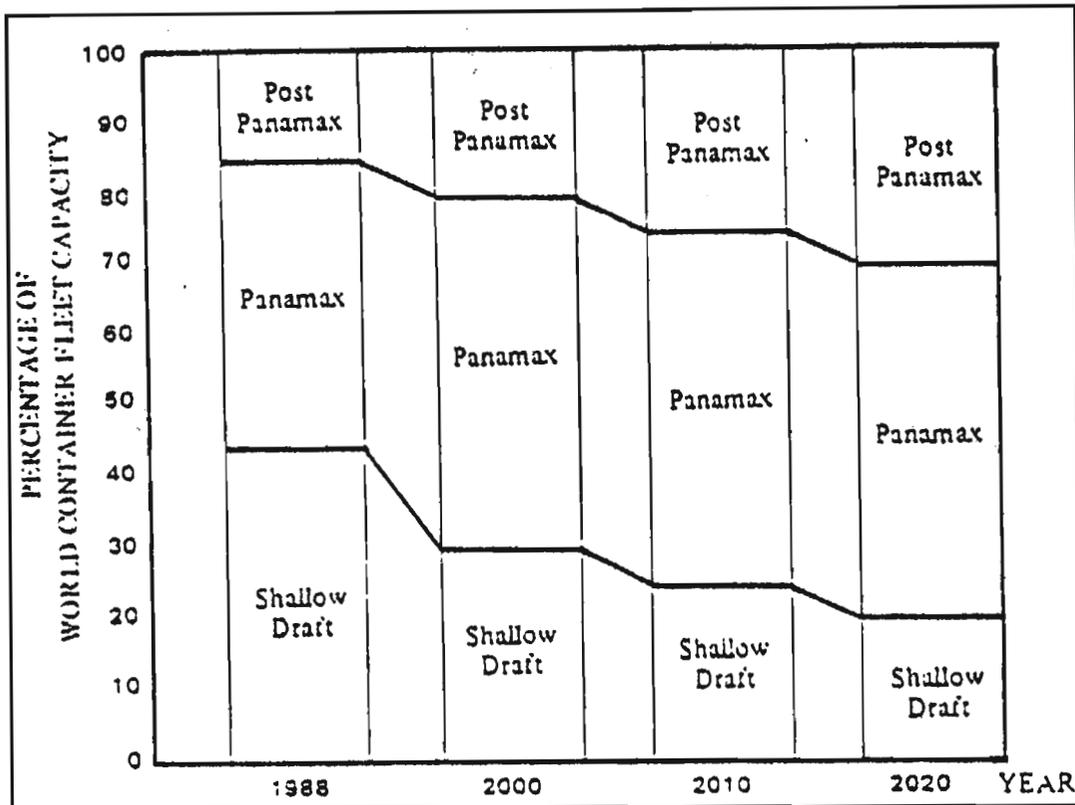
As trade requires quicker and cheaper cargo movements, the big trans-oceanic shipping lines, as described in a recent trans-shipment study by UNCTAD, have taken advantage of the flexibility and the scope for modulation allowed by the container technique to reorganise and restructure shipping services to regions of heavy traffic (UNCTAD, "Development and improvement of ports", 1992). Veritable grid networks assembled around trans-shipment ports where different trade routes intersect and interconnect have replaced the traditional port-to-port routes. The shipping lines have thus been able to connect trading points and, by increasing the size of their ships and making full use of them, have achieved

economies of scale in deep sea hauls through reduced unit costs and transit time. By organising - often alone, or sometimes with other shipping lines - secondary transport networks served by purpose-designed feeder ships, they have managed to increase the number of ports served from a single port of shipment. By extending their operations upstream and downstream, they have achieved sweeping economies of scale and gained other advantages that have enabled them to offer shippers a made-to-measure service. Trans-shipment is also expanding in some developing countries, especially when the cargo volumes to and from these countries, are not big enough to justify direct vessel calls or when the location of these countries ports are remote from the main maritime routes or the port facilities in these countries are not suitable for main line vessels to quickly load and discharge ([www.pmaesa.org](http://www.pmaesa.org)).

#### *Specialisation and economics of scale of ocean going vessels*

Specialisation of international cargo transport equipment has taken place in inland transport such as the block train or as in some countries double-stack trains for container transport or in sea transport by using specialised vessels. Today the multipurpose conventional general cargo vessels are restricted to a limited category of cargoes and to a limited number of trade routes. Specialised vessels handle most of the world's trade. Liquid dry bulk carriers and full container vessels are two major specialities while ro ro (roll - on - roll off) ships, car carriers, log carriers, fruit carriers, heavy lift carriers etc are also used extensively. Together with the specialisation of ships, the economies of scale have led to an increase in vessel size. A similar trend is evident in the dry bulk sector. The majority of big container vessel operators are now replacing their fleet with fifth and sixth generation trans-oceanic container ships, vessels with a capacity of more than 50000 DWT (Dead Weight Tonne). The economic advantages to be gained from these large vessels as compared with a panamax vessel are: a reduction of approximately 43 per cent in daily consumption per TEU and 23 per cent in construction costs per TEU transported ([www.pmaesa.org](http://www.pmaesa.org)). Figure 11 shows the forecast of the world container ship fleet for the next thirty years.

Figure 11: Forecast of the world container ship fleet



Source: V. Champion, "Shipping example", Cargo systems, 1991

In keeping with this forecast and the world trend towards larger vessels the National Ports Authority of South Africa has undertaken various infrastructural initiatives in meeting this demand. The construction of the new deep-water port at Ngqura (Coega) will be able to handle post panamax vessels (generation 5 and 6 vessels) and the widening and deepening of the entrance channel in the port of Durban together with the construction of deep-water berths at Point and the deepening of the berths at Maydon Wharf are initiatives to cater for these large vessels.

#### *Customer orientation diversity and flexibility*

Customer orientation is a vital concept for the formation and improvement of the world transport system. If we say that world trade is production and consumption driven, then the international transport/distribution is trade driven and has been in a

“buyers market” with fierce competition. To be as close as possible to one’s customers is the key to success. Diversity and flexibility are the two essential characteristics that customers require. To fully satisfy all customers needs, the transport service should be tailor made with particular service patterns to meet each individual customers needs.

## **4.2 Port Systems**

Most of the world's trade in commodities and manufactured products moves through seaports. During the 1980s, the importance of international trade for the economic development of a country became accepted wisdom. This is to a large extent due to the success experienced by export-oriented countries such as South Korea, Singapore, Taiwan and Malaysia. The concurrent lack of development experienced by many countries which applied protectionist trade policies, gave further strength to the arguments in favour of liberalising trade (FINNEY, Nicholas, “The Background to the Ports Bill”, Ports and Harbours, June 1991).

The promotion of international trade and the imposition of liberal trade policies has been strongly encouraged, if not actually imposed, by the International Monetary Fund and the World Bank which have insisted on the adoption of such policies in order for countries to qualify for loans and other assistance. International trade requires efficient, reliable and cost-effective transportation and distribution systems and seaports, as the interface between the international trading network and the national distribution system, are of prime importance.

All ports are similar in that they provide infrastructure for the berthing of ships and facilities for loading, unloading and storing cargo. However, the organisation, management, operation, objectives and strategies of ports vary considerably from port to port and from country to country. This chapter will review the role of ports within this context and discuss some of the current trends in port developments around the world.

### 4.3 Port Ownership and Control

Because of the great national or regional importance of ports and their costly infrastructure, public authorities are involved in providing port services all over the world, even in many developed countries, which ideologically strongly favour free enterprise. Although the possibility of privatising ports and the provision of port services is under consideration in many countries, very few common user ports are currently totally privately owned and operated, (UNCTAD. Port Pricing, Geneva, 1975).

Jurisdiction over ports can lie with a central government, a provincial or state government or with a municipal government. The involvement of a public authority in ports can encompass all services provided by the port, or it can be limited to building and maintaining the infrastructure. There are also considerable variations in how ports are managed. A port can be a division within a Ministry or a municipal government or it can be an autonomous organisation with its own budgets and accounts.

Some countries such as Morocco, Canada and several South and Central American countries have, or had up to quite recently, national port authorities which were responsible for the operation of most ports in the country. Singapore, which is a port state, can be considered in the same category, as can many developing countries in Africa and Asia, which have only one or two ports (CETAI, Montreal, 1994).

In Australia ports are the responsibility of the state governments rather than the federal government. The federal government has, however, become heavily involved in port matters because labour relations are a federal matter. Australian ports were traditionally beset by strikes, and generally considered over manned and bogged down in bureaucracy. This resulted in the ports being notoriously costly, inefficient and unreliable. The federal government, with the blessing of the state governments, therefore, initiated a reform program in 1989 aiming at eliminating the countrywide industry labour regulations, the National Dock Labour Scheme, and replaced it with enterprise-based agreements.

Under this arrangement, stevedores were employed directly by individual stevedoring companies rather than being hired as casual labour from a labour pool.

The reform was aimed at increasing the competition between ports and at reducing the incidence of strike actions. This process saved the Australian economy A\$300 million annually (“Australian Supplement: Waterfront Reform – Passing the Buck”, Port Development International, 1993).

In the United States, port matters are also under the jurisdiction of individual states. Some states, such as Georgia, Massachusetts, Maryland and Virginia, have state-wide port authorities while in others, ports are owned by the municipality or the county. It is common in the United States for port authorities, such as the Port Authority of New York and New Jersey, to own and operate not only seaports but airports, bridges, tunnels, industrial parks, foreign trade zones, recreational facilities and international trade and convention centres. The boards governing the port authorities may be elected, as in New Orleans and Seattle, or appointed, as in Los Angeles and San Francisco. The United States federal government is involved in ports to the extent that it provides free capital and maintenance dredging of access channels and approves price arrangements between ports (Goss, R.O. “A Comparative Study of Seaport Management and Administration, Government Economic Service, 1979).

Many ports in Europe, such as Rotterdam in The Netherlands, Antwerp in Belgium and Hamburg in Germany, are owned by their respective municipalities with little involvement by the national governments. In Hamburg the port is administered as an integral part of the city with various departments contributing to the works according to their specialist functions. As a result, there are no separate accounts for the ports as such (CETAI, Montreal, 1994).

In many countries, important ports are owned by the national government but operated by autonomous enterprises. The six autonomous ports in France: Marseille, Dunkerque, Nantes-Saint-Nazaire, Rouen, Le Havre and Bordeaux, handle more than 50% of France’s international traffic. These ports have substantial financial autonomy in regard to day-to-day operations and maintain financial accounts as if they were commercial enterprises. The central government, however, approves the

budgets and finances up to 80% of dredging costs and 60% of new infrastructure. The French autonomous ports are presently looking to increase their powers in regard to making lease arrangements with private companies without requiring approval by the central government (“Privates on Parade”, Port Development International, 1993).

In Canada, ports are under the jurisdiction of the federal government. Canada’s economic well-being depends heavily on international trade. Canada exports both primary materials and manufactured goods, which often have to travel more than 1,500 km before reaching a seaport. More than in most countries, Canadian ports serve distant hinterlands rather than local regions and this was the primary justification for the centralised administration of the fourteen major ports, which was in effect up to 1983. This system was strongly criticised for its lack of responsiveness to local needs, however, and, as a result, a decentralised, national port system was put in place. Under the umbrella of Ports Canada, seven ports handling most of Canada's international waterborne traffic and judged to be financially viable, were established as local port corporations while seven smaller ports remained under central control. Each local port corporation has its own board of directors, appointed by the federal government. These ports are mandated to be financially self-sustaining and have a large degree of autonomy in regard to operational arrangements and in dealing with private terminal operators (CETAI, Montreal, 1994).

Although most ports around the world are owned by public authorities, some ports are privately owned and operated. Private ports are most often specialised bulk facilities which have been built as an integral part of a natural resource development. It is still quite rare that a common user port, handling mainly general cargo, is totally in private hands. The United Kingdom has been a pioneer in this regard, and since 1981 some 30 ports handling approximately 55% of the country's total waterborne tonnage have been transferred to the private sector. Furthermore, the largest container port in the UK, the Port of Felixstowe, is a private port, which has never been under state ownership (FINNEY, Nicholas, 1991).

In New Zealand, the government abolished the national port authority in 1988 and compelled each harbour board to form port companies and run them as strictly commercial facilities. Regional authorities currently own most New Zealand ports.

The port companies are permitted to sell 100% of their shares to the public but none has yet done this. The central government has, however, expressed a clear wish for this to happen (“Port Development International”, 1993).

#### 4.4 The Provision of Port Services

Many services are provided to ships and cargoes within a port area, over and above the basic activities of providing and maintaining the port infrastructure, such as breakwaters, quays, terminals and warehouses. A study by UNCTAD reviewed how the delivery of such services was divided between public bodies and private enterprises. The result of the survey is summarised in the table 4:

**Table 4: Providers of the main services in ports**

<i>Main Port Services</i>	<i>Typical provider of service in ports</i>	
	<b>Developing Countries</b>	<b>Developed Countries</b>
<i>Services to ships:</i>		
<i>Aid to navigation</i>	Port Authority	Other public body
<i>Pilotage</i>	Port Authority	Port Authority
<i>Towage</i>	Port Authority	Private undertaking
<i>Berthing/unberthing</i>	Port Authority	Private undertaking
<i>Repairs</i>	Private undertaking	Private undertaking
<i>Marine police</i>	Other public body	Other public body
<i>Fire fighting</i>	Port Authority	Other public body
<i>Services to cargo:</i>		
<i>Stevedoring</i>	Private undertaking	Private undertaking
<i>Cargo handling on quay</i>	Port Authority	Private undertaking
<i>Surveillance of cargo</i>	Private undertaking	Private undertaking
<i>Tallying of goods</i>	Private undertaking	Private undertaking
<i>Weighing</i>	Port Authority	Private undertaking
<i>Storage</i>	Port Authority	Private undertaking

Source: UNCTAD. Port Pricing

Although the UNCTAD study found that port authorities in developing countries, in general, take responsibility for delivering many more services than do port authorities in developed countries, the situation varies greatly from country to country and even within countries.

