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Towards a competitive setting for the Port of Aqaba in the new millennium

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TOWARDS A COMPETITIVE SETTING FOR THE PORT OF AQABA IN THE NEW MILLENNIUM

By

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JORDAN

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To the source of inspiration and continued flow of love, MY MOTHER.

Declaration

I certify that all the material in this dissertation that is not my own work has been identified, and that no material is included for which a degree has previously been conferred on me.

The contents of this dissertation reflect my own personal views, and are not necessarily endorsed by the University.

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Abstract

Dissertation Title: **"Towards a Competitive Setting for the Port of Aqaba in the New Millennium"**

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This dissertation discusses the possible impact of the peace process in the Middle East on the competitive setting of the port of Aqaba. This process gave birth to new rival ports especially on the Mediterranean, ports which in the medium and the long term may pose a threat to the Port of Aqaba by taking a considerable part of its cargo. Therefore, this paper, includes an analysis of the significance of the Port to the national economy being the country's sole access to the sea. Then, the capabilities of rival ports and the changing competition and trade environment in the region as a result of this process are analysed. The spidergram was used as a tool to carry out this analysis using the main elements that make up the competitiveness of the port. As a result, the paper proposes some alternatives and measures that the Port can take to maintain its market share and improve its competitiveness. These alternatives suggest taking advantage of the location and the infrastructure of the port to attract transit traffic, containerised cargo, bulk cargo and cruise-ships. Further, the paper proposes carrying out necessary port reforms, giving the private sector an opportunity to participate in port development and operations and opening channels of dialogue with rival ports to investigate the possibility of having some kind of co-operation between them and the Port of Aqaba.

The paper concludes by proposing a marketing strategy for the Port based on *focus* and *differentiation* approaches. The strategy should be accompanied by carrying out necessary reforms on both the operational and the administrative levels.

Key words: Competition, Planning, Change, Marketing, Differentiation, Strategy, Alternatives, Focus, Process, Setting, Co-operation, Rivals, Reform.

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List of Abbreviations

ABMC	Arab Bridge Maritime Company
ACT	Aden Container Terminal
AGV	Automated Guided Vehicle
ARC	Aqaba Railway Corporation
CFS	Container Freight Station
CTMS	Container Terminal Management System
DPA	Dubai Port Authority
EDI	Electronic Data Interchange
G.C	General Cargo
GCC	Gulf Co-operation Council
GDP	Gross Domestic Product
GNP	Gross National Product
GPS	Global Container Positioning System
HJR	Hijaz Jordan Railway
JNSL	Jordan National Shipping Lines
MDS	Manifest and Documentation System
PC	Ports Corporation
PSA	Port of Singapore Authority
RTG	Rubber Tyred Gantry
SEZ	Special Economic Zone
SSA	Stevedoring Services of America
SWOT	Strengths, Weaknesses, Opportunities, Threats
TEU	Twenty Equivalent Unit (twenty-foot container)
TSG	The Services Group
UNCTAD	United Nations Conference on Trade and Development
WTO	World Trade Organisation

Chapter One

Introduction

Since Aqaba Port Authority was founded in 1952, the Port has established itself as the main sea outlet of Jordan's trade with the external world. More than 75% of Jordan's exports and imports pass through the Port. However, the recent political and economic changes in the Middle East resulting from the peace process, along with the impacts of global economic and trade changes and technological advances in the maritime industry, have created a highly competitive environment and new trade practices in the region.

As a result, instead of being the main access for sea-born traffic into and out of Jordan on the one hand, and for transit cargo for some neighbouring countries on the other, the Port of Aqaba may soon find itself threatened by other ports on the Mediterranean like the ports of Ashdod and Haifa in Israel, the port of Beirut in Lebanon and the ports of Tartus and Latakia in Syria.

As far as transit traffic coming from the East is concerned, the Port of Aqaba may also be threatened by the emerging pivotal role of the port of Dubai in the United Arab Emirates which has established itself as a major transhipment and distribution hub for various areas in the region and as a sea-air bridge to Europe. Similarly, major Red Sea ports like the Saudi Arabia's Port of Jeddah, the Egyptian ports of Port Said and the newly-erected North el Sukhnah port south of Adabiya on the western shore of the Red Sea and the new container terminals in Aden and Salalah pose a real challenge to the attempts of the Port of Aqaba to attract an additional share of the traffic as these ports are located on the entry and exit of the

Suez Canal and on the main shipping route between Europe and South East Asia and Japan. Also, most of these ports are run and operated by either regional or global port operators like the Port of Singapore Authority (PSA), Dubai Port Authority (DPA) and Maersk Sealand.

As far as Mediterranean ports are concerned, they are not only geographically and logistically closer to the sources of production in Europe and North America but are located at a stone's throw from the consumption, commercial and industrial zones in and adjacent to the capital Amman and the northern part of the country. Further, these ports are located closer to the main trade partner of Jordan; Iraq with its huge market, particularly when the sanctions are lifted. These ports are more likely to have a comparative and competitive advantage over the Port of Aqaba as they provide a shorter transit time to these areas in the medium and the long run when the border-related and other trade barriers are removed.

This growing threat raises the risk of a serious and considerable loss of a major part of what has been considered a traditional captive cargo of the Port of Aqaba to these ports. Further, this could create fierce competition which can hinder the attempts of the Port of Aqaba to increase its market share, particularly transit traffic, as this host of new terminals is likely to create an over-capacity in the region. One has also to take into consideration that the emerging climate of peace and stability in the region will not only contribute to boosting the economies of the countries of the region but is also likely to generate transit traffic eastward through Jordan from the Mediterranean ports.

Will the Port of Aqaba be able to respond to this threat and how? Does it have sufficient resources for this? What are the alternatives available? Should it co-operate with these ports or continue to work alone with the potential risk of losing its own cargo or being unable to gain more traffic? Should the port of Aqaba be satisfied with handling its captive and traditional cargo or seek new trade horizons and generate non-captive cargo and non-traditional activities like multi-modal transport, logistics, value added services like packaging, warehousing, etc? And

finally, can the Port of Aqaba act as an efficient gateway for the regional manufacturing needs and services activities?

The answers to these questions along with suitable recommendations will be the area of discussion for this dissertation which will look at these issues from two angles. First, the potential impact on the local market imports and exports which are traditionally handled via the Port of Aqaba. Second, the potential impact on the transit traffic which formed a major part of the Port's traffic in the 1970s and 80s. For this purpose, this dissertation will be organised into six chapters:

The first chapter is an introduction presenting a background to the topic and reviewing the reasons for selecting it with a summary of the threats and challenges that may face the Port of Aqaba as a result of the political and economic changes in the region.

The second chapter will look into the role of the Port of Aqaba in the economic and social development of Jordan. In this connection, a background of the Port, its function, facilities and relation with other sectors will be given.

The third chapter will review the economic and political changes in the region, the peace process, forces of change and the implications of that change on the Port.

The fourth chapter will evaluate the potential emerging competitive environment in the region, the ports involved in that competition, the weaknesses and strengths of each port and the competition implications.

The fifth chapter will be devoted to discussing the new commercial role of the Port, developing alternatives and proposing a marketing strategy.

The last chapter will include the conclusions and recommendations.

The discussion and analysis in this paper will be based on the writer’s past experience as a Marketing Manager at the Port of Aqaba, his meetings and contacts with port users and clients, the data available about rival ports, relevant reference books, articles, magazines, field trips and the lectures on port performance, management and marketing in World Maritime University.