In Canada ports are so-called landlord ports. This means that most cargo-related services and many ship-related services such as pilotage and towage are provided by private companies, while other public bodies provide navigational aids and vessel traffic services. As a result, at Canada's largest port, the Port of Vancouver, which handles approximately 70 million tonnes of cargo per year, the port authority directly employs only 225 people. In contrast, ports in the People's Republic of China, for example, are totally integrated and the port authority provides all services in the port area including, sometimes, schools and hospitals. Thus the Port of Shanghai, which handles about 140 million tonnes annually, employs some 50,000 people ("Canada Ports Corporation", Corporate Plan, 1996).

In the United States, most terminals are leased to private operators, either stevedoring companies or ocean carriers. The Port of Savannah, however, operates its own terminal facilities and in Baltimore the port authority operates some terminals while private stevedoring companies operate others. In Europe most terminal facilities are operated by private companies, however, the Port of Gothenburg, the largest Swedish port operates its own terminals. In Germany, both the Port of Hamburg and the Port of Bremen lease terminals to private operators while at the same time operating their own stevedoring operations. In Hamburg, the city-owned stevedoring company, HHLA, which handles approximately 10% of total port traffic, is deliberately used as a technological innovator rather than as a source of revenue, they are however dominant in container handling (Goss, R.O. "A Comparative Study of Seaport Management and Administration, Government Economic Service, 1979).

The Port of Singapore, the port handling most containers in the world and the third largest in terms of total cargo, operates its own terminals whereas Hong Kong, the second largest container port in the world, leases its terminals to private operators (Containerisation International Yearbook, 1992).

Having explained the changes in world trade patterns and the role and purpose of ports in terms of port ownership and control, the next chapter shall focus on the role of seaports in international trade.

## **CHAPTER 5: THE ROLE OF SEAPORTS IN INTERNATIONAL TRADE**

The reason for discussing the development of trade and transport before discussing the actual subject of ports is not only because trade and transport generate port activities, but also because modern seaports are an integral part of the international transport chain and world trade. In fact the role of ports was not as important to national economies when the development of the latter was mainly dependent on national markets. It was during the sixties and early seventies that half a dozen developing countries, particularly in the Asian Pacific region, successfully transformed themselves, through foreign trade, into what we call today “newly industrialised economies”, (UNCTAD, “Port Marketing”, 1992). Globalisation of national economies has become almost non-reversible in industrialised countries and many governments in developing countries are shifting from investment-led or import-substitution to export-oriented macro-economic policies to stimulate commercial activities. The emphasis on export-promotion has generated a substantial increase in external trade volumes in some regions and put into sharp relief the strategic importance of ports and their pivotal role in the achievement of national economic goals. We shall further explore the role of ports under these changed economic conditions.

### **5.1 Administration to Commercialisation – A Changing Attitude**

In the past, the normal pattern was for ports to be managed by governments or by government agencies. In many countries, especially in developing countries, ports have traditionally been managed following the general principle of public administration; profit making was not the governing consideration. This phenomenon was not without good reason. Most ports and their facilities in the developing world are public assets (although port privatisation is taking place in some countries). Being usually considered as a mere interface between a natural captive hinterland and the sea, most of the ports are not required to act as profit-making institutions but they have to satisfy numerous objectives including social and political ones, such as national safety, contribution to the state budget or local employment. In the past, port

competition either did not exist or existed only on a small scale and ports were enjoying a special quasi-monopoly position. In countries where the national economy was totally planned, the demand (cargo throughput) for port services was determined through administrative channels rather than through the free market. Consequently, ports were looked upon as administrative entities instead of commercial bodies and this was reflected in many aspects of port organisation and management.

Over the last thirty years, the environment in which ports are operated has greatly changed. The old-fashioned attitude of being politically and administratively regulated has made the port incapable of adapting itself to increasing port competition and satisfying the needs of foreign trade and national economy. Today the commercial function and character of ports are being fully recognised. Ports should be considered first and foremost as commercial undertakings like any other industry. Since world trade and transport are part of a highly competitive market, all ports are, without exception, in the front line of the same international competition, even if the direct inter port competition in some countries is not apparently felt. To survive and develop in such circumstances, ports need to be given more freedom and responsibility based on commercial principles. There are various ways of changing from an administrative viewpoint to a commercial one. Privatisation is one; corporatisation (adopting a corporate structure) could be another option.

Ports are not only the interface locations for cargo between land and sea transport, but they also provide opportunities for the development of trade and free ports/ free trade zones. The trend towards commercialisation has in many cases enabled port organisations to widen the range of their activities. The same process or commercialisation has also allowed ports and port organisations to place a higher priority on achieving financial objectives. At first sight, an obvious measure to achieve such a result would be to increase port charges, but economic, commercial and other factors have made inter port competition far stronger than was formerly the case. Even where monopolistic situations exist, governments may not necessarily permit ports to use their monopoly position to increase their charges. Another approach is for the ports to seek to improve their financial performance by reducing their costs. There have in fact been considerable reductions in the costs of ports in

some countries, e.g. where deregulation of employment rules in the port industry has led to substantial economies in manning and labour costs. However, such changes tend to be of a non-recurring type and may not be effective in many countries because of the lack of alternative employment opportunities for the port workers concerned. Therefore, additional cargo, additional vessel calls and the improvement in the utilisation of port facilities, remain the primary means of improving the financial performance of ports.

## **5.2 Functions of ports in the world trade and transport system**

When international economies, trade and transport were not integrated as a single system, production and trade were treated as two separate elements and transport was segmented in different stages. Ports in such a situation just carried out their traditional functions: loading/discharging to and from vessels, independent from and sometimes indifferent to what was going on in production, trade or transport. As was explained in the previous chapter, this scenario is changing rapidly. Ports are now the catalysts that initiate a wide range of commercial endeavour in surrounding areas and adjacent hinterlands to stimulate their economy and trade.

To identify the new role of ports, it is important to understand foreign trade and the transport chain. This chain certainly does not start with the port, nor even with the factory that produces finished products. It actually begins from the production site of the raw material, or the intermediate or semi-finished products and goes on until the product reaches the final user in a foreign country. It is not merely a simple transport chain because the goods, along this chain, are transformed from raw or intermediate materials into finished products. To rationalise all the activities involved in this chain and to minimise the overall cost one needs a logistic approach. Therefore for any given product the question is to decide when and where these activities should be carried out. The parameters governing this situation are normally where the cheapest production factors can be found, where and whenever minimum “dead time” is needed, where minimum transport is required and where the greatest concentration of

products is achieved. Ports can then be viewed as “nodal points” on the transport chain meaning that they have a significant role to play in lowering inland transport costs before shipment.

From a logistic viewpoint, three main reasons, among others, give ports a strategic position in today's international production trade and transport system and allow ports to have a more dynamic role to play.

- First, ports are the starting and ending points for maritime transport. Maritime transport, containerised or in bulk, is always the mode of transport which moves the biggest quantity of cargo. Consequently ports, along the entire transport chain, always have the highest concentration of cargo. This cargo concentration is the best way of achieving economies of scale when additional industrial, commercial and technical activities are required.
- Secondly, if the biggest difference in production factors exists between continents (or among countries separated by relatively great geographical distances so that maritime transport is normally needed for cargo movement), ports are the logical places where the contributions of different factors of production can be combined in an advantageous manner. Many countries iron and steel factories are located in the proximity of the port to capitalise on the low distribution and transportation costs. These factories also service neighbouring industries for example the manufacture of cars and machinery, which are then exported from the port area with a big cost advantage on the international market.
- Thirdly, for world trade, ports remain the biggest and most important transport mode interfacing with shippers, freight forwarders, ship owners, shipping agents, cargo distributors, cargo transformation companies, packing companies, land transport operators, customs offices, cargo inspectors, banks, insurance companies and other relevant organisations. Ports therefore are important information centres.

Ports can be seen as the motor or energiser of foreign trade and a stimulator to the local and national economy. However, not all ports are playing this role or may not be aware of the opportunities and the risks offered by the changing world economy and their potential role in it.

### **5.3 Ports as a logistical platform**

Ports can be classified into three different categories or generations. This categorisation is not based on the size or the geographical location of the port, nor on the public or private nature of its organisation. It is based on three criteria:

- (a) Port development policy, strategy and attitude;
- (b) The scope and extent of port activities, especially in the area of information and
- (c) The integration of port activities and organisation.

#### **1. The first-generation port**

Port development policy, strategy and attitude are fundamental points when distinguishing a new generation port from an old one. Until the 1960s, ports were merely the interface locations for cargo between land and sea transport. Old traditions and habits have conditioned the thinking of many people involved in port activities. Apart from cargo loading/discharging and storing, other activities were not usually carried out in the port area. Today, this way of thinking still exists and limits the conception of the port to a fixed and limited role, which in turn conditions the decision makers at government, municipality or enterprise levels to favour conservative or passive policies. Consequently governments may restrict the activities of the ports to a minimum, such as loading/discharging, storage and some navigational services. Investments are concentrated on waterfront infrastructure without any awareness of what's happening to vessels and cargo outside that waterfront area.

Such attitudes and restricted scope of activities has led the port towards organisational isolation. This isolation consists of three major aspects:

Firstly, the port is isolated from the transport and trade activities. Often in a monopolistic situation, these ports are rarely concerned about the port user's needs. Participation of trade/transport interests in port decision-making process is limited and port marketing promotion is rarely considered. Usually these ports have their own systems of information, documentation and statistics and have no regard for their compatibility with port users systems.

Secondly, the isolation of port organisation can be found in its relationship with the municipality that surrounds the port. The port considers itself as an "independent kingdom", as does the municipality. Cooperation is rarely sought and each one's development plan is carried out separately. Ports, by virtue of their nature, are strong compared to other local units of economic activities and are often the only organisation capable of being independent entities.

Thirdly, in a first generation port, the different port activities or port companies are isolated from each other. This means that at the commercial level the different port activities never act together in unison, but make their decisions independently of how other organisations in the same port will react. This was nevertheless quite natural at the time of pre-containerisation, since the commercial relationship between different activities of the port was casual. Productivity was not high and cargo movement was slow. Users were more familiar with individual sectors of different port services, rather than with the port in its entirety.

## **2. The second-generation port**

In this category of ports, governments, port authorities and those who provide port services have a broader understanding of the functions of seaports. The port is regarded as a transport, industrial and commercial service centre. Thus ports are allowed to undertake and offer industrial or commercial services to their users, which

are not directly connected to the traditional loading/discharging activity. Based on a broader conception and management attitude, port policies, legislation and development strategies are made. This results in the scope of port activities being extended to commercial or any other relevant service such as cargo packing, marking and industrial services such as cargo transformation. Supporting industrial facilities are built up within the port area. The port develops and expands towards its hinterland with industries such iron and steel, heavy metallurgy, refineries and basic petrochemicals, aluminium, paper pulp making, fertilisers, sugar and starch, flour milling and various agro-food activities. Second generation ports are not only transport centres but also industrial and commercial centres, which emerged in the sixties due to an increase in the quantity of raw materials imported into industrialised countries. This was accompanied by the use of large tankers and dry bulk carriers in maritime transport. These ports are generally referred to as industrial ports.

Organisation within a second-generation port is different from that of a first-generation port. Second-generation ports enjoy a closer relationship with transport and trade partners who have their cargo transformation facilities in the port area. However, only the big shippers or ship owners benefit from this activity. The number of privileged port users is small and their relationship with the port organisation is quite simple and direct. Second-generation ports also have a close relationship with the municipality since they are more dependent on the surrounding city regarding land, energy, water, manpower and land transport connections. Within the port organisation, different activities have become more integrated in keeping with the increase in quantity and the quick turnover of cargo through the port. However, the integration of second-generation ports is often spontaneous rather than organised.

### 3. The third-generation port

These ports emerged in the 1980s, principally due to worldwide large-scale containerisation and intermodalism combined with the growing requirements of international trade as explained in the previous chapter.

#### Port development policy, strategy and attitude

The policy makers, managers and operators of third-generation ports have a very different understanding and attitude towards the running and development of their ports. They see the port as a dynamic node in the complex international production/distribution network. Based on this thinking, people have changed their management attitude from the rather passive offer of facilities and services to that of active concern and participation in the overall international trade process. For centuries people in ports used to wait for vessels and cargo to come in, believing that “the cargo will follow the vessel”. Role players have now realised that cargo flows are much more volatile than in the past and effort has been made to gain and to keep them. These efforts are directed at promoting trade and transport activities, which in turn, generate new revenue making and value adding business. As a result of such efforts, the ports have been turning into integrated transport centres and logistic platforms for international trade.

Activities and services in third-generation ports are specialised, variable and integrated. These activities can be divided into five different categories:

#### (a) Traditional port services

It does not mean that with the advent of third-generation ports, the activities of the first and second generation ports will cease to exist. Actually, the traditional port services such as cargo handling is and will remain the backbone of port activities. The difference is that in a third-generation port, conventional services together with logistics and total distribution services are being provided to port users. Furthermore, in a third-generation port all conventional services are carried out by modern equipment and management know how is controlled by electronic information

technology. Cargo handling and storing is carried out with information distribution systems. Port infrastructure is planned using latest data and technology. In third-generation ports, navigation services, cargo handling, storage and other traditional port services involve modern port organisation and management and are highly efficient.

#### (b) Industrial and environmental services

There are two kinds of industrial services in a third-generation port. One is ship/vehicle related industrial/technical service, such as ship repairing industries and other engineering and technical services. These services are of great importance for a modern port in the marketing sense, to ensure high productivity and to build a reputation for reducing technical and commercial risks to the port users' equipment. The second kind of industrial service is cargo-related, the port aims at providing cargo-related industries or allowing others the establishment of such industries within the port area in order to generate more cargo throughput and more value adding to the port. In some countries, export processing zones have been established in or near the port with attractive commercial conditions, raw and intermediate materials are imported through the port and finished manufactured products such as clothing, textiles, footwear, household electrical appliances and many others are packed into containers at the port and shipped to the world markets via the port once again. This industrial service contributes to the overall value adding of the port.

Modern ports should be equipped with the necessary facilities for environmental protection. Ships and cargoes have long been sources of pollution in ports (such as ships waste, refuse and dangerous cargoes), and with industrial activities in the port, environmental problems is becoming a major concern for port managers.

#### (c) Administrative and commercial services

After World War 2, international trade expanded rapidly accompanied unfortunately by administrative procedures, which became increasingly complex, sometimes turning into real trade barriers. These administrative procedures were highly concentrated in

ports. Today, the quick and high volume merchandise movement among different countries requires not only that the port be efficient in its management, but also in its procedures, administrative regulations and services. This is one of the characteristics of a third generation port.

Port administrative efficiency falls mainly into two groups:

- Documentation and regulation
- The working schedule.

Port documentation should be simple, computerised and compatible with trade and transport if it is to be efficient. For instance, if there is congestion in the container terminal, it is likely that the documentation process for releasing containers takes too long, which means the outflow of containers is restricted. Very high port documentation productivity can be obtained through EDI (Electronic Data Interchange, COSMOS, SAP etc). With these systems in place, the port of Singapore, can register all documentation for the release or entering of containers in 30 seconds.

Another aspect of administrative efficiency is the port-working schedule. Modern ports can no longer afford to keep the old traditions of working only on “weather working days” and an 8-hour day, 5 days a week. Modern ports providing 24-hour service depend largely on the common efforts of the entire port community including port administration.

#### (d) Logistic and distribution services

In a third-generation port, all logistical characteristics are incorporated into its conventional, industrial, environmental, administrative and commercial activities.

However, one logistical activity of a port today is its distribution service, which is different from storage in three aspects:

- Its users view storage as a segmented function, isolated from transportation, production or consumption activities. Distribution, on the contrary, is considered by its users as a logistic function in the whole transport chain and is indispensable.
- In a port there are two kinds of flows, cargo and information. Storage is normally concerned with the cargo flow and is independent of the information flow. Storage workers, for instance need not be concerned with the origin or destination of the cargo, its future use or the mode of its transport, however, this information is important for distribution as cargo and information are two inseparable elements.
- Storage is necessary when production, transportation and consumption do not keep pace with each other. Storage is normally not a value-adding activity and wherever possible should be kept to a minimum. On the other hand, distribution activities, including storage, are a value-adding activity without which the transport chain cannot be complete and cargo cannot reach the customers, as it should. An integrated logistic service is vital.

Containerisation and intermodal transport have increasingly transformed the port into a kind of “passing corridor” where goods just pass through without adding any value. Port Managers have found that the traditional facility and concept of warehousing is meaningless for most containerised cargo. The major industrial and commercially developed countries are reducing the number of distribution and storage centres thus relying on specialised companies for their cargo distribution.

Warehousing is still one of the most important functions of physical distribution. Ports should provide sufficient storage space and warehouses should be located at the proximity of the port terminals. The layout and equipment of the warehouses should be well adapted to the high requirement standards of port users, such as air-

conditioned storage, high-rack storage, fully computerised monitoring systems. For hazardous cargo, warehouses should have liquid-proof floors, ventilation facilities, fire-resistant walls, sprinkler systems and be equipped with modern technology. In most ports, warehouse buildings face three main problems, the availability of land and hinterland (road and rail) transport connections, relatively large capital investment and delay in construction period.

In developing countries, as well as in many other countries, the inefficiency and inadequacy of inland transport infrastructure is often the biggest barrier for ports to meet the requirements of trade and become distribution centres. Since municipalities or governments normally undertake the transport infrastructure, ports should therefore be involved in the planning of this infrastructure.

One of the most important features of a third-generation port, being a part of the transport chain, is its capacity for information processing and distribution. In the past, the quality of a port was directly linked to the quality of its infrastructure and services. Today an additional factor is needed, the quality of information or, in other words, the “infostructure”. Good and reliable information and data flow is a pre-requisite for rapid and efficient cargo flows and thus the competitiveness of the port. A third generation port could be seen as an information centre.

#### (e) Organisational integration

It is more difficult for a port to become a third generation port without undertaking some organisational changes regarding the relationship between the activities within the port and local government. As a distribution and logistic centre, the port is becoming more dependent on and integrated in the life of the surrounding city. An excellent city-port relationship is vital for the success of a port. The ports should be involved with the city in the planning of port hinterland connections, warehousing and distribution facilities, urban and civil development and intermodal terminals.

The three generations of ports differ in various aspects as explained above. However, the size of the port is not the deciding factor in determining which ports become third-generation ports. Many developing country ports have the potential to become third-

generation ports even if their size is limited. Table 5 shows the process of port evolution and the major features of the different generations.

**Table 5: The Evolution of ports**

	<i>First Generation</i>	<i>Second Generation</i>	<i>Third Generation</i>
<i>Period of development</i>	Before 1960	After 1960	After 1980
<i>Main cargo</i>	Break bulk cargo	Break bulk and dry liquid bulk cargo	Bulk and unitised, containerised cargo
<i>Attitude and strategy of port development</i>	-Conservative -Changing point of transport mode	-Expansionist -Transport, industrial and commercial centre	-Commercial orientated -Integrated transport centre and logistic platform for international trade
<i>Scope of activities</i>	1. Cargo loading/discharging storage, navigational service -Quay and waterfront area	-1 + -Cargo transformation, ship related industrial and commercial services -Enlarged port area	-1+2+ -Cargo and information distribution, logistic activities -Terminals and landside
<i>Organisation characteristics</i>	-Independent activities within port -Informal relationship between port and port users	-Closer relationship between port and port users -Loose relationship between activities within port -Casual relationship between port and municipality	-United port community -Integration of port with trade and transport chain -Close relationship between port and municipality -Enlarged port organisation
<i>Production characteristics</i>	-Cargo flow -Simple individual service -Low value added	-Cargo flow -Cargo transformation -Combined services -Improved value added	-Cargo/information flow -Cargo/information distribution -Multiple service package -High value added
<i>Decisive factors</i>	Labour/capital	Capital	Technology/know how

Source: UNCTAD, The principles of modern port management, 1992

## 5.4 Port Authorities

While in the past ports mainly have been administered, today's modern ports must be managed. The range of activities in individual ports may differ greatly, but all ports have several activities in common. The basic activity 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. Many ports are also conservancy authorities, responsible for maintaining and dredging the channel to the harbour and for control and safety of traffic in these channels, including the provision and maintenance of navigational aids, pilotage, towage, and tugging. The port typically owns and operates or rents mechanical equipment such as cranes, transtainers, forklifts, prime movers, straddle carriers, freight lifters, and trailers. It owns and operates transit sheds, which form part of the standard general cargo berth and also open or sheltered distriparks, warehouses, storage areas, container freight stations, which are outside of the port area. Finally, most ports employ at least some of the labour required for moving cargo, but the degree of control over cargo operations forms one of the chief differences between ports. Some ports, for example Singapore or Port Kelang, employ directly all the labour required for moving cargo, whether on board (stevedores) or ashore (wharf labour). Elsewhere, for example in Chittagong (Bangladesh) or Bangkok (Thailand), stevedoring is carried out by licensed contractors, and private labour is sometimes employed for certain shore operations. Labour in container freight stations, distriparks, warehouses, etc, may again be either privately employed or port labour. Although there is currently a tendency towards "privatisation" of entire ports or parts of ports, in most countries the port "owner" is still the governmental authority, whether national (the State), regional or local. Its representative is known as the Port Authority ([www.pacific.net](http://www.pacific.net)).

## 5.5 The Need For A Port Authority

Must the central administration, in its governmental authority role, intervene in the port area itself? Many government decisions relating to ports are contingent on the physical and human geography of the local area. For the decisions to be effective full account has to be taken of these fundamental local factors and governmental intervention must, therefore, be as close as possible to the people and places concerned, which implies the need to establish a port authority. Port authorities are needed for the following reasons:

### *Property Rights*

In the early days, when sailing ships were small, their goods were often ferried to and fro in small boats capable of working off beaches. Where the tidal range was sufficient the ships were sometimes beached and the cargo handled with the help of carts driven alongside at low tide. Both methods are still being used in some places. They do not require any port facility at all, and hence, provide no justification for a port authority. Elsewhere, however, substantial work is needed in the form of breakwaters, quays, piers, anchorage grounds, quarantine areas, large storage areas, warehouses, and so on. Some of these works extend necessarily into the water, often for long distances. The reservation of space, as well as the construction of these works, cannot be left to individual initiative. In most countries, while territory may have a ready market, the aquatory (areas of water, and the water column) cannot be bought and sold. There is no market for these areas because there is no legal recognition of exclusive property rights; and without these nothing substantial can be built by anybody. Port constructions have to be substantial if they are to be worthwhile and endure. It follows that, for anything beyond the most primitive of ports and harbours, some public authority is needed to establish property rights in the aquatory.

## *Planning*

Once the legal security for the works has been obtained it is necessary to decide where they are to be placed and how they are to be built. Thus, approach channels, breakwaters, and similar works, maneuvering areas for ships and harbour water areas, transport links between the port and the hinterland transport network - works which are of obvious public benefit and for which planning determines the possibility of providing and operating the structures and equipment within the port - must be constructed and run by some body invested with governmental powers. Although the planning and execution of these works are inherently industrial and commercial activities, the decision to undertake the works and the choice of their sites are action of a governmental nature, having regard, in particular, to their consequences for the port centre's use and for its natural and human environment. Thus, port authorities are required for planning and decision-making purposes.

## *Public Goods and Externalities*

The traditional definition of public goods and services are those where it is arguable that they will not be provided sufficiently, satisfactorily or at all by mere market mechanisms. Examples are, streetlights, streets, roads, pathways, and parks. In the port context, these public goods include, breakwaters, lighthouses, navigational marks, mooring buoys, oil pipelines, port equipment, radars, radio sets, piers, etc. All of these are likely to benefit the port as a whole. No individual port user is likely to provide them because they will benefit his competitors as much as himself. Therefore, public bodies must provide such goods and services. A public authority must make the allocation of space within the port centre among the port operators and users. The usable space being limited, making it freely available would rapidly lead to a disorderly situation or to certain parties gaining a dominant position, situations which would be incompatible with the role that the port must play in the service of the national economy. The allocation of space must therefore be carried out in a manner defined and controlled by the port authority.

### *Law and Order and Promoting Port Efficiency (Regulatory role)*

The port authority must also perform the task of coordinating the various activities, which take place in the port (which does not in any way mean that it must necessarily play a part in performing them). The authority must likewise ensure that these activities are carried out in accordance with the laws and regulations and that they contribute effectively to the implementation of the national port policy. Providing security and ensuring safety through the implementation of codes of conduct are also responsibilities of a port authority.

Another reason for having public sector port authorities is that they may develop the port's efficiency and control unnecessary competition. One of the classic externalities, in the sense of significant economic effects extending beyond the financial accounts of those directly responsible for them is pollution. In ports this may occur through spilling oil or garbage into water. Another externality may be the existence of wrecks blocking navigation channels, which needs to be removed quickly. Appropriate rules for pilotage, vessel information and traffic control may be needed. For all this an authority with governmental support is required. Port authorities are also required to have dialogue with and coordinate activities with other departments and organisations, like customs, immigration, health, police, civil defence, and other government and non-government organisations.

### *Types of Port Authorities*

Port authorities are very diverse in their practices and functions. Port authorities can be “comprehensive”, doing all or nearly all that needs to be done within their port areas, including the handling of cargo on the ships and ashore. Some go still further and operate terminals for other modes of transport. Port Authority of New York and New Jersey operates airports and bus terminals. Seattle port authority operates the nearby airport. Some port authorities, as in India and Thailand, handle cargo only on the quay leaving shipboard operations to be done by the firms hired by ship operators ([www.pmaesa.org](http://www.pmaesa.org)).