Chapter Two

2. The role of the Port of Aqaba in economic development in Jordan:

2.1 Background

The Port of Aqaba lies at the northern tip of the Gulf of Aqaba which forms the eastern arm of the Red Sea at latitude 29.5 31 degrees North and longitude 35 00 degrees East. The Gulf extends 180 km from the city of Aqaba to the Straits of Tiran which is a continuation of the great depression of the Rift Valley. The Port is, therefore, protected and surrounded by mountains from the east and the west and so enjoys very favourable weather conditions. Although it is located on the short Jordanian coastline which is a narrow ribbon of about 26 km, Aqaba forms a connection between Arab countries in Asia and those in North Africa and borders Saudi Arabia, Egypt, and Israel. The Port has gained more and more importance since its establishment in 1952 because it has been the main access to Jordan's exports and imports and a transit point for the demands of neighbouring countries like Iraq, Syria, Lebanon and the Gulf Co-operation Council States (GCC) as will be shown later in this chapter. This, of course, has been an advantage, however, it puts different pressures on the port from time to time as considerable expansion projects has to be implemented to satisfy the demands of these countries. The Port is run by The Ports Corporation (PC) which is a government body with financial independence and reports to the Minister of Transport who is the Chairman of the Board of Directors of the Port. PC is entrusted with developing and operating the Port and carrying out all cargo and ship-related functions.

2.2 *Functions and facilities of the Port:*

As the Port of Aqaba is Jordan's only seaport, it has been functioning as the country's main access for its exports of local mineral, agricultural and industrial products on the one hand and for its imports of manufactured goods on the other. The Port is considered a strategic asset for the country and has accordingly received great attention from the authorities at different levels. The Port started with a small quay for handling lighters and developed throughout the last five decades to become a major port in the Red Sea region with the facilities and equipment shown below.

2.2.1 Handling equipment:

Table 2.1 below shows the cargo handling equipment in the Port. This figure and the ones following it will be used later for comparison purposes with other rival ports.

Table 2.1

Cargo handling equipment in the Port of Aqaba

Equipment	***Capacity (ton)***	***Number***
Gantry Crane	**40**	**2**
Straddle Carrier	***30 - 35***	***7***
Super Stacker	***40 - 50***	***2***
Container Top Lifts	***7 - 35***	***17***
Mobile Cranes	***90 - 120***	***2***
Mobile Cranes	***1 - 45***	***69***
Forklifts	***1.5 - 25***	***119***
Tug-masters	***60 - 70***	***25***
Towing Tractors	***20 - 25***	***46***
Trailers		***179***

Source: Aqaba Port Statistics Sheet 1998

2.2.2 Storage facilities:

As far as storage is concerned, the Port has the following storage capacity:

Table 2.2

Storage capacity in the Port of Aqaba

Storage	***Area***
Transit Sheds	**62.000 sqm**
Container Terminal	**311.000 sqm**
Covered Storage	**41.000 sqm**
Open Storage	**245.000 sqm**
Cold Storage	**500 tons**
Phosphate Storage	**410.000 tons**
Grain Silos	**150.000 tons**
Potash Storage	**150.000 tons**
Free Zone	**19.000 sqm**

Source: Aqaba Port Statistics Sheet 1998

2.2.3 Berthing facilities:

Berthing facilities in the Port are divided up into three parts; the main port, the container port and the industrial port. The depth of water alongside quays ranges from 6-25 meters. Table 2.3 below shows the berthing facilities of the main port which are dedicated for handling general cargo, grain and the country's exports of its major mineral product; phosphate rock. However, for planning and tourism-related considerations, and due to the fact that a substantial proportion of general cargo traffic is increasingly carried by containers, as will be seen later, a feasibility study is underway to investigate the possibility of moving phosphate rock exporting facilities to the industrial zone on the southern coast and using this port for cruise-ship traffic and other tourism-related activities.

Table 2.3

Berthing facilities of the main port

Berth	*Depth/m*	*Length/m*
No. 1-6 G.C	11.2 - 13.4	1060
No. 7-9 G.C	5.8 - 8	450
No. 10 Tugboats	4.0	210
Phosphate A	11.0	210
Phosphate B	15.0	180

Source: Aqaba Port Statistics Sheet 1998

The other two parts of the Port are the container and the passenger port, and the industrial port. Berthing facilities in these ports are shown in tables 2.4 and 2.5 respectively.

Table 2.4

Berthing facilities of the container port

Berth	*Depth /m*	*Length /m*
Container 1-3	15 - 20	540
Ro/Ro	12.0	40
Passenger, floating	15.0	150
Mo'ta, floating	15.0	150
Bulk Cement	11.0	120

Source: Aqaba Port Statistics Sheet 1998

Table 2.5

Berthing facilities of the industrial port

Berth	*Depth/m*	*Length/m*	*Draft/m*	*Ship L/m*	*Displacemnt*
Industrial Seaward	15.0	200	15.0	230	70.000 ton
Industrial landward	11.0	190	11.0	190	40.000
Oil Jetty	25.0	140	24.0	370	406.000
Timber Berth	6.8	80.6	6.8	80(120)	14.000

Source: Aqaba Port Statistics Sheet 1998

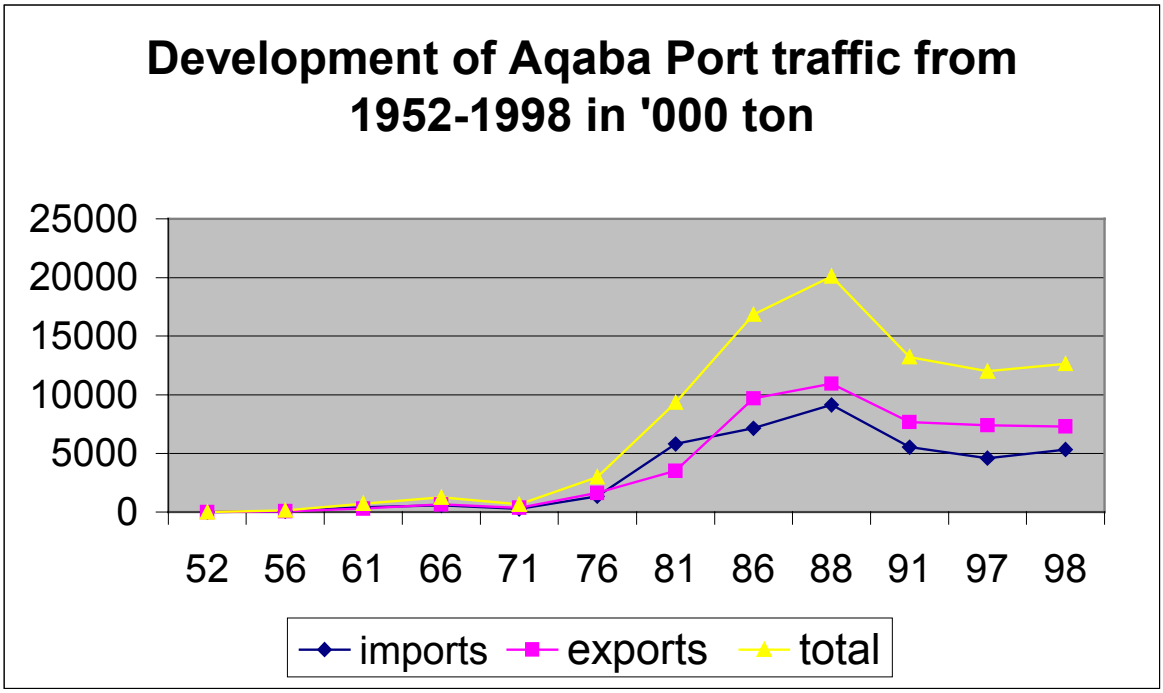
The above mentioned three port components are shown in the following layout of the Port where number '1' points to the main port, '2' points to the container and the passenger port, and number '3' points to the industrial port.

Layout of the Port of Aqaba

2.3 The role of the Port in development:

The fact that the Port of Aqaba is Jordan's only seaport shows the considerable importance of this port to the country's economic and social development. For almost half a century, the Port has been serving the country's economy in many ways both directly and indirectly. The direct economic impact of the port results from the port activities and cargo volumes handled through the port which generate income, employment and other services directly associated with such activities. The indirect economic impact involves industries and businesses created thanks to the Port in addition to the multiplier effect of the port on other economic activities like banking, insurance, land transportation, etc. Graph 2.1 shows the volumes of cargo handled via the Port since its establishment in 1952 up to 1998.