There are principally three types of ports, the landlord port, the tool port and the operating port.

### *The Landlord Port*

The powers of the port authority are limited to the decisions concerning land use, reservations of space for the port areas and construction and use of public port works. The port authority leaves it to individual operators (public sector or private enterprises) to construct and operate the works and equipment necessary for the operation of ships and the storage and internal transport of traffic, and to operate other services provided for traffic (sea pilotage, towing, inshore pilotage, etc). Such a port authority will make the necessary sites available to individual operators on the basis of contracts specifying public service obligations or, conversely, permitting private use of the facilities. The port authority acts like the owner of the port property, grants short or long-term leases or concessions to other private enterprises. PSA has an agreement with some major shipping line to lease out berths to them for a specified period in a scheme known as Berth Appropriation Scheme.

### *The Tool Port*

In France and in several African countries it is the port authority that purchases and installs certain heavy handling equipment (gantries, cranes), which are then run by port operators ([www.pmaesa.org](http://www.pmaesa.org)). The port authority will perform its role by financing, building or purchasing the works and equipment necessary for efficient operation of a port and making them available to operators under short-term contracts generally incorporating public service obligations. The port then plays the role of a “tool port”, as it has created the “tool” but does not operate it. Some port authorities may combine the tool port role with that of a landowner role, if it has sufficient space available.

### *The Operating Port*

The port authority may consider that it should not only provide certain works and equipment, but that it should also act as their operator. It may also consider it to be in the public interest that it should in itself set up and operate certain services for the port traffic. Like other operators, it then maintains direct industrial and commercial relations with port users, while retaining its governmental powers vis-à-vis the port community. These ports are then known as “Operating ports”, and normally form part of the public sector.

Having explained the nature of ports in international trade, their different roles and the different port authorities, the next chapter will focus on the macro and micro aspects of ports with a focus on Africa.

## CHAPTER 6: THE MACRO AND MICRO ASPECTS OF PORTS:

### AFRICA FOCUS

#### 6.1 Port Competitiveness

The world economy has changed thoroughly as a result of an international redistribution of labour and capital, and the integration and globalisation of markets, as was explained in the previous chapters. This trend has coincided with a substantial increase in mobility, which has consequences for the maritime industry, resulting in fierce competition between ports. An efficiently functioning seaport is an important asset for a region with a view to strengthening its economic position. As many companies establish themselves near seaports, additional value added and employment are created.

It appears from recent publications on the phenomenon of port competition that, in most cases, terminals are considered units that compete with one another (Goss, 1990b, and Heaver, 1995). However, port competition encompasses more than competition between terminal operators. From the early 1990s, logistical developments have underlined the significance of the provision of services within transport chains. Terminals are just one link in this chain (Notteboom and Winkelmanns, 2001, and Winkelmanns, 1999).

But while terminals undeniably compete with one another, they do not compete exclusively for tangible assets such as port superstructure. Today, operators are primarily competing through provision of services. This explains why they are inclined to give in to shipping companies demanding dedicated terminals, despite the fact that this may not be an appropriate strategy: operators within ports should build on their core competencies in order to improve their competitive position rather than take advantage of (temporary?) contractual opportunities.

The “software” rather than the “hardware” of port development will be the determining factor in future trends in port competition. Consequently, operators

should regard this software as their new priority. It is primarily in this sense that the concept of a port operator (or, as the case may be, a terminal operator) most adequately describes the competing units in a competitive port environment.

The recent debate on seaport policy and on whether or not a seaport should be regarded as a public good is sometimes fuelled by fierce competition between certain seaports. In this context, a distinction is made between four aspects that are increasingly attracting attention especially from the European Commission:

1. It is prohibited to abuse a dominant position in order to deny third-party access to markets, i.e. ports
2. Competition between seaports may not be restricted directly or indirectly through, for example, preferential railway rates or the presence of shipping conferences focusing on a limited number of ports
3. Port services should always meet certain standards, and no excessive or discriminatory (i.e. monopolistic) fees should be charged for stevedoring, pilotage or towage
4. With regard to government subsidising, a distinction needs to be made between infrastructure that is accessible to all users and infrastructure intended for specific undertakings. The former, including maritime access routes and canal docks, is regarded, as basic infrastructure for which subsidising is tolerated to a certain extent, though this should not give rise to discrimination or favouritism. The latter category consists mainly in commercial docks, port superstructure and certain terminals, which may be dedicated or semi-dedicated. This infrastructure should never be subsidised (Huybrechts et al, "Port Competitiveness", 2002).

Slowly but surely, a new dimension is being added to the debate on port competition. Increasingly, competition is not unfolding between individual ports, but between logistics chains (Cf. Meersman, Steenssens and Van de Voorde, 1997). Ports are links in logistics chains, and they may or may not contribute effectively to their relative

success. This represents a constant incentive for ports to improve their product. As Goss rightly asserts, “any improvement in the economic efficiency of a seaport will enhance economic welfare by increasing the producers surplus for the originators of the goods being exported and consumers surplus for the final consumers of the goods being imported (Goss, 1990a, p. 211).

Ports deal with various types of traffic. First and foremost, there is the so-called captive market, i.e. goods flows with an origin or destination in the natural hinterland of the port. In this area, a port will experience little or no competition from other ports. In addition, there are goods flows for which the port primarily serves a transit function. Origin and destination are outside its immediate sphere of influence. It is in relation to the latter flows that ports must optimise their strategic position on trade routes.

The growing importance of the integrated approach based on logistics chains implies that the success of a port no longer depends exclusively on its own performance, but also on external factors, such as its geo-economic position and connections with the hinterland. Some ports have cut dues and/or have started offering other financial incentives to compensate for unfavourable hinterland connections, in an effort to retain their market share (Huybrechts et al, “Port Competitiveness”, 2002).

In the context of port competition, reference is often made to Verhoeff (1981), who argued that seaport competition unfolds at four distinct levels: competition between port undertakings, competition between ports, competition between port clusters (i.e. a group of ports in each others vicinity with common geographical characteristics), and competition between ranges (i.e. ports located along the same coastline or with a largely identical hinterland).

The factors influencing competition may vary from level to level. The competitive strength of individual undertakings within a port is determined mainly by the factors of production (labour, capital, technology, and power). Competition between ports, port clusters and port ranges on the other hand is also affected by regional factors, such as the geographical location, the available infrastructure, the degree of industrialisation, government policy, the standard of performance of the port

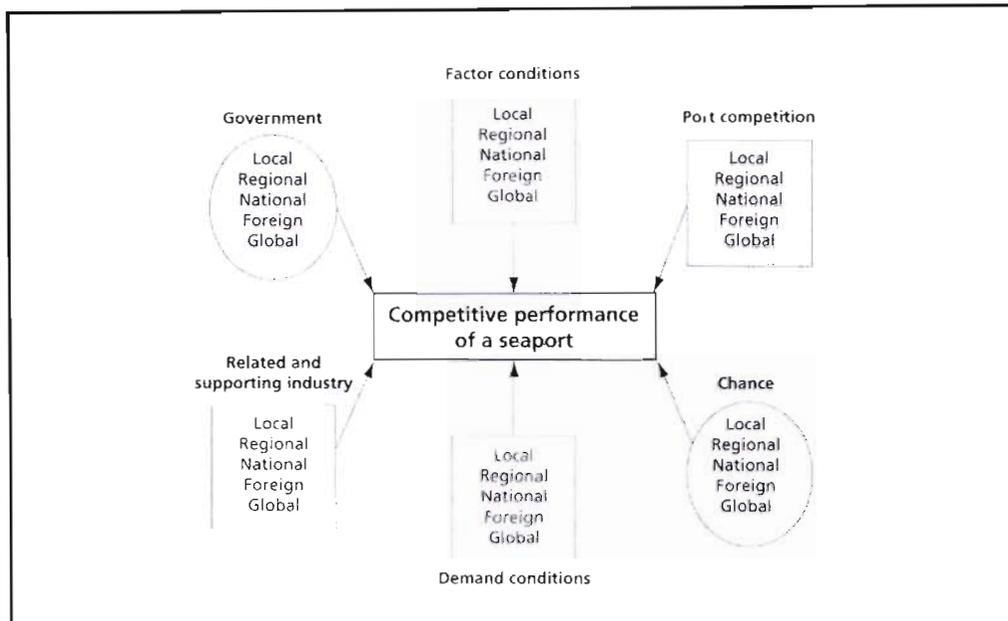
(measured in terms of proxy variables, such as the number and frequency of liner services, and the cost of transshipment, storage and hinterland transportation).

This traditional approach to port competition must now make way for an approach based on competition between logistics chain, in which ports (and port undertakings) are merely links. The most important consideration is the overall cost of the transport chain; it is inevitable that, besides throughput, the industrial and commercial functions (including warehousing and distribution of goods), as well as hinterland transportation will come to occupy an increasingly important position.

A port and the undertakings established in it compete directly with a limited number of other ports, usually within the same range. Competition between ports belonging to different ranges involves just a very few types of goods flows. Consequently, the crucial question is what determines the choice of port? Why is one port preferred to another? Which undertakings located in that port are chosen? And which hinterland transport modes?

Porter (1990) asserts that competitive advantage is created and sustained through a highly localised process. Porter argues that the characteristics of demand determinants of other countries or regions do not contribute to local competitive success (e.g. the fact that global demands correspond to the strategy of a local enterprise. Consequently, each of the four determinants and the two additional attributes are considered to be instrumental to competitive success at the various geographical levels as can be seen in figure 12.

**Figure 12: Porters Diamond for the competitive advantage of ports**



Source: M Huybrechts et al, "Port Competitiveness", 2002

In the context of seaports, the factor conditions refer to the means employed for providing port services. A distinction can be made in this respect between basic or historically determined factors, such as the natural marine access, and advanced factors, such as technology and know-how. Due to the growing significance of hinterland connections, these factors may also be considered factors of production.

## 6.2 Transport costs, competitiveness and export performance

Trade performance and competitiveness are affected by both international transport costs (which is narrowly understood as the costs of moving goods between countries) and internal transport costs (understood as the costs of moving goods within a country), and by the way in which these costs affect imports as well as exports. High transport costs for moving goods from points of production to final destinations can price a country out of export markets. This is particularly so in natural-resource-based activities and labour-intensive industries, where transport costs represent a large component of the final cost of the product. High transport costs on imports inflate the prices of imported goods, including food, capital goods, intermediate inputs and fuel, increasing the cost of domestic production. It has particularly negative consequences for the competitiveness of manufactured exports with a large import content.

The competitive advantage of most African economies is in natural-resource-based activities and labour-intensive industries. Moreover, the available evidence suggests that producers in sub-Saharan Africa often face a transport disadvantage vis-à-vis their competitors. The precise magnitude and nature of this disadvantage varies between countries, but in general, two patterns seem to prevail. Firstly, for international transport costs, the margin seems to be higher for imports than for exports. Secondly, internal transport costs incurred in getting exports from production areas through ports and out of the country, and imports from their point of entry into the country to producers and consumers, are in most cases a more serious source of competitive disadvantage than inter-country transport costs. Notable exceptions to this generalisation are the international air transport links of Africa, which are particularly weak, and the case of landlocked countries, whose overseas international freight traffic faces particular problems (UNCTAD, *African Transport*, 1999).

As can be seen from Table 6, International Monetary Fund (IMF) statistics indicate that freight costs as a percentage of cost, insurance and freight (c.i.f.) import values, are five percentage points higher in sub-Saharan Africa (excluding South Africa), than the average for all developing countries, and more than 10 percentage points higher in

landlocked African countries. Only four countries in Africa had freight costs which were lower than the developing country average. In 31 out of 43 countries in sub-Saharan Africa, freight costs on imports were 50 per cent higher than the average for developing countries, and for 14 of those countries they were more than double<sup>7</sup>.

**Table 6: Estimates of total freight costs on imports (as % of import value)**

<b><i>Developed market economy countries, total</i></b>	<b>4.19</b>
<b><i>Developing countries, total</i></b>	<b>8.06</b>
<b><i>Of which:</i></b>	
<b><i>America</i></b>	<b>7.08</b>
<b><i>Asia</i></b>	<b>7.97</b>
<b><i>Africa</i></b>	<b>11.41</b>
<b><i>Landlocked Africa</i></b>	<b>18.79</b>
<b><i>Northern Africa</i></b>	<b>9.01</b>
<b><i>Eastern Africa</i></b>	<b>13.70</b>
<b><i>Western Africa</i></b>	<b>13.60</b>

Source: UNCTAD, Review of Maritime Transport for landlocked Africa, 1998

For exports, the best general estimates available are for freight margins on shipments from countries in sub-Saharan Africa and their competitors to the United States. From Table 7 it can be seen that for the top 15 export products from African countries to the United States, the *ad valorem* transport costs<sup>8</sup> are higher than that of their competitors in all except three products. For most of these products, the costs are only 1-2 percent higher, however, the transport disadvantage is more severe for manufactured tobacco, wood and wood articles, and cotton fabric and textile products shipped by air.

<sup>7</sup> It should be noted that the IMF figures are imperfect estimates, and part of the relatively high international transport costs of sub-Saharan African imports are due to their composition, in particular the importance of a few bulky, low-value commodities, particularly petroleum products, cereals and fertiliser.

<sup>8</sup> The difference between c.i.f (import value) and f.a.s (freight alongside ship) value of the product expressed as a percentage of the f.a.s value

In half of the products exported by sea and in four-fifths of the products exported by air, transport costs are higher by 30 percent than those of their competitors; this maybe due to the low value of African exports.

**Table 7: African transport costs for the 15 major exports to the United States compared with competing countries**

<i>Product</i>	<i>Exports (in thousands of dollars)</i>	<i>International transport costs<sup>a</sup> (as % of export value)</i>				<i>Competitive disadvantage (percentage points)<sup>c</sup></i>	
		<i>African exporters</i>		<i>Other exporters<sup>b</sup></i>		<i>Sea</i>	<i>Air</i>
		<i>Sea</i>	<i>Air</i>	<i>Sea</i>	<i>Air</i>		
<i>Fresh or dried nuts and fruits</i>	11 364	5.1	-	3.9	-	1.2	-
<i>Coffee, tea and spices</i>	101 716	7.9	-	6.2	-	1.7	-
<i>Raw vegetables suited for dyeing</i>	27 578	5.6	2.5	5.3	4.4	0.3	-1.9
<i>Sugars and sugar confectionary</i>	27 011	12.4	-	12.4	-	0.0	-
<i>Cocoa beans and chocolate</i>	165 099	11.7	-	12.5	-	-0.8	-
<i>Manufactured tobacco</i>	88 013	14.5	-	6.0	-	8.5	-
<i>Ores and concentrates</i>	135 128	24.9	-	21.9	-	3.0	-
<i>Mineral fuels and oils</i>	293 483	9.5	-	8.2	-	1.3	-
<i>Wood and wood articles</i>	11 125	19.1	-	14.5	-	4.6	-
<i>Fabrics of cotton</i>	13 283	7.5	25.3	5.4	10.1	2.1	15.2
<i>Articles of apparel and clothing</i>	82 688	5.7	16.3	3.6	11.1	2.1	5.2
<i>Other textile articles</i>	187 100	5.0	19.8	3.7	15.1	1.3	4.7
<i>Pearls and precious stones</i>	219 800	-	0.5	-	0.2	-	0.3
<i>Copper and articles</i>	30 130	3.9	-	2.6	-	1.3	-
<i>Other base metal products</i>	45 936	0.8	-	0.7	-	0.1	-

Source: Based on United States National Customs Statistics, World Bank policy Research Working Paper No 1586, Washington, 1996

<sup>a</sup>Export value is measured as freight alongside ship (f.a.s) rather than freight on board (f.o.b)

<sup>b</sup>Excludes Mexico and Canada

<sup>c</sup>Positive values indicate that *ad valorem* transport costs for African exporters are higher than their competitors, negative values indicate they are lower

High inland transport costs are a particular problem for landlocked countries. There are 15 such countries in sub-Saharan Africa, accounting for 28 per cent of the total population. Most are more than 1,000 km from seaports. Their transport costs are also inflated and service quality reduced because of bureaucratic procedures involving documentation, customs and administrative costs, which cause unnecessary delays in the movement of goods<sup>9</sup>. Except in a few cases (such as dark-fired tobacco) where African producers can influence world prices, high international and internal transport costs reduce returns to producers in Africa since they have to sell at world prices set beyond their control. This reduces the surplus available for investment. For both primary commodities and manufactured goods, the quality of domestic and international transport services has critical effects on competitiveness. Uncertainties in delivery times result in a discount on the market price for exports. They also disable just-in-time deliveries, which are so important for international subcontracting. Uncertainties in import delivery means that firms dependent on imported goods have to maintain large stocks, thereby tying up working capital. Poor communications as well as slow delivery increase transaction costs by raising the financial costs as well as the exchange rate risks.

There are also a number of important indirect channels through which high transport costs affect export performance and competitiveness. Two significant effects are: firstly, the influence of poor local-level rural transport systems on specialisation and market development; and, secondly, the effect of poor national transport systems on the international tradability of basic food staples and their cost. In the predominantly agricultural economies of sub-Saharan Africa where smallholders dominate production, the degree of market development depends critically on the extent to which farm households are integrated into the wider market economy (W Omamo, "Journal of Development Studies", 1998). The costs are related mainly to poor local-

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<sup>9</sup> According to UNCTAD, "International Transport Costs, 1993, for high value export commodities, such as cotton and coffee, getting goods from warehouses in landlocked countries into ports and onto ships can contribute 8-14 percent of their f.o.b. value, whilst for low value products such as sugar it can constitute as much as 30 percent. Similarly, it has been estimated that transit costs incurred between seaports and inland destinations constitute approximately 40 percent of the total freight costs of imports to certain African countries.

level transport systems in rural areas. Rural road densities are very low, particularly in comparison with Asia, even when adjusted for population density<sup>10</sup>.

The direct and indirect effects of high transport costs reduce the volume and worsen the terms of trade. The balance-of-payments constraint is also aggravated by the need to import transport services. The level of foreign exchange payments for transport services is very high for many sub-Saharan countries (UNCTAD, “New Agenda for the Development of Africa”, 1999). For 20 out of a sample of 43 countries, such payments absorb over 20 percent of total foreign exchange earnings from exports, and for 3 countries they absorb over 50 percent. Landlocked countries are in a particularly difficult situation in this regard, and in 10 out of a sample of 14 such countries, transport payments absorb over a quarter of total foreign exchange earnings as can be seen in Figure 13.

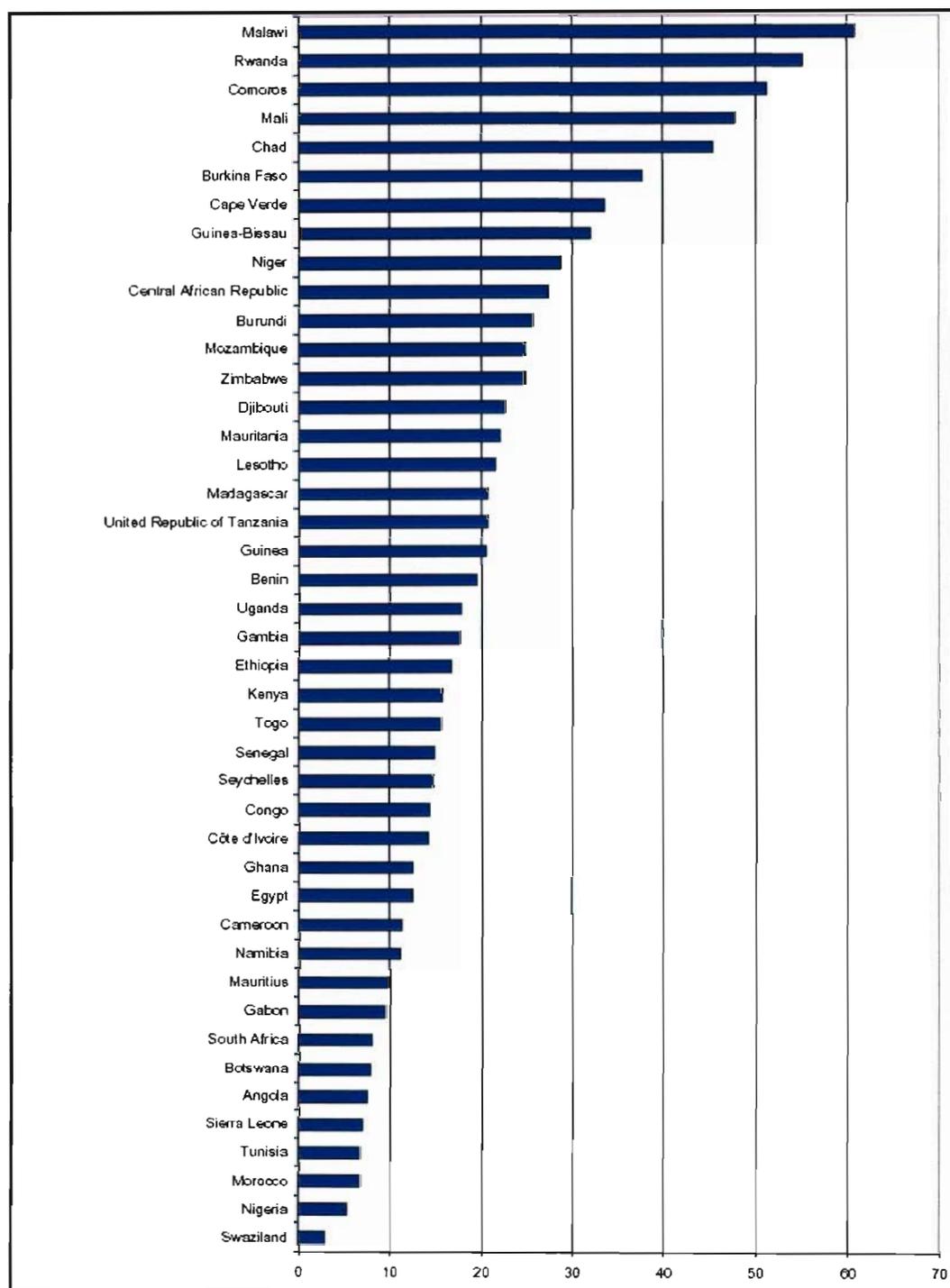
The geographic location is also an important consideration, particularly its effects on economic performance. According to D. E. Bloom and J. D. Sachs, “Geography, demography and economic growth in Africa”, 1999, the geography of sub-Saharan Africa is said to be particularly unfavourable, and seven of its features have been identified as contributing to existing transport difficulties:

- (a) Large distances from major world markets in northern mid-latitudes
- (b) Separation from Europe by the vast Sahara desert (larger in area than the continental United States)
- (c) A very small coastline relative to its area
- (d) An unusual shortage of natural ports along the coastline
- (e) Populations generally far from the coast
- (f) The highest proportion of landlocked States of any continent (and of the proportion of the population within landlocked States), and
- (g) The absence of rivers, which are navigable by ocean-going vessels in the interior of the continent (such as the Rhine, the Mississippi and the Amazon).

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<sup>10</sup> In the early 1990s, for example, a group of 18 countries in humid and sub-humid tropical Africa had only 63 km of rural roads per 100 square km. Taking account of population density differences, this was less than one-sixth of the level in India in 1950, International Food Policy Research Institute, 1994, Washington DC.

**Figure 13: Imports of transport services as a percentage of the total exports of goods and services**



Source: World Bank Development Indicators (CD-Rom, 1999)

There is no doubt that these factors contribute to Africa's transport problems. One reason why transport costs between ports and hinterlands are high in sub-Saharan Africa, for example, is the simple fact that only 19 percent of the population live within 100 km of the coast (as compared to over 40 percent in Latin America and in East and South-East Asia), and a higher proportion of the population of sub-Saharan Africa lives in Landlocked States (28 percent, as compared to 3 percent in Latin America and 2 percent in East, South-East and South Asia). Population densities are also low in many countries and this means that the volume of traffic, and thus the scope for economies of scale and competition, is limited (Annual World Bank Conference on Development Economics, 1998).

However, according to UNCTAD, geography is not in itself a determinant. For example, the economic implications of a landlocked location are very different if there is close regional cooperation rather than a breakdown of trust, or if a country exports sugar, as Malawi has done, rather than watches, as Switzerland has.

Similarly, what it means to be far from the coast is different in the mid-west of the United States, where infrastructure is excellent and petrol is cheap, and in Northern Ghana, where the quality of roads is often poor and oil supplies can be interrupted. What matters, therefore, is not geography as such, but rather the ways in which it influences infrastructure and institutional requirements, and how these can be addressed as an economy grows and industrialises.

Having explained the implications of transport costs on competitiveness, the next chapter will explore the need for port reform and the implications of the proposed new ports bill to be promulgated in South Africa soon.

## CHAPTER 7: PORT REFORM AND THE NEW PORT POLICY

### 7.1 The need for port reform

Liberalisation and globalisation of the world economy coupled with technical change have resulted in a major evolution of transport and particularly maritime transport as has been discussed in the previous chapters. The need for greater efficiency in seaports has led governments to take various steps to reform ports in most regions of the world. There are many forms of port reform from establishing performance contracts between the government and the port authority to the sale of assets to private companies. Liberalisation of trade has resulted in the globalisation of the manufacturing process, which has in turn resulted in a massive increase of trade with the majority of these manufactured goods moving in containers. As competition increases, manufacturers and shippers are constantly striving to minimise transport times and costs and at the same time want guaranteed delivery times and the ability to know the location of their goods on a real time basis. Port users have been putting enormous pressure on authorities to improve handling efficiency, reduce port user fees, and expand facilities to accommodate larger cargo flows and larger ships. Further, an efficient transport sector is a critical factor of multi-national firms seeking manufacturing sites that will give them a competitive advantage and that will result in major investments and job creation.

Containerisation and information technology are providing the means to meet shippers needs. This has had a profound impact on the transport industry with the introduction of larger and larger vessels to reduce transport costs, which has required renewed investments in both port infrastructure and cargo handling equipment. To reduce costs the shipping lines have been following a programme of mergers and acquisitions in addition to forming alliances (Centre for International Business Studies CETAI, "Port Systems", 1994). These mega operators are thus in a powerful bargaining position when negotiating performance and pricing arrangements with terminal operators. At the same time the growth of container traffic has led to the formation of international terminal operators who are constantly looking for opportunities to expand their business. To stay competitive, port authorities have had to modernise and upgrade port facilities to meet the needs of shipping lines.