Graph 2.1



Source: Derived from Aqaba Port Statistics Sheet 1998

These economic and social impacts can be summarised in the following aspects:

First, the port is a major employer of labour where the number of people employed by the port (both permanent and casual) ranged from 4996 in 1990 to 5398 in 1998 as shown in the following table.

Table 2.6

Number of workers in Aqaba Port from 1990-1998

Year	Number of workers
1998	5398
1997	5644
1996	5544
1995	5060
1994	5106
1993	5265
1992	5761
1991	5108
1990	4996

Source: Aqaba Port Statistics Sheet 1998

Second, many economic activities, like shipping agents, road and rail transport, forwarding agents, customs, security administrations and other relevant services, depend in one way or another on the activities of the Port. It is estimated that each ton handled through the Port generates around $ 40 (Jordan, An Emerging Market, Transport Sector, 1998 http://www.nic.gov.jo/economics/invest/308html,) distributed among the different port-related activities mentioned above in addition to the port authority itself. According to this figure, the input of the Port in the national economy was about $ 500m or 7.3% of the GDP in 1998. However, one should bear in mind that estimation of the exact overall impact of the Port on the economy requires in-depth studies which is beyond the scope and purpose of this paper.

Third, and most importantly, on the local level, around 80% of the total exports of the country and 65% of the total imports are handled through the port. On the

regional level, the Port generated considerable economic benefits to the country through its transit traffic which amounted to 35% - 40% of the total traffic of the Port during the 1970s and 1980s as will be seen in chapter three.

Fourth, the port is considered a growth centre as it encompasses a large proportion of economic interests, a wide range of industries and regional and international joint ventures like the agricultural, chemical and fertiliser industries. Among these are joint ventures to produce fertilisers and agricultural products with Japan, India and Norway. In addition, the Arab Bridge Maritime Company, which runs the ferry line between Jordan and Egypt, is one of the pioneer companies contributing considerably to the Port income and the national economy. Table 2.7 shows the ferry traffic between 1986-1998.

Table 2.7:

Passenger, vehicle & cargo via Aqaba-Nwebe´ferry line &cruise-ship taffic 86-98

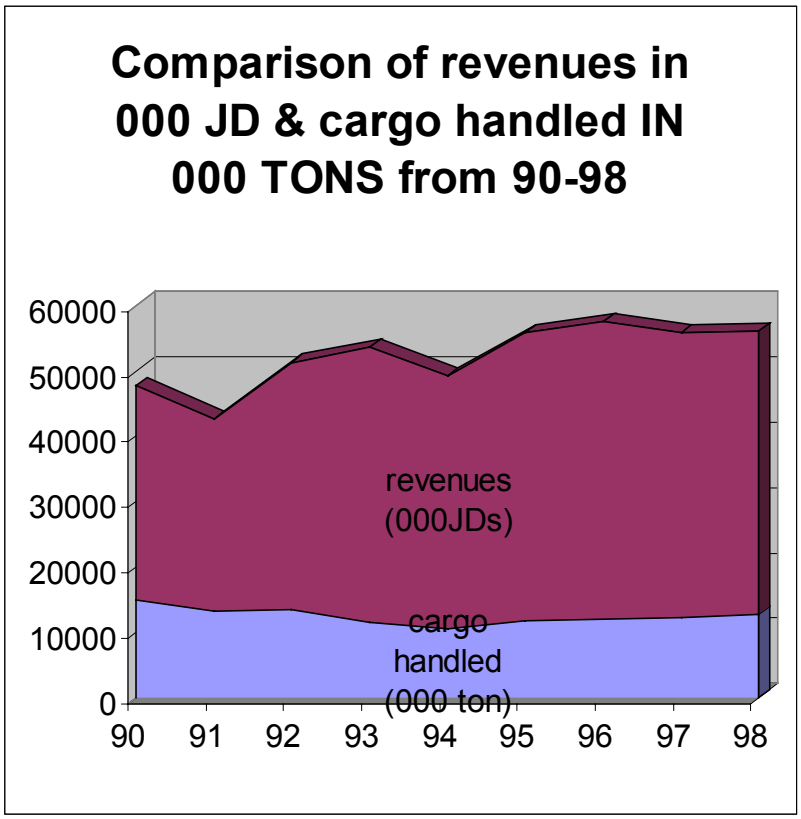
Year	*Passengers*	*Vehicles*	*Cargo in tons*	*Cruise-ships*
1986	666132	28759	41577	10
1987	558688	35003	64638	9
1988	718490	45764	95619	6
1989	707777	54980	12980	16
1990	794355	72400	142820	21
1991	867374	65437	175621	1
1992	1204742	86562	226265	17
1993	1247167	86973	266596	30
1994	1349061	70513	302697	35
1995	1156134	5801	258015	62
1996	1074846	54048	231043	116
1997	828620	50964	269105	145
1998	733235	47721	268734	65
1999	705626	-	-	95

Source: Derived from Aqaba Port statistics 1999

Further, the Port is vital for the national trade and is likely to become a focus point for maritime traffic, particularly, in view of the government's recent decision to transform Aqaba into a Special Economic Zone which is expected to generate more cargo into and out of the country and increase value-added activities.

Thus, we notice the pivotal role that the Port plays in the economic and social development of the country. Graph 2.2 shows a comparison between the total cargo handled ('000 tons) and the Port revenues ('000 JDs) from 1990 –1998.

Graph 2.2



Source: Derived from Aqaba Port Statistics Sheet 1998

2.4 Connection with other sectors:

As has been mentioned, the Port of Aqaba has a great impact on the country's economy either in terms of the number of people employed by the Port or with relation to its multiplier effect and the activities connected to the Port either directly or indirectly. These activities include:

1. **Rail transportation** represented by Aqaba Railway Corporation (ARC) and the Hijaz Jordan Railway (HJR). ARC, which is the major carrier of Jordan's main mining resource; phosphate, was formed in 1972 and has recently been restructured and privatised with the aim of the construction of new railway connections and expansions which are necessary for enhancing the transportation capacity between the Port of Aqaba and the main cities and production centres within the country and with other neighbouring countries. This falls within a government comprehensive plan to expand the national railways network and convert it into a standard gauge to allow it to be linked to rail networks in other neighbouring countries. The plan involves the following projects:

-Amman Syrian border link

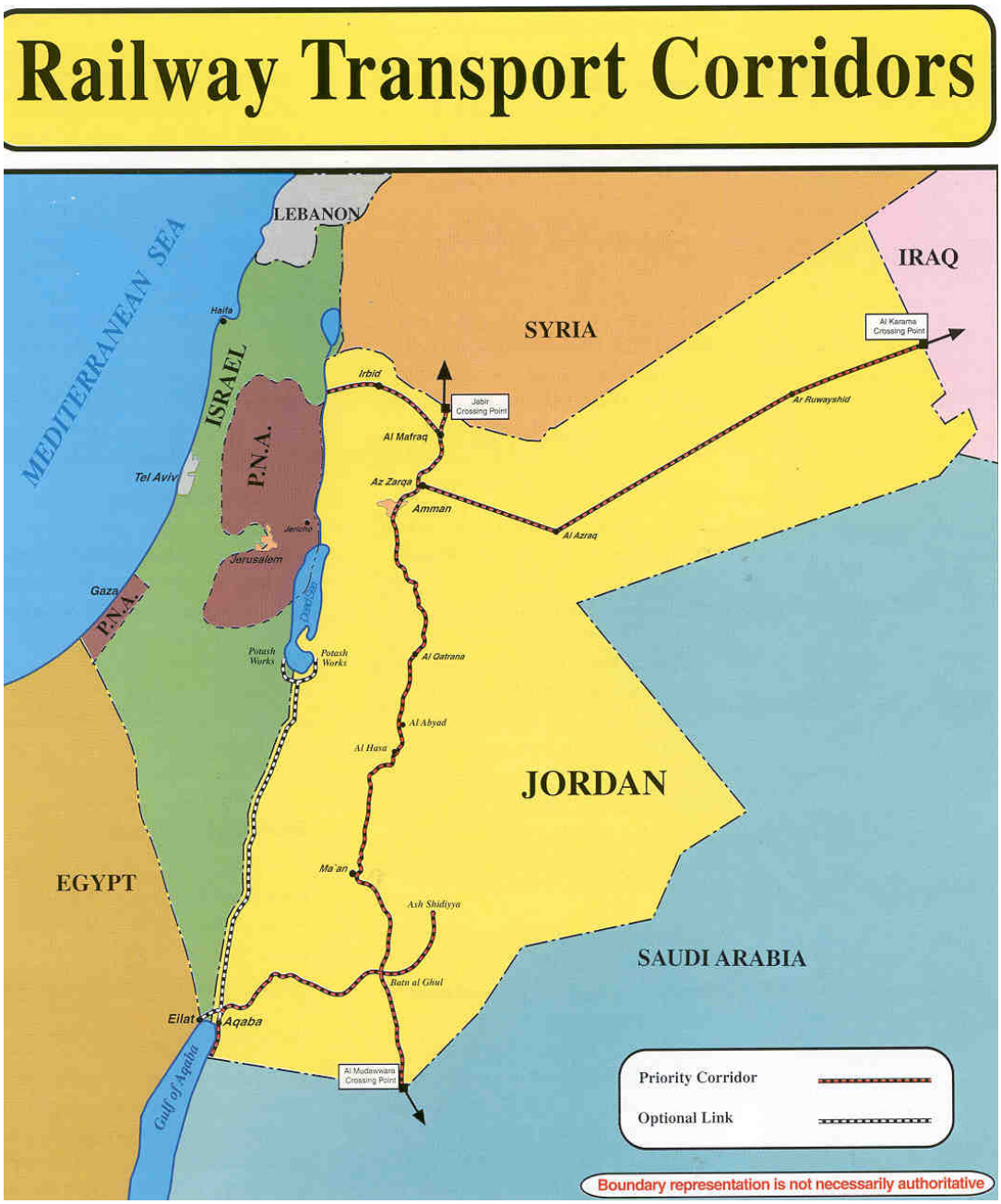
-Amman Iraqi border link

-Amman Aqaba link

-Shidya-Wadi links for the transportation of phosphate from the phosphate mines in the southern region to the Port of Aqaba.

-Light rail system for the transport of passengers.

As regards the HJR, it is a holding company owned by the Government and its establishment dates back to 1900 when it was built by the Ottoman Turks to transport pilgrims to Saudi Arabia. It starts from Damascus in Syria passing through Amman and Ma'an in Jordan to Medina in Saudi Arabia. However, the railway suffered great damage during the 1st World War and its connection from the southern Jordanian town of Ma'an to Medina has been out of operation since 1917. At present, part of the railway is used for the transport of passengers and goods between Amman and Damascus. The Government is currently planning to expand and upgrade HJR services through the construction of a light rail system linking densely-populated areas in the centre and the north of the country. This sector is likely to play a major role in determining the competitive edge of the Port of Aqaba either in terms of the overall transport cost or in terms of fast hinterland delivery, multi-modal transport and transit traffic. The following railway map shows the existing rail connection and the proposed ones for the future.



2. Land transportation represented by both private and semi-public companies like, Iraqi-Jordanian Land Transport Co., Jordanian-Syrian Land Transport Co., and the Unified Company for the Organisation of Land Transport. This sector is also significant and is likely to have a considerable impact on the

competitive position of the Port of Aqaba in the short, medium and long term. Although this sector is being restructured and provided with new trucks as a result of the government's policy to enhance the land transportation capacity, more investments are needed to enable the sector to meet the anticipated transit and internal transportation requirements. Working in the same direction, the Government has plans to develop the road network with the objective of improving the level of services and facilitating road transport, particularly for the trucking industry and services.

3. **The maritime sector** involves shipping and forwarding agents represented by the Shipping Agents Association, the Forwarders Association, Jordan National Shipping Lines Co. (JNSL), the Shipping Management and Chartering Company, Arab Bridge Maritime Co. (ABMC) and other private companies involved in different maritime-related activities. JNSL is the national carrier and represents the ship-owning activity along with other private sector activities. The company owns, operates and manages several multi-purpose ships. There is a great potential for developing this sector in many ways, including private sector involvement. On the other hand, ABMC, which was formed in 1985 after the inauguration of the ferry link between Jordan and Egypt and owned by Jordan, Egypt and Iraq, has played a major role in generating traffic to the Port as about 250-300 thousand tons of cargo is transported every year by its ferries in addition to around 0.7-1 million passengers as shown in table 2.7.

4. **The industrialists, traders and shippers** represented by the Chamber of Commerce, the Chamber of Industry and Jordanian Exporters Association.

5. **Air transport sector**: This sector plays a key role in the national economy. There are three airports in the country; Queen Alia International Airport in Amman, Amman Civil Airport, and Aqaba International Airport. These airports are controlled, managed and operated by the Civil Aviation Authority. In order to develop this sector and prepare it to meet the anticipated growth in passenger and cargo traffic, the Government is planning to commercialise the national air carrier; Royal Jordanian Airlines, expand Amman Civil Airport and Aqaba International Airport

with the possibility of using the latter as a joint Jordanian Israeli airport leading to enhancing the competitive position of the Port of Aqaba in the medium and the long run.

6. The customs and health authorities in addition to other authorities involved in cargo traffic into and out of the country.

These are the major sectors involved in maritime transport in Jordan. The quality and cost of their services is of paramount importance for enhancing the competitive setting of the Port and recovering its role as a transit point.

2.5 Conclusion:

Thus, we see that the Port of Aqaba is vital for the economic and social development of the country and any threat to its position is a threat to one of the very basic structures of the economy. Furthermore, it is not only important that the Port maintains its present share of traffic, but also it is necessary to increase that share, develop and expand it to meet the anticipated growth of trade on both the national and regional levels as a result of the changes brought about by the peace process. The following chapter will be dedicated to discussing these changes, their impact and implications on the Port of Aqaba.

Chapter Three

3. The economic and political changes in the Middle East:

3.1 The peace process:

3.1.1 Background:

After more than five decades of hostilities and destructive wars, the Middle East is presently embarking on vital political and, as a consequence, economic changes promising an era of stability, prosperity and peace. This hope was sparked off by the holding of the Middle East peace Conference in Madrid, Spain on the 30th of October 1991. This conference was looked at as the beginning of an end to one of the longest and bloodiest conflicts in history as it helped to reshape the basic economic and political relationship between Israel and the Arab countries. This relationship began to take a new form, particularly after the signing of peace accords between Israel and some Arab states including Jordan, a form of more understanding and co-operation in some areas, and a form of competition in many others. As the peace process is achieving more progress, prospects of peace, prosperity and an economic boom throughout the region are likely to be advancing and gaining ground.

As far as Jordan is concerned, various forms of co-operation in the fields of economy, environment and transportation are increasingly taking place. Signed in October 1994, the peace accord between Jordan and Israel highlighted the necessity and the desire to enhance the economic relations between the two countries in general and in the maritime sector in particular. This aim was more specifically

confirmed in the Agreement on Transportation between the two countries, signed on the 21st of February 1995, which allowed for the free movement of cargo and vessels between the ports of the two countries and co-operation in shipping sectors, "The parties may mutually use each other's ports for all services, including loading, discharging, transit and passenger services, on an economical basis." (Article IV, 1), and "Cargo may be transferred from a port of one country to a port in the other country for the purpose of transhipment." (Article IV, 3), and "Israel will, in accordance with its legislation, and upon request of the Jordanian Government, make appropriate arrangements for the leasing to Jordan of hinterland areas in Mediterranean ports for off-dock activities for Jordanian cargo. Jordan, will, in accordance with its legislation, enable equivalent off-dock activities for Israeli cargo in the Port of Aqaba." (Article IV, 4). These provisions may pave the way for having co-operation agreements between the ports of the two countries which is one of the potential solutions to overcome the anticipated fierce competition. This point will be discussed in more depth later.