However, the investment required has often gone beyond the financial and managerial capabilities of public port authorities in both developed and developing countries.

In parallel to these developments, the International Monetary Fund (IMF) and the World Bank introduced structural adjustment to the developing world. Structural adjustment required governments to reduce domestic demand by cutting expenditures (tightening the national money supply through higher interest rates), cutting public spending (down-sizing bureaucracies), and devaluing the monetary exchange rate (making imports more expensive and exports more affordable to outside purchasers): Governments were also encouraged to expand supply by deregulating controls on foreign trade (to encourage exports) and foreign capital (to attract outside investment), removal of internal subsidies, and encouraging the commercialisation, corporatisation and privatisation of state enterprises to improve operational efficiency. Port sector reform has been strongly encouraged by this policy.

Another factor that could influence institutional reform would be the resumption of WTO negotiations on commitments in services auxiliary to maritime transport, which include port transport services. Negotiations could lead to an agreement where foreign firms would be able to compete for port services such as pilotage, towage, stevedoring services, etc. This would likely be through open and fair selection procedures in the form of public tenders to grant authorisation for technical services and cargo handling services. If this were to occur there would be increased pressure for operating port authorities to divest some of their services. This has resulted in a rethinking of national port development strategies and ultimately major reforms in the legislative, regulatory and management environment. As a result of these pressures, a large number of countries had undertaken institutional reform in the port sector as a means to improve performance and to reduce the government's financial and administrative responsibility. Institutional reform offers the potential to improve the competitiveness of port services and thus strengthen trade capacities. Reforms are not always successful unless a number of preliminary conditions are satisfied and the proper strategies and procedures are implemented. Above all, governments want safeguards to ensure that the facilities operate well, that labour and social problems are minimised, that charges are fair, that regulatory control is maintained and that an efficient, integrated transport system is developed.

In summary three broad forces are generating momentum for port reform in developing and industrialised countries alike:

- External forces of competition and technology from the shipping industry
- The acknowledged financial and operational benefits of private participation in infrastructure development and service delivery
- The diversification and globalisation of investors and operators in the port industry

While the reasons for engaging in port reform are many and varied, the benefits can be quantified as they accrue to exporters, consumers, shippers and entrepreneurs. A successful privatisation programme may free governments of unnecessary expenditures, releasing funds for more socially-needed government programmes, release bottlenecks to trade and economic development and motivate the adoption of new regulations that protect the environment and improve workers and navigational safety. The benefits to the main stakeholders would be:

- **Governments:** at the macroeconomic level, to 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, to 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 Terminal Operators:** more cost effective port operations and services, allowing for more efficient use of transport assets and better competitive positions on transport markets, and more business opportunities in growing sectors (example, container operations)
- **Shippers, Exporters/Importers:** 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 international markets

- **Consumers:** lower prices on consumer goods, and better access to a wider range of products through increased competition between suppliers, (World Bank Port Reform Toolkit, module 1).

## 7.2 Institutional framework

Most ports are controlled through a public body that has been given the responsibility for the ports development and operation by a ports act or bill, which will be discussed after this section. Ports could be managed and operated by an operating authority, where often either separate private or public stevedoring companies carried out the work aboard ships. The port authority was responsible for operations from the time goods were landed on the quay until they left the port. Thus the port authority provided all cargo-handling equipment. Another alternative is to transfer all the cargo handling on shore to the private/public stevedoring companies who would become responsible for providing cargo-handling equipment. However, the ship to shore cranes would often continue to be owned and controlled by the authority that became a tool port authority. The final alternative was the landlord port authority that develops facilities and leases them out to operators for long periods of time. They divest themselves of the managerial and financial responsibilities for commercial facilities such as terminals and equipment. These terminal operators are responsible for developing the superstructure and the provision of all handling equipment. In most cases the terminal operator is from the private sector ([www.afrports.org](http://www.afrports.org)).

The authority may be commercialised, a process where the government retains ownership and control of ports but introduces and emphasises commercial principles in the way the port manages its business. Thus the authority must cover its cost and has some freedom in setting tariffs. An example of this is the creation of the National Ports Authority of South Africa. Another alternative for the authority is corporatisation, a process of legally restructuring the port as a private business enterprise under the countrys company laws, making full payment of taxes and meeting all other obligations required of private firms, ownership may however

remain vested with the government. An example of this is the Port of Singapore Authority (an operating port authority), which became the PSA Corporation. As a corporation it could now invest internationally in other terminals. The final alternative is privatisation, the transfer of public assets to the private sector by liquidating the port through the outright sale or long term lease of the property and assets by tender or through the floatation of shares on the stock market. An example of this is the Associated British Ports (ABP), which was established in 1982 for 19 ports, and within 2 years all of the shares were sold in the stock market ([www.afriports.org](http://www.afriports.org)).

The growth of the involvement of the private sector in ports is remarkable when one considers that twenty years ago the involvement of the private sector in most developing countries was limited to stevedoring firms who were responsible only for the discharge and loading of ships (Centre for International Business Studies CETAI, "Port Systems", 1994). These firms had limited cargo-handling equipment and it was the port authority that provided the berths as well as the manpower, equipment and area for the transfer and storage of goods in the port. The port authority was either an operating or tool port authority. However, with the development of containerisation, this split of responsibility between the stevedores and port authority no longer made sense and the terminal concept was developed. Thus one organisation became responsible for all aspects of cargo handling at the terminal. The port authority had the choice of becoming an operating port authority or a landlord port authority. In addition to demands for managerial and technical skills, there was the demand for large-scale investments for infrastructure, superstructure and cargo handling equipment. After attempting to provide efficient facilities many port authorities in developing countries realised that their institutional structure and financial capacity were not sufficient to meet the demands of their users. They needed to adopt the landlord port authority model and to enter into partnerships in order to provide the services expected for modern transport needs ([www.pmaesa.org](http://www.pmaesa.org)). This has resulted in adaptations of legislation where necessary, to allow the private sector to establish joint ventures and to obtain a long-term concession for the operation of a terminal.

In the port sector, leasing a terminal to a joint public/private entity or a private entity is a frequent form of privatisation. Essentially, leasing means renting specific facilities in return for payments over the life of the lease. These payments cover the cost of developing (fully or partially) and maintaining (fully) the facilities. There is no change in the ownership status of fixed assets that remain with the state, but moveable assets may be sold. The duration of the licences for lease is dictated by the importance of the private investment. The time period agreed must satisfy the lessee in his efforts to secure an adequate return on his investment, but it should not be so long as to enable him to ignore the need to secure renewal of the lease. The most common licence lease periods are therefore between 20 and 25 years ([www.pmaesa.org](http://www.pmaesa.org)).

Build-operate-transfer (BOT), build-own-operate (BOO) and build-own-operate-transfer (BOOT) are all variants of the same mode of privatisation. They are a contract by which the port authority grants the terminal operator the right to finance, build and operate a facility, for public use, for a stated period of time, after which the facility or the equipment will be transferred to the authority. The distinction between the alternative concession agreements is as follows:

**BOT:** This arrangement acknowledges the fact that the operator never has ownership of the facilities, but that he has been granted the right to build and operate the facility for a specified period. After the expiration of the period the authority can lease out the facilities or, if the facilities have to be completely rehabilitated, can possibly grant another concession. As the operator is not the owner he cannot expect at the end of the BOT arrangement to receive compensation for the transfer of the facilities.

**BOO:** The assumption in this type of scheme is that the concession granted gives the operator two exceptional advantages. First, he is explicitly granted ownership of the facilities that he will build, and second, there is no specified duration, which implies that the facilities will not have to be transferred back at a specified time against an agreed level of compensation.

**BOOT:** This scheme is similar to the previous one, but provides for the return of the facilities, possibly against payment of a mutually agreed indemnification for the residual asset value.

### 7.3 Port reform in developing countries

During the past decade the reform of port administration has gained momentum in industrial and developed countries alike. Between 1990 and 1998, the World Bank has identified 112 port projects with private participation in twenty-eight developing countries. The total investment for these projects totalled more than US\$9 billion with approximately 20 percent covered by the private sector. Under this approach, public port authorities continue to own the land and basic infrastructure, such as berths, and retain their regulatory role.

In East Asia and the Pacific, a model for private development and management of port facilities has been the port of Hong Kong where the authority has given a concession to the private sector to fully develop and manage the terminals. The Philippine Port Authority handed over management of its new container facilities at the Port of Manila initially to MIPTI and then to International Container Terminal Services (ICTSI) in 1988. China opened the management of its ports to the private sector beginning in 1991. The Hong Kong port operator, Hutchison took over the development and management of container facilities in Shanghai in 1993 and in Yantian. By 1998 the private sector was managing thirteen facilities in China, excluding Hong Kong. Private operations are generally structured as joint ventures with public port authorities and there is limited competition within ports ([www.worldbank.org](http://www.worldbank.org)).

One of the most notable examples of port privatisation was Port Klang in Malaysia. In 1986, the operational services of the container terminal of Port Klang were privatised. Tenders were called from local interested parties based on specific terms of reference and the container operations were awarded to Klang Container Terminal (KCT). This was the first port-operating company in Malaysia, which was set up as a joint venture between the Klang Port Authority (KPA) (49 percent) and Konnas

Terminal Klang (51 percent), a joint venture between a state-owned container haulage firm (80 percent) and a private shipping line, P&O Australia (20 percent). KCT bought the non-fixed assets, such as cranes and equipment, but leased the fixed assets, such as quays and land, for 21 years. After privatisation, KCT took over all container operations previously operated by KPA. According to KPA's director, the general performance at the terminal improved by between 15 and 20 percent. The terminal operator, who is independent and has the freedom to respond to the market, has been able to upgrade the container terminal to meet the demands of growing trade ([www.worldbank.org](http://www.worldbank.org)).

Two lessons can be learned from Port Klang. One is that the public sector initially remained an important player: private sector participation in the new organisation was only around 10 percent (which rose at a later stage). The other is that several privatisation forms were used; for instance, the fixed assets were leased to the joint venture company, but the superstructure and equipment were sold to it. Port joint ventures are attractive to the government because they often involve both a foreign and local firm. Joint ventures are viewed favourably by the private sector as the investment and commercial risks are shared or the involvement of local partners can bypass restrictions on a foreign private company.

The Asian crisis compelled Indonesia to raise capital through selling stakes in a number of state companies. This has resulted in two of the world's mega port operators taking up concessions in two of Indonesia's major container ports. At the end of March 1999, Hutchison Port Holdings (HPH) took a majority 51 percent stake, through its Singapore based subsidiary Grosbeak, of the Jakarta International Container Terminal (JICT) from the PT Pelabuhan Indonesia II and its employee cooperative Koperasi Pegawai Maritim. The deal was worth a total of US\$243 million and gives HPH a 20-year operating concession. HPH will invest US\$215 million in the port and a further US\$28 million in technology. In July 2000, HPH acquired a 48 percent share in Koja Terminal adjacent to JICT with a quay length of 450 meters and 29.3 hectares container yard. This development has attracted an increasing number of direct calls and Jakarta is becoming a major hub for Indonesia ([www.afriports.org](http://www.afriports.org)).

In May 1999 the Government signed another privatisation deal with P&O Ports of Australia, for a US\$174 million 49 percent stake in a similar joint venture with Pelindo III to form the Surabaya International Container Terminal (SICT). The concession is also for 20 years and P&O Ports projects that growth will be in the order of 200,000 to 250,000 TEU per year. For both terminal operating companies the risk of currency devaluation is reduced as the tariff is denominated in US dollars. One of the main objectives for both operators is to increase the skill levels of their employees in terms of equipment, maintenance, information technology and customer service levels.

In India P&O Ports was awarded in 1997 a 30-year licence to build, operate and manage India's first private container terminal. Nava Sheva International Container Terminal is situated at the Jawaharlal Nehru Port, Nava Sheva, Mumbai. The terminal which cost \$US 200 million commenced operations in 1999. In June 2000, P&O Ports was selected as preferred tenderer for the management, operation and redevelopment of the Chennai Container terminal, the largest terminal on the Indian Eastern Coast. In August 2001 the company was awarded the 30-year concession for Chennai and will invest \$US 100 million in the first five years followed by another \$US70 million when a neighbouring ore berth is decommissioned. Further P&O Ports was the only bidder for the development of Rajiv Gandhi Container Terminal (RGCT) at Cochin Port. The BOT Concession for 30 years will involve taking over the existing terminal and also to develop a new transshipment hub at Vallarpadam Island as traffic increases and to transfer operations from RGCT to Vallarpadam Island. Vallarpadam Island has a waterfront of approximately 1200m, draught of 17.5m and 80 Ha back up area and will be able to handle 6th and 7th generation vessels ([www.afriports.org](http://www.afriports.org)).

In South America, while the economies have generally been growing during recent years, the various national port structures have not developed fast enough to keep up with this growth. It is only in the last three or four years that governments have taken serious steps to provide the efficiency needed to handle the growing traffic. The concept of port reform and private participation has been accepted but the rate of implementation has varied greatly from country to country. Privatisation commenced first in Chile in 1981, and is only now entering the final phase with the liquidation of

the National Port Authority, Emporchi. Venezuela started next in 1991 but privatisation has not been fully achieved. In Uruguay steps towards privatisation were begun in 1992 but there have been considerable delays in awarding the concession for the container terminal. Argentina's privatisation efforts started in 1993 with their largest port in Buenos Aires that is now privatised. Colombia also started reform in 1993 and the management and operation of all ports has been decentralised. Brazil started its reform in 1995, concessions for a number of terminals have been granted in the ports of Santos Container Terminal 1, Sepetiba Container Terminal 1, Angra dos Reis Container Terminal and Ro-Ro Terminal, and Vitoria Capuaba and Paul piers. A 30-year lease has been granted for the new container terminal in Suape ([www.afriports.org](http://www.afriports.org)).