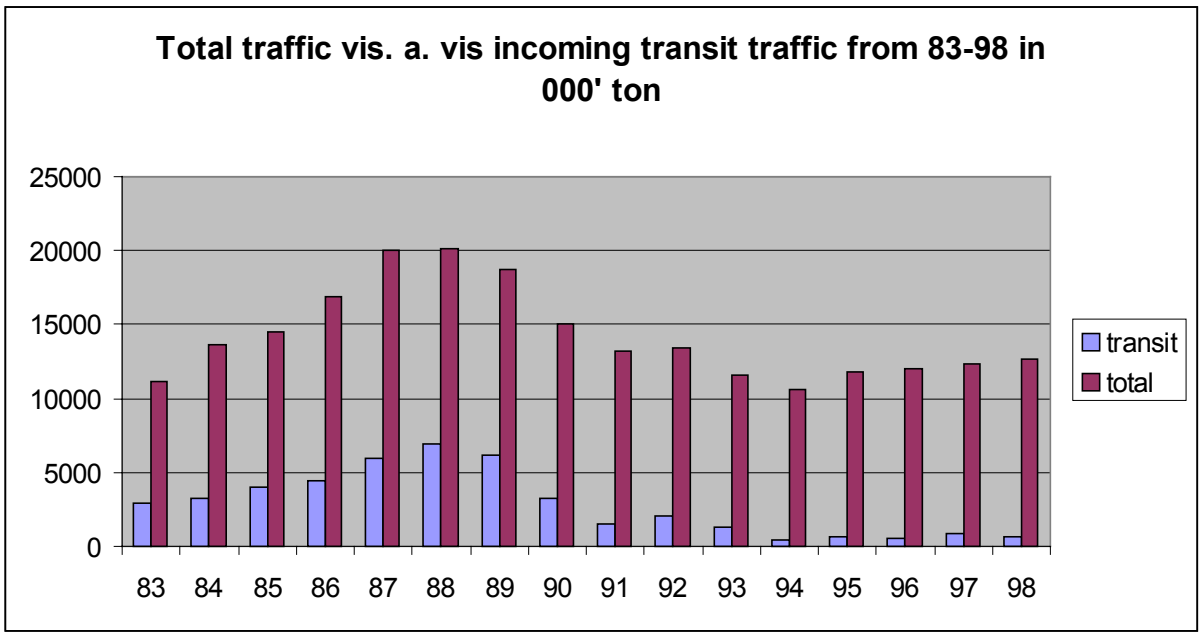
Also, the Agreement permitted transit transportation between the two countries, "The transport of freight by trucks on land between the two countries and in transit to a third country will be permitted on the basis of the 'back-to-back' system, …" (Article II, D, 1). This article was reviewed later where more freedom was given to the movement of trucks between the two countries.

This new spirit of political reconciliation will not necessarily be the same as in the economic arena although it may help to open new horizons of co-operation in the ports sector between the two countries. We may rather witness various forms of competition between the ports of the two countries in particular and with other ports in the region in general.

3.2 Impact on the Port of Aqaba:

Although the Port of Aqaba has been the main sea access to Jordan's exports and imports, it has played a major role as a transit point for other neighbouring countries particularly Iraq in the 1970s and 1980s where the transit traffic amounted to 35 - 40% of the total annual traffic of the Port as shown in graph 3.1 below.

Graph 3.1



Source: Aqaba Port Statistics Sheet 1998

The volumes and destinations of such traffic as shown in table 3.1 below, reveal the vast transit hinterland of the Port although with small volumes except for Iraq. This gives an indication of the traffic potential and the competitive advantage that the Port enjoys in this field.

Table 3.1

Incoming transit cargo to various countries from 1983-1998 in 000 tons

	Iraq	*Syria*	*Saudi Arabia*	*Leban*	*Kuwait*	*Yemen*	*U.A.E*	*Others*	*Total*
83	2869	.138	51	4	6	.011	7	.040	2917
84	3182	.007	24	.918	9	.147	4	.300	3220
85	3969	000	24	.428	7	000	4	3	4007
86	4434	.192	13	.452	7	000	6	10	4470
87	5882	.272	34	.025	14	.118	6	5	5941
88	6853	.260	32	.009	19	1	11	13	6929
89	6087	.035	35	.232	20	2	8	11	6163
90	3154	1	42	1	15	1	9	6	3229
91	1440	.287	49	4	14	.203	10	9	1526
92	1959	2	78	5	30	3	13	4	2094
93	1088	2	117	2	36	2	17	10	1274
94	194	1	136	6	32	.455	16	1	386
95	513	.516	84	3	29	.041	29	13	671
96	278	.884	134	5	33	10	26	19	506
97	593	.423	179	5	26	8	48	29	888
98	510	.001	93	3	26	1	30	19	682

Source: Aqaba Port statistics, 1998

The transit traffic was not restricted to incoming cargo but there has been a considerable amount of outgoing cargo as shown in table 3.2.

Table 3.2

Outgoing & incoming transit cargo and total traffic between 1988-1998 in 000 tons

Year	*Outgoing cargo*	*Incoming cargo*	*Total traffic*
1988	2919	6929	9848
1989	1151	6163	7314
1990	349	3229	3578
1991	37	1526	1563
1992	39	2094	2133
1993	28	1274	1302
1994	41	386	427
1995	46	671	717
1996	47	506	553
1997	77	888	965
1998	65	682	747

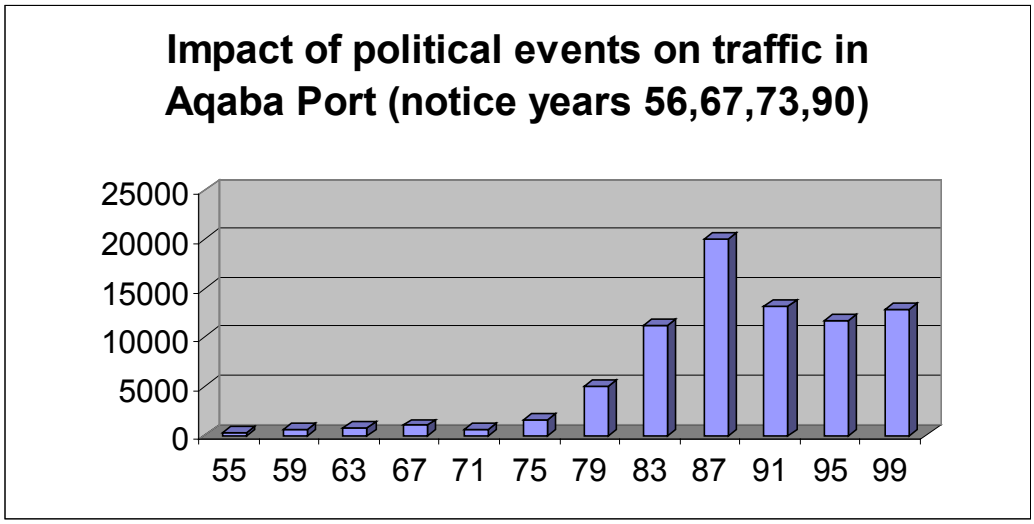
Source: Aqaba Port statistics, 1998

This transit traffic, which the Port of Aqaba is struggling to recover, as well as other traffic, especially the western traffic[1], are threatened to be lost to both the Mediterranean ports and the Arabian Gulf ports, particularly Haifa and Dubai. The role of the Port of Aqaba as a transit point has also put tremendous pressures on it from time to time and has been affected in different ways by the political developments in the region starting from the first closure of the Suez Canal in 1956, followed by the second in 1967 following the 1967 Arab Israeli war, then the reopening of the Canal in 1976 after its closure in 1973 in the aftermath of the 1973 Arab-Israeli war, the civil war in Lebanon which started in the mid 1970s, the Iraq-Iran war from 1981 to 1988 and finally the 1990 Iraqi invasion of Kuwait and the

[1] Traffic originating from or going to Europe, North and South America, North and West Africa, East Europe and Russia will be referred to in this paper as western traffic or Med./Suez route, while traffic originating from or going to South and East Asia, Japan, Australia and India will be referred to as eastern traffic or Red Sea route.