Colombia's four main public ports, Cartagena, Barranquilla, Santa Marta and Buenaventura have been transferred to the states and municipalities in which they were located. They in turn rented the ports on a twenty-year non-renewable lease to Regional Port Societies that contracted port operators to operate the facilities. Operating costs in the four ports have decreased 65 percent and productivity for container vessels rose from 10 to 40 containers per ship hour from 1993 to 1998 and general cargo productivity increased nine-fold to 4,500 tonnes per day. Ship time in port has decreased from an average of ten days to fifteen hours while total tonnage handled has more than doubled to 10.5 million tonnes ([www.afriports.org](http://www.afriports.org)).

In Chile the state-owned port authority Emporchi, is being dismantled and its functions are being divided among ten autonomous Port Companies that can compete against each other and that are responsible for the development and maintenance of infrastructure. The private sector is being given long-term operating concessions. The main container ports are Valparaiso and San Antonio that handled 256,400 and 455,600 TEUs respectively in 2000. As land for expansion is limited in both these ports, the government is promoting the construction of a new mega port with private funds, 1440 kilometres north of Santiago and adjacent to Chile's largest copper-producing region. In Uruguay, there have been three attempts to grant a BOT concession for the Montevideo container terminal. Lack of political will and transparency has resulted in bids being rejected, which has raised questions in the minds of foreign investors. In July 2001, a consortium including Belgium Seaport

Terminals won a 30-year concession for the container facility with an 80 percent share and the balance held by the National Port Administration ([www.afrports.org](http://www.afrports.org)).

Argentina's port reform process that started in 1991 has resulted in dramatic improvements. The productivity in the port of Buenos Aires has risen by 530 percent and the workforce has been reduced to 1,600 from 8,000. The original four terminal operators that had concessions for container handling in the port are now two plus there is another operator, Exolgan, outside the port area. In 2000 the three terminals handled 1.13 million TEUs.

The three main ports in Brazil are Santos, Rio de Janeiro and Sepetiba. The law for the modernisation of ports was passed in 1993 but there have been many difficulties in implementing the law. Labour interests in the port of Santos had a very strong influence on local politicians that resulted in a lengthy tendering process. Finally in July 1997 the authority to conduct the tender process was given to the National Economic and Social Bank of Brazil. Within three months, a 25-year operating concession was auctioned off in public and within two months the operator increased productivity by 40 percent and by 1999 the box-handling tariff was reduced to USD 150 from the pre-auction tariff of USD 500. Employers are not free to negotiate stevedoring arrangement and thus there are still some labour problems even though the number of Santos dockworkers has been reduced from 12,000 to 1,000. Thus in the last few years a revolutionary port reform has been taking place in South America and as a result the long term growth prospects for the ports industry are very good.

In Africa reform has not been so rapid but it has started and will accelerate in this decade. There have been some management contracts in the past, for example HPH in Mombasa, P&O Ports in Maputo and Durban, but with limited investment in equipment. P&O Ports have also established the second largest stevedoring firm in South Africa, known as P&O Ports Stevedoring of South Africa. There are a number of recently examples with direct investment. A group comprising ICSTI, ICTSI International Holding Corp and Vertex Financial Services (Tanzanian partner with 25 percent) were granted a 10-year concession to manage and develop the container terminal in Dar es Salaam (expected investment US\$6.5million). In May 2001, ICSTI sold its International Holding Corp to Hutchison Port Holding. Dubai Port

International was granted a 20-year management contract for the container terminal in Djibouti, which includes a US\$2.0 million investment in computerisation and human resource development. The Port of Abidjan is looking for a partner for a 30 year BOT concession for a new container terminal. In 1998, Portnet in South Africa introduced a reform program to achieve operational efficiency and commercial competitiveness through a process of restructuring, rationalisation, staff development and re-defining corporate goals. As of August 2001, Portnet was split into two separate entities with the Port Authority Division renamed the National Port Authority of South Africa (NPASA) and assigned the role of landlord for the seven ports and the South African Port Operations (SAPO) assigned the responsibility of port and terminal operations. There exist presently a substantial number of private terminal operators in the port especially at Maydon Wharf and Island View. The private terminal operators at Maydon Wharf include SA Sugar, Rennies Bulk Terminals, Ensimbini Steel, P & O Ports, Profert Fertilisers and Freight Dynamics and in Island View include Island View Storage (IVS), Vopak, Engen, Sapref and Durban Bulk Shipping (DBS).

## 7.4 THE NATIONAL PORT POLICY

### 7.4.1 Policy Background

In his opening address to Parliament, the President committed to improving national competitiveness through liberalising the transport sector with the objective of lowering costs and enabling technological advances and innovation throughout industry. Cabinet confirmed the President's views at a "Lekgotla"<sup>11</sup> in January 2001 when Action Plans for the Economic Cluster were approved. These Action Plans highlight the transport sector as a key contributor to South Africa's competitiveness on global markets and also acknowledge various export sectors as a major thrust for growing the economy. Infrastructure development, which clearly includes seaports, is also considered as an essential component of the Integrated Framework approved by Cabinet. Clearly, therefore, the White Paper on National Commercial Ports Policy supports this commitment in laying out a broad but decisive policy for the future governance of commercial ports in South Africa ([www.pmaesa.org](http://www.pmaesa.org)).

Commercial ports play a crucial role in South Africa's transport system and its economic development, and are therefore treated as strategic entities by this policy. Combined with the strategic geographical position of South Africa's coastline, the port system can have a multiplier role on the economy of the country and the Southern African Development Community (SADC) region. From a strategic perspective, the pursuit of this policy is to ensure an internationally competitive port system. Efficient ports are known to be catalysts for increased trade, and thus provide a comparative advantage for international trade as has been discussed in the previous chapters.

The White Paper on National Transport policy mainly deals with commercial ports from a transport perspective. The impact of ports extends far beyond their contribution to transport costs. The strategic goals of this national policy on ports will reflect not only the transport perspective, but also the industrial (trade and

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<sup>11</sup> Sotho word for private gathering

manufacturing) and the market (consumers and suppliers) and the national political system.

The purpose of this policy is to ensure affordable, internationally competitive, efficient and safe port services based on the application of commercial rules in a transparent and competitive environment applied consistently across the transport system.

There should be an increase in infrastructure investment and service delivery level where appropriate, based on user needs. The government's commitment to safe transportation should express the need for a clean environment and service designated areas. The government must maintain its commitment towards meeting all constitutional obligations as well as facilitating the expansion of international trade, tourism in general and export activity in particular.

Globalisation pressures make it essential that nations integrate their transport systems into the global logistics network. Ports are naturally being incorporated into this changing system and have to adjust to the new challenges and environment. Government recognises the strategic value of the commercial ports system in South Africa, in the context of international trade initiatives and the changing global transport environment. It is for this reason that it needs to devise this policy in support of the efforts to improve the functioning of commercial ports ([www.npa.co.za](http://www.npa.co.za)).

#### **7.4.2 Policy Environment**

This section describes the policy environment underpinning the formulation of the national policy on ports. The policy has to be consistent with, and complement the Government's broad developmental, strategic, economic and social objectives. For this reason, it is necessary to consider the broad policy framework within which this policy has been formulated

The following four policies had a major impact on the formulation of the policy:

- Constitutional policies;
- Social and economic policies of Government;
- The national transport policy; and
- The restructuring policy of the Department of Public Enterprises.

The Government's policies on social and economic aspects are contained in a number of documents, some of the more salient being:

- Reconstruction and Development Programme (RDP), 1994;
- Development Facilitation Act, 1995 (Act No. 67 of 1995);
- Discussion Document by the Government of National Unity on the Consultative and Implementation Framework for the Restructuring of State Assets, July 1995;
- Proposal for a National Spatial Development Framework, August 1995;
- National Framework Agreement, February 1996;
- White Paper on the Development and Promotion of Tourism in South Africa, June 1996;
- Growth, Employment and Redistribution: A Macro-economic Strategy (GEAR), June 1996;
- National Strategic Vision, 1996;
- Towards a National Growth and Development Strategy, 1996;
- White Paper on National Defence, 1997;
- White Paper on the Environment, August 1997;
- Competition Act, 1998 (Act No. 89 of 1998);
- Skills Development Act, 1998 (Act No. 97 of 1998);
- National Environment Management Act (Act No. 107 of 1998) (NEMA);
- Municipal Structures Act, 1998 (Act No 117 of 1998);
- Public Finance Management Act, 1999 (Act No. 1 of 1999);
- National Land Transport Transition Act, 2000 (Act No. 22 of 2000);
- Municipal Systems Act (Act 32 of 2000); and
- White Paper on Spatial Planning and Land Use Management (2001).

The White Paper on National Transport Policy reflects the Government's transport priorities in the context of its broad social and economic policies. The following transport related legislation has also been taken into consideration during the drafting of this policy:

- Merchant Shipping Act 57 of 1951;
- Sea Fishery Act 12 of 1988;
- Legal Succession to the South African Transport Services Act, 9 of 1989; and Harbour Regulations; and
- South African Maritime Safety Authority Act, 1998 (Act No. 5 of 1998). ([www.npa.co.za](http://www.npa.co.za)).

#### **7.4.2 The National Transport Policy**

The vision for the South African transport system in the White Paper on National Transport Policy is that of a system which will:

“Provide safe, reliable, effective, efficient, and fully integrated transport operations and infrastructure which will best meet the needs of freight and passenger customers at improving levels of service and cost in a fashion which supports government strategies for economic and social development whilst being environmentally and economically sustainable.”

The following strategic transport goals were identified as prerequisites to the realisation of the above-mentioned vision:

1. Support for the Reconstruction and Development Programme for meeting basic needs, growing the economy, developing human resources, and democratising decision making;
2. Enabling customers requiring transport for people or goods to access the transport system in ways which best satisfy their chosen criteria;

3. Improving the safety, security, reliability, quality, and speed of transporting goods and people;
4. Improving South Africa's competitiveness and that of its transport infrastructure and operations through greater effectiveness and efficiency to better meet the needs of different customer groups, both locally and globally;
5. Investing in infrastructure or transport systems in ways which satisfy social, economic, or strategic investment criteria; and
6. Achieving the above objectives in a manner that is economically and environmentally sustainable, and minimises negative side effects.

Of particular pertinence to this policy, is the mission for transport infrastructure, which is:

“To provide an integrated, well-managed, viable and sustainable transport infrastructure meeting national and regional goals into the 21<sup>st</sup> century, in order to establish a coherent base to promote accessibility and the safe, reliable, effective and efficient movement of people, goods and services.”

#### **7.4.3 Vision for The National Commercial Ports Policy**

South Africa's commercial ports system should be globally competitive, safe and secure, operating at internationally accepted levels of operational efficiency, in a manner that supports the goals and objectives of the RDP and GEAR. Additionally, it should serve the economy and meet the needs of port users in a manner that is economically and environmentally sustainable.

##### *Vision*

“A system of ports, seamlessly integrated in the transport network, that is jointly and individually self-sustainable through the delivery of high levels of service and increasing efficiency for a growing customer base, enhancing South Africa's global competitiveness and facilitating the expansion of the South African economy through socially and environmentally sustainable port development” ([www.dti.gov.za](http://www.dti.gov.za)).

The term “port”, as used in the policy, is defined as interfaces between the various transport modes and are typically combined transport centres. In addition, they are part of multifunctional trade and industrial areas where goods are not only in transit, but also handled, manufactured and distributed. In fact, ports are multidimensional systems which, to function adequately, must be integrated into global logistic chains, a concept that has been explained in the previous two chapters. An efficient port requires adequate infrastructure, superstructure and equipment, but also good communications and Information Technology (IT) systems, and especially a dedicated and skilled management team with a motivated and trained work force.

All the existing commercial ports, i.e. Richards Bay, Durban, East London, Ngqura, Port Elizabeth, Mossel Bay, Cape Town, Saldanha Bay, Port Nolloth, and offshore cargo handling facilities as well as all future ports and offshore cargo handling facilities to be constructed, will be managed and administered by the National Ports Authority (NPA) who will be responsible for instilling commercial discipline in major South African ports and pave the way for efficiency gains necessary for ports and users to become competitive in the global economy

The principal operational and administrative functions of a port as defined in the bill are:

*Services provided to vessels and cargo:*

- ◆ Provision and maintenance of basic port infrastructure, i.e. breakwaters, channels, turning basins, quay walls;
- ◆ Provision and maintenance of lights, buoys and other navigational aids;
- ◆ Pilotage;
- ◆ Towing, i.e. tug services;
- ◆ Berthing services, i.e. mooring/unmooring;
- ◆ Opening/closing of vessel holds (Stevedoring);
- ◆ Stowing/ unstowing of cargo on board a vessel (Stevedoring);
- ◆ Handling of cargo ashore;
- ◆ Transport to and from storage/to and from the quayside;

- ◆ Provision and maintenance of superstructures, i.e. sheds, warehouses, workshops, offices, etc.;
- ◆ Provision and maintenance of equipment;
- ◆ Fixed equipment (ship-to-shore cranes, conveyor belts etc.);
- ◆ Mobile equipment (straddle carriers, forklifts etc.);and
- ◆ Delivery/reception of cargo to/from the storage area.