United Nations sanctions that followed. These events left their mark on traffic via the Port of Aqaba in different ways. While the civil war in Lebanon and the Iran Iraq war created a cargo traffic boom through the port, the closure of the Suez Canal and the Iraqi invasion of Kuwait affected cargo traffic badly. These impacts can clearly be seen in graph 3.2 which shows the variation of traffic via the Port from 1955 to 1999.

Graph 3.2



Source: Aqaba Port Statistics Sheet 1999

Thus, we notice the fluctuation of traffic as a result of the political events in the region since 1955 particularly during the years 1956, 1967, 1973 and 1990.

Similarly, the peace process is likely to have an impact on the Port in different forms as it has coincided with the wide range of economic changes in the world and the emergence of the world economic and liberal policies sponsored by WTO agreements. The result is that, in the medium and the long run, national governments, including Jordan[2], will not be able to favour protectionism policies. On the contrary, these policies are likely to be abolished while free trade and unrestricted movement of cargo will be promoted. Thus, the Port of Aqaba, might be

[2] Jordan has recently joined WTO and introduced several laws and policies for free market competition.

threatened by new players in the region, both on the Mediterranean and the Red Sea and the Arabian Gulf. These ports pose a real threat to the Port of Aqaba in two areas.

First, the Port's captive traffic of local imports coming from the European and North American markets, and non-mining exports going to these markets.

Second, the Port's transit traffic. The ports in question are the Port of Haifa and the Port of Ashdod in Israel, the port of Beirut in Lebanon and the port of Latakia in Syria. In addition, there is another potential threat coming from the East, that is the Port of Dubai with its large capabilities and world-wide reputation of container handling, transhipment and sea-air traffic from the Arabian Gulf to Europe. This port is preparing to enter the Iraqi market for the cargo coming from the Far East once the sanctions are lifted. In addition to the port of Dubai, there are the newly-established container terminals in Salalah in Oman, Aden in Yemen, Jeddah in Saudi Arabia and North el Sukhnah in Egypt. As far as Mediterranean ports are concerned, they are geographically closer to two major production centres in the world; Europe and North America. They are also located close to the north and the centre of Jordan where approximately 61% of the population live and most of the main industrial, commercial and financial activities are centred. Further, these ports are closer to the Iraqi market in comparison with the Port of Aqaba which means that they can provide a shorter transit time and less costly access to the Iraqi market in the long run when a comprehensive peace is reached and border barriers are removed.

The following map of the Middle East shows the location of both the Mediterranean ports and the Arabian Gulf ports in relation to the hinterland in Jordan, Iraq and other neighbouring countries.

On the other hand, having a quick look at the composition and geographical distribution of Jordanian imports of major commodities like foodstuffs, machinery, manufactured goods and transport equipment as shown in the tables below, we notice that their main sources are the United States (U.S.A), European Community (EC) countries and Japan. In terms of the number of TEUs, for example, imports from the

U.S.A and the EC countries accounted for 55.6% of the total number of incoming containers which reached 87 533 TEUs in 1998. In tonnage terms, 67% of the total imported cargo in 1998, which reached 5 333 727 million tons, was western traffic while the remaining 33% was eastern traffic. At the same time, about 20% of Jordanian exports via the Port of Aqaba, which reached 7.310 million in 1998, went to the west; Europe, North America, North Africa, East Europe, Russia and Central and South America as we will see later in this chapter. This shows the big amount of traffic of the Port, other than transit traffic, that is threatened to be lost to the Mediterranean ports in the medium and the long term. With regard to the transit traffic, it is likely also, that a considerable proportion of it will be shifted not only to these ports but also to the Red Sea and Arabian Gulf ports. Tables 3.3 and 3.4 show the total Jordanian imports in TEUs and weight in tons from 1995 – 1998 from Far East and South East countries on the one hand, and from U.S.A and E.U countries on the other.

Table 3.3

Number & weight (ton) of containers imported via Red Sea route from 95-98, '000 tons / TEUs

Country of origin	1995		1996		1997		1998		Growth rate 95/98
	WT	TEU	WT	TEU	WT	TEU	WT	TEU	
Far East	168	18	184	21	210	22	283	31	69%
S. West Asia	42	4	40	4	47	4	36	3	-15%
Aust.&Newz	5	0.4	7	0.52	6	0.48	11	0.87	147%
GCC States	19	2	40	4	44	4	29	3	55%
E& S. Africa	9	0.7	7	0.48	9	0.67	19	1	106%
Total	243	25	278	30	316	32	378	39	56%

Source: Derived from Aqaba Port Statistics Sheet 1998

Table 3.4

Number & weight (ton) of containers imported via 95-98 Med.- Suez Canal route in '000 tons / TEUs

Country of origin	1995		1996		1997		1998		Growth rate 95/98
	WT	TEU	WT	TEU	WT	TEU	WT	TEU	
W. Europe	299	27	388	35	384	34	444	39	48%
E.Euro &Com.	5	0.4	2	0.19	4	0.4	2	0.24	-575
East Med.	2	0.2	6	0.5	15	1	13	1	731%
USA& Canada	29	3	36	4	48	5	58	6	100%
South America	4	0.25	3	0.2	7	0.45	13	1.1	235%
N.&W. Africa	3	0.25	9	0.73	9	0.7	6	0.47	102%
Others	2	0.16	3	0.27	000	000	000	000	-100%
Total	344	31	445	41	467	42	536	49	56%

Source: Derived from Aqaba Port Statistics Sheet 1998

The total tonnage and number of containers imported via both routes during the same period are shown in table 3.5 below.

Table 3.5

Total tonnage & TEUs imported via Red Sea and Med. Routes from 95-98

Year	*Weight in '000 tons*	*'000 TEUs*
1995	586	55
1996	724	70
1997	783	73
1998	914	87

Source: Derived from Aqaba Port Statistics Sheet 1998

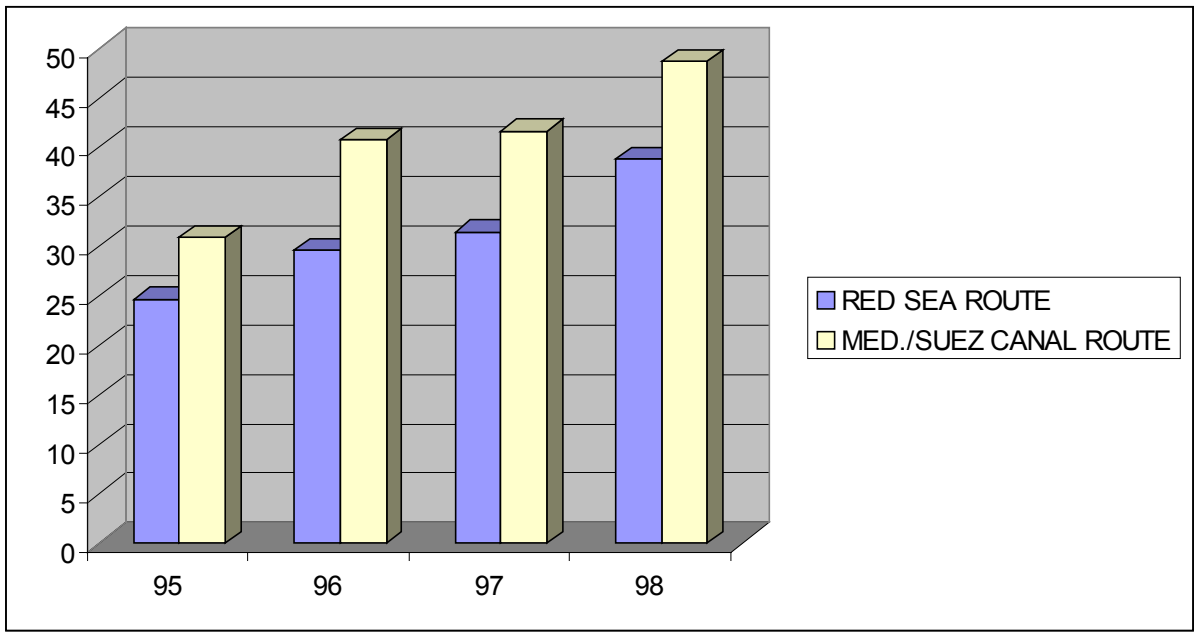
These figures show very clearly that the number of containers imported via the Mediterranean route is higher than that via the Red Sea route. For example,

55.6% of the total number of containers imported to the Port came through the Med.-Suez Canal route against 44.4% via the Red Sea route in 1998.

The above figures and the proportion for each route are shown in graph 3.3.

Graph 3.3

Comparison of containerised cargo imported via Red Sea & Med. Routes 95-98



Source: Derived from Aqaba Port Statistics Sheet 1998

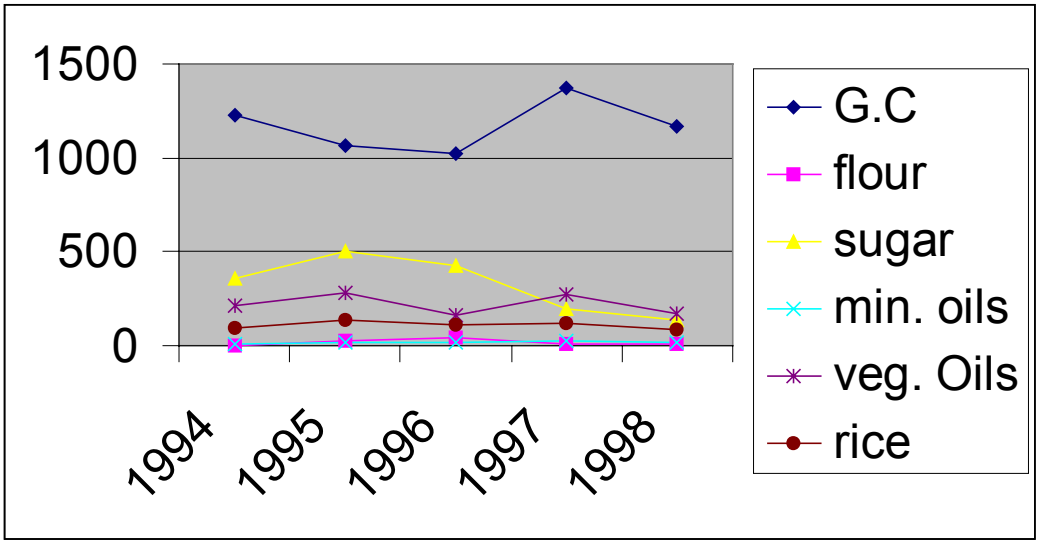
In addition to what has been mentioned above, a quick glance at the commodities imported from the USA and Europe (Appendix C) gives a clear indication of the beginning of a shift of western cargo imports from the Port of Aqaba to Mediterranean ports. From this appendix, we notice the following:

1. 67% of Jordan's imports is western traffic.
2. As of 1994, the year in which the peace accord between Jordan and Israel was signed, imports of general cargo, rice, flour, sugar, mineral oils and vegetable oils have either been declining or fluctuating contrary to other commodities like grains, steel, ammonia and cars which have to go to Aqaba Port at this

stage because they are either imported in big quantities or are needed for the industries located in Aqaba area. (appendix C). Graph 5.4 shows this trend.

Graph 3.4

Commodities imported from Europe & USA from 1994-1998 in '000 tons



Source: Aqaba Port Statistics 1998

Although the imports are the part of traffic that is more likely to be lost to Mediterranean ports as a result of the economic and political changes in the region, exports, other than mineral and bulk products, may be also affected as a considerable part of them go to Europe and North America (Appendix A). Table 3.6 shows the total exports via the Port of Aqaba during the period between 1994 and 1998 and their distribution among different commodities.

Table 3.6

Cargo exported via Aqaba port from 1994-1998 in '000 tons

	1994	***1995***	***1996***	***1997***	***1998***	***Growth rate 94/98***
Phosphate	3825	3878	4350	4367	3729	-2.5%
Chem.Fert.	518	637	674	724	1068	106%
General C.	108	151	188	182	389	260%
Re-exports	33	31	38	57	46	39%
Trans-ship.	1	8	72	92	16	150%
Transit	41	46	47	77	64	56%
Empty Cont.	105	97	113	125	157	49.5%
Potash	1501	1722	1698	1447	1508	0.47%
Cement	516	109	216	464	333	-35%
Total	***6648***	***6679***	***7396***	***7535***	***7310***	***10%***

Source: Aqaba Port Statistics 1998

Again, in order to estimate the proportion of exported traffic via the Port of Aqaba that goes to the West through the Suez Canal-Mediterranean route in comparison with that which goes to the East through the Red Sea route, volumes and types of cargo exported to these two blocks via the Port in 1998 were monitored and the result was found to be as shown in tables 3.7 and 3.8 respectively. The year 1998 will be taken as a basis for analysis and as an indicator for the future trend.

Table 3.7

Exports via the Red Sea route to the East in 1998 in 000´tons

Region	***Total Traffic***	***Main commodities***
Far East	2007	Phosphate,Fertilizers, Potash, Empty cont.
South West Asia	2583	Phosphate, Fertilizers, Potash, G.C
Australia&Newzeland	540	Phosphate, Potash
G.C.C States	199	Cement, G.C, Re-xports, Emp.Cont.
East Africa	416	Fertilizers,Potash, cement, Gen. Cargo
Total	**5745**	

Source: Derived from Aqaba Port Statistics 1998

Table 3.8

Exports via Suez Canal-Med. route to the West in 1998 in 000'tons

Region	***Total Traffic***	***Main Commodities***
West Europe	919	Phosphate, Potash, G.C, Empty cont.
U.S.A & Canada	33	Gen. Cargo, Re-exports
East Europe & Comm.	158	Phosphate, Potash, G.C
N. & W. Africa	280	Potash, Cement, G.C, Transhipment
East Med.	61	Gen. Cargo, Re-exports, Empty cont.
South America	15	Potash
Total	**1466**	

Source: Derived from Aqaba Port Statistics Sheet 1998

Thus, we notice that exports through the Suez Canal / Mediterranean route form 20.9% of the total exports while exports via the Red Sea route form 79.1%. It is noticeable also that general cargo is the predominant traffic among exports via the Med./Suez route after phosphate and potash and it forms about 9.2% of the total exports going to the west, a cargo which is more likely to be containerised in the future. Also, although the main exports of Jordan are mineral and bulk commodities, the volumes of general cargo exports have been increasing since 1992 where they formed 5.3% of the total exports in 1998 as shown in table 3.9.