*Other services provided to vessels are:*

- ◆ Radio, radar, fire-fighting, security, medical services, supplies (water, telephone, bunkering, stores), waste disposal, repairs (dry docks, syncrolifts), equipment hire, port policing, administrative and commercial documentation.

*Other services provided for cargo are:*

- ◆ Transshipment, temporary storage, security, tallying, insurance, customs clearance, processing, storage and distribution, administrative and commercial documentation.

#### **7.4.4 Goals of The National Commercial Ports Policy**

In order to deliver on the vision a number of broad goals would have to be pursued viz:

- To invest in port infrastructure, superstructure, equipment and system in ways which satisfy social, financial, economic or strategic investment criteria;
- To improve the safety, security, reliability, quality and speed of port operations and services;
- To enable port users to access the port system in the most efficient way possible;
- To promote good employment practices and standards;

- To achieve the above goals in a manner which is economically and environmentally sustainable, and minimises negative externality impacts on non-users; and
- To promote intermodalism.

#### **7.4.5 Objectives of the National Commercial Ports Policy**

The objectives of the National Commercial Ports Policy are to:

- Ensure safe affordable, effective, and efficient port services;
- Encourage fair competition based on transparent rules applied consistently across the transport and port system;
- Improve infrastructure and service levels where appropriate, based on user needs;
- Ensure safe transportation, a clean environment and service to designated areas;
- Establish appropriate institutional arrangements and legislation to support the governance of ports;
- Promote the development of an integrated regional production and distribution system in support of government industrial policies;
- Facilitate and enhance the expansion of international trade and tourism in general, and export in particular;
- Promote the development of an efficient and productive South African port industry capable of competing in international markets;
- Establish an appropriate regulatory framework that is also flexible and responsive;
- Ensure high quality training and development of human resources;
- Promote increased international relations;
- Ensure cost effective and efficient port management and operation;
- Ensure proactive integration of social, economic and biophysical environmental aspects during the early stages of port planning and

throughout the port development cycle including the planning, design, construction, operation and decommissioning of port developments;

- Ensure proactive communication and consultation with port stakeholders early on in the port planning stages;
- Ensure that strategic port planning is closely aligned with the integrated development planning process of the associated city; and
- Promote Black Economic Empowerment and Small, Medium, and Micro Enterprises.

#### **7.4.6 Basic Principles for a National Commercial Ports Policy**

The following principles were formulated to focus the policy and to ensure that it is in line with government policies:

- National needs, aspirations and requirements shall be of primary consideration;
- Consideration of user and other stakeholder needs and views;
- Port system development, management and enhancement will primarily remain a national function;
- Regulation should be kept to a minimum, without compromising national aspirations, safety, health, security, efficiency and environmental sustainability;
- Participants in the market should be treated equally and fairly;
- The principle of user pays or cost recovery, benchmarked against international best practise to ensure that the costs are globally competitive will be applied as far as possible, including an appropriate return; and
- Strategic port planning will include the integration of social and biophysical aspects at the earliest stages to ensure sustainable port development.

([www.npa.co.za](http://www.npa.co.za)) ([www.dti.gov.za](http://www.dti.gov.za)) ([www.pmaesa.org](http://www.pmaesa.org)).

The basic principles and strategic objectives listed above are accepted as the guiding framework for the National Commercial Ports Policy to be promulgated soon.

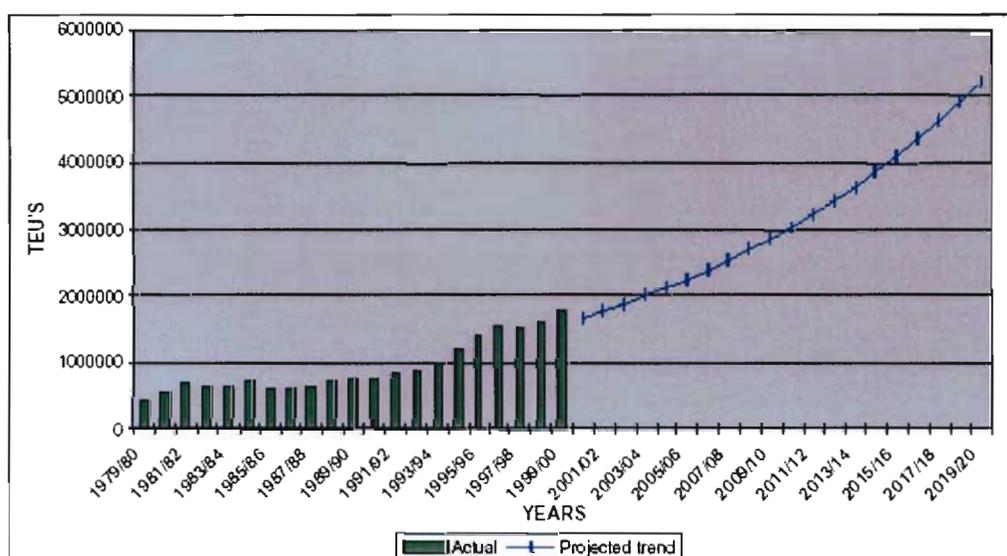
The next section will be a specific focus on South Africa and in particular the port of Durban. It must be noted that the specific aim of this paper is not to interrogate the day-to-day operational strengths and weaknesses of ports as they are presently, but rather to explain the role and purpose of ports in a changing trade and transport environment, and at how organisational structures and planning/development frameworks might respond.

## **7.5 The Southern African Context**

The different types and characteristics of ports across the African continent indicate the degree of natural advantage and economic success of a country. South Africa's ports consume a large part of the general African trade, which is due to South Africa's advanced economic development. In keeping with global trends and increased competitiveness, development of ports in Southern Africa will mean a greater degree of cooperation in order to exchange the use of technology and other resources. Major ports have been undertaking extensive rehabilitation of terminals (e.g. Ports of Durban, Mombasa, Dar es Salaam, Maputo and Lagos), introducing new equipments in keeping with technological advancements like new gantry cranes, better navigation systems and introducing new methods of port management. The National Ports Authority of South Africa recently implemented the integrated SAP system and a new scanner system at the Durban Container Terminal together with the International Ship and Port Security Code (ISPS) in keeping with international trends. Further initiatives in order to be more globally competitive and internationally compliant involved the America Container Security Initiative (CSI) as part of the World Customs Organisation (WCO) signing bilateral agreements with South Africa where goods leaving South African ports especially Durban had to comply with certain standards in order to enter the American economy.

The structure of many Southern African ports is also changing both in terms of management and physical layout. Three critical factors underline this development; one is the growth in sea-trade<sup>12</sup> (especially the use of containers) as explained in the previous chapter and can be seen in figure 14, the second is the advent of mega-container ships (approximately 5000 – 7000 TEUs) and lastly pressure by vessel operators and shippers for enhanced service quality from ports, which could lead to investment into new technologies such as the internet and telecommunications.

**Figure 14: Past and Projected growths in TEU moves through South African ports**



Source: Maritime Education Research and Information Technology (Pty) Ltd (MERIT), Port of Ngqura evaluation, 2001

As can be seen from figure 14, there is a projected increase in container traffic through South African ports. The projected growth will result in the number of container (TEU) moves increasing from 1.8million in 1999/2000 to approximately 5.2mil in 2019/20, which is well beyond the present available capacity of the existing three container terminals in the ports at Cape Town, Port Elizabeth and Durban (Feasibility study, Port of Ngqura, MERIT, 2001).

<sup>12</sup> The average annual growth rate reflected in the forecast is 5.5% in comparison with the rate of 7.06% so far experienced and the worldwide annual growth rate, which is well in excess of 7 percent.

In keeping with this trend the National Port Authority of South Africa decided to construct a new port at Ngqura (Coega) in the Eastern Cape to cater for this projected demand. The project is presently under execution and is approximately 10% complete (civil works involving the breakwaters, quaywalls and the sand bypass). The project also includes the construction of an industrial development zone (IDZ). Further, in order to become internationally competitive and to cope with the increased demand in container traffic the Port of Durban is presently constructing new deep-water berths at Point as part of the ports development framework. The new berths will be capable of handling cargo vessels with a dead weight tonnage of 45000, length overall of 200m, beam of 32m and a draft of 12.5m. Once the project is complete all break bulk cargo handling operations at Pier 1 shall be moved to Point and Pier 1 converted to container handling. The conversion of Pier 1 into container handling would increase the capacity of the Durban Container Terminal from 1.25 million TEUs per annum presently to 1.7 million TEUs, this would meet the demand based on the present growth rate of 7% up to the year 2006.

NPA's port development framework is aimed at facilitating a continuous process of projecting forward and deciding on a course of action at improving the ports sustainability. Development plans focus on port land use development and protection set within the context of wider social, economic and environmental trends and considerations. Reflecting national and regional planning policies, development plans make strategic provision for the long-term use of land, water and other port infrastructure, providing a framework for local decision-making and the reconciliation of competing development and conservation interests. The framework plan, which is presently in its implementation phase, also includes pro-active strategies in recognition of diminishing port land in the bay and the acknowledgement and compliance with the proposed National Ports Bill. In keeping with technological advancements and the increase in world sea borne trade, the NPA – Port of Durban has also planned in the near future the widening and deepening of the port entrance channel and the deepening of the berths at Maydon Wharf and Island View to cater for new generation vessels and an increase in cargo volume. These are efforts in keeping with the new demands in the maritime industry in terms of vessel size and ship turnaround time by the provision of adequate infrastructure and management structures in order to gain comparative advantage and become internationally

competitive especially in light of the lowering of trade barriers and the political change in South Africa resulting in the entry into world markets.

The NPA is also very heavily involved with government regarding the proposed new ports bill to be promulgated soon. NPA is aware of the various trade liberalisation efforts by the government in order to promote trade and the impacts of globalisation of the world economy. The various initiatives by the NPA of South Africa in terms of new systems of management, the splitting of Portnet into two entities namely the National Ports Authority of South Africa and the South African Port Operations together with the various infrastructural developments like the creation of logistics parks and hinterland developments in the various ports particularly in the port of Durban shows NPA's commitment to the vision of the new ports bill. The minister of Public Enterprises mentioned in his budget speech in June 2001 that government has embarked on a multi-pronged strategy to make sure that South Africa's ports contribute to its competitiveness and has already commenced with various financial and legal exercises aimed at the separate incorporations especially the concessioning of some of the port operations to the private sector. The purpose of the bill is to ensure affordable, internationally competitive, efficient and safe port services and the NPA is aware of the role of the port system in facilitating trade and energising economic activity especially in the face of globalisation and the various pressures to be integrated into the world economy. NPA supports the vision of the new ports bill in terms of enhancing South Africa's global competitiveness and facilitating the expansion of the South African economy through socially and environmentally sustainable port development. In order to achieve this goal the NPA of South Africa has committed to invest in port infrastructure, superstructure and equipment, which satisfy social, financial and economic criteria. This is evidenced in the various large-scale infrastructural developments presently under execution in the port of Durban like the new quay wall project, widening and deepening the entrance channel, upgrading Maydon Wharf and Island View and the construction of a new port in East London. NPA is also committed to safety, security, reliability, quality and speed of port operations and services. The new Vehicle Tracking System (VTS) and the new Automatic Identification ship tracking system (AIS) together with the implementation of the National Intelligence Defense Systems (NIDS) policy in terms of surveillance and access control is evidence of this commitment.

The NPA of South Africa is committed to developing and upgrading the ports in South Africa in accordance with international best practice in order to facilitate and enhance the expansion of international trade, tourism and export in general through the promotion and development of an efficient and productive South African port industry capable of competing in international markets.

## CHAPTER 8: CONCLUSION

“Such therefore are the advantages of water carriage, it is natural that the first improvements of art and industry should be made where this convenience opens the whole world for a market to the produce of every sort of labour”

(Adam Smith, in Stopford, “Inquiry Into The Wealth of Nations”, 1997)

The integration of the global economy and growth in international trade has created a common market in which countries can compete. This market sets standards for performance in terms of time, cost, and reliability of delivery of goods as well as the quality of goods shipped. The ability of a country to meet or exceed these standards will determine a country’s competitive position and its volume of trade. This growing international trade is transforming the world economy into a single system and integrating world transport activities; ports are therefore being incorporated into this changing and competitive environment. The strategic role and purpose of ports are thus becoming increasingly important within this changing economy and are seen as energisers of economic growth.

The functions of ports has evolved over the past few decades to be regarded as logistical platforms, by taking on the additional roles of facilitating value adding activities and the transshipment of goods. Ports have thus become less of a compulsory point of change over from maritime transport to some other mode of transport and more of a strategic point in the organisation of foreign trade, and a principal link in the integrated transport and economic chain. This changing role has largely been as a result of growing efficiency of sea transport and the lowering of barriers to trade on an international basis. These dynamics have been compounded by the gains achieved in economies of scale in the various components of the transport chain. Ports are thus important to the economic well-being of a country and is an important player in facilitating trade.

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