Table 3.9

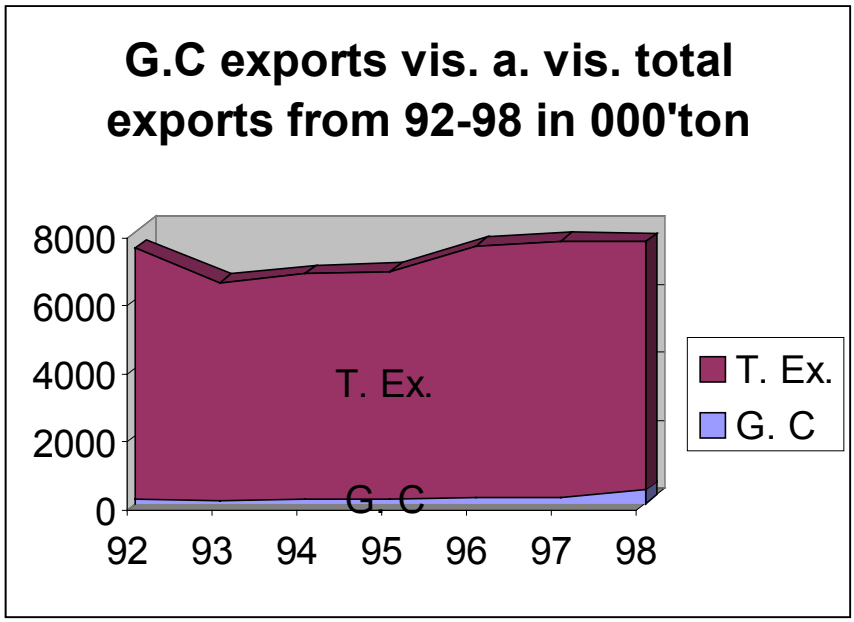
Total exports vis a vis General Cargo exports from 1992-1998 in 000'tons

Year	*Total Exports*	*General Cargo*	*Percentage*
1992	7362	139	1.9%
1993	6381	102	1.6%
1994	6648	108	1.6%
1995	6679	151	2.2%
1996	7396	189	2.5%
1997	7535	182	2.5%
1998	7310	389	5.3%

Source: Aqaba Port Statistics Sheet 1998

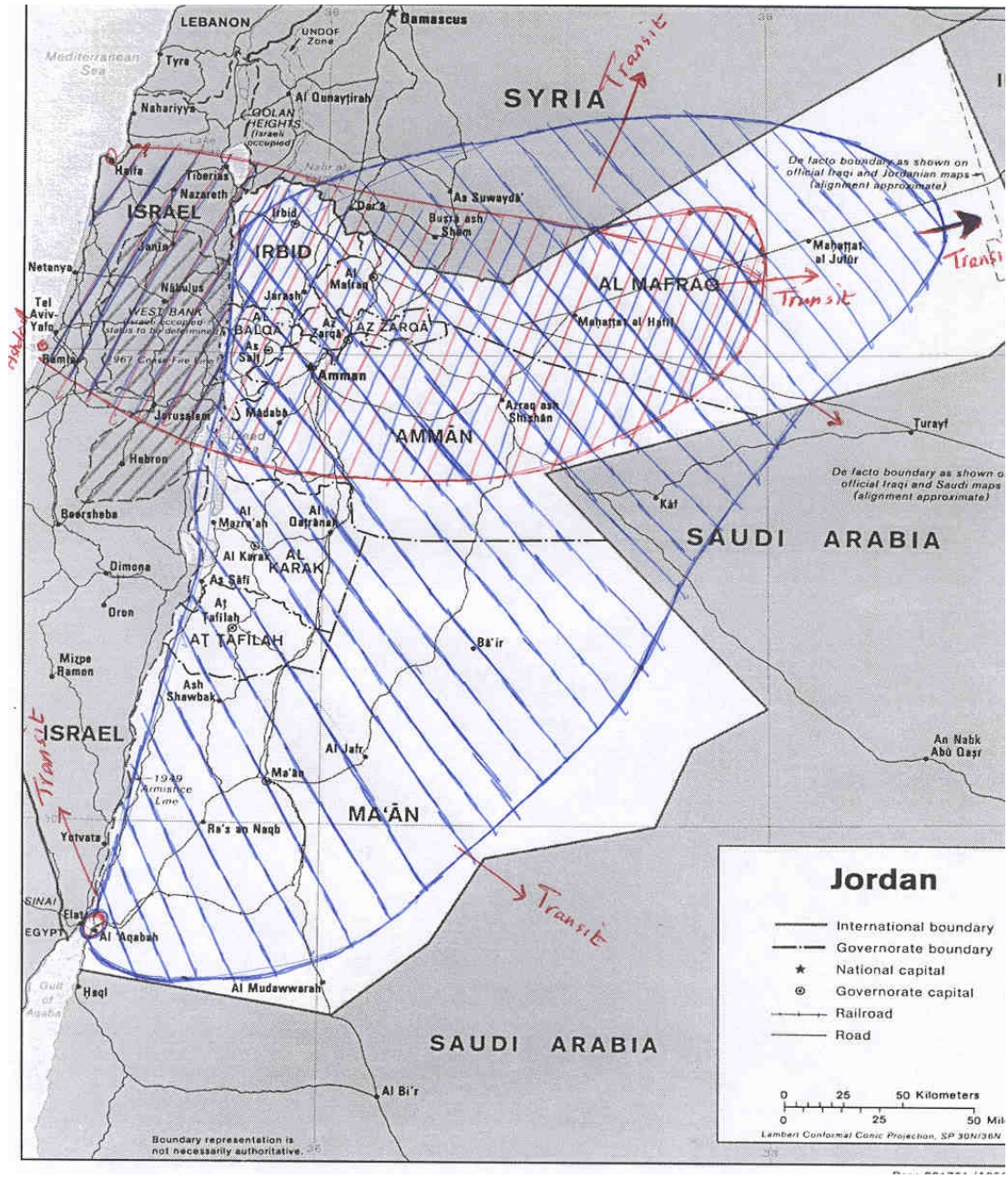
Graph 3.5 shows the growth of G.C exports compared with total exports from 92-98.

Graph 3.5



Source: Derived from Aqaba Port Statistics Sheet 1998

The significance of this growth in general cargo exports springs from the fact that these exports are mainly manufactured materials produced in the industrial centres in the capital Amman, Zerqa and Irbid in the north of the country which are closer to the Mediterranean ports and where the hinterlands of the Port of Aqaba, Beirut Port and the Israeli ports overlap as shown in the following map.



What has been said about local trade can also be said about transit trade to Iraq and other surrounding countries as these ports provide a lower cost and a shorter transit access to west-bound trade and vice versa.

3.3 Forces of change:

Perhaps one of the greatest changes that has taken place in recent years is that the world is heading towards more stability, more co-operation, more globalisation and more inclination towards information technology use. The Middle East is, of course, not far from these changes. The result of these new developments is that competition is increasingly becoming more fierce as trade barriers are being removed either through liberal policies or by World Trade Organisation (WTO) agreements. Change is taking place rapidly and the future is no longer the next generation or even the next decade. It is, rather, the next few years. These changes will certainly have an impact on all products including port services where standards like quality, low cost and reliability will be on top of many increasingly additional sophisticated customer requirements. In this new highly competitive environment, the ability to compete is greatly dependent on the ability to adapt oneself to the changes created by the new developments regionally and globally. In this respect, it is worth discussing the forces of change that are likely to have a considerable impact on the direction and ability of most economic activities, including ports, to compete. (M. Gerhardt, Intermodal Freight Transportation. p.2). These forces of change are:

- Globalisation
- New and emerging technologies
- Regulation and deregulation

3.3.1 Globalisation:

Trends towards globalisation have dramatically changed the face and shape of world business and economy. As a result, the world's people and economies are becoming more interdependent where borders are disappearing, protectionism laws are shrinking and a new global economic community is being created. Further, business and economic interests are going beyond country or even regional-based

thinking. What we are likely to witness in the near future is much more globally integrated economies and businesses. These fundamental changes are putting tremendous pressures on the maritime sector in general and on the port sector in particular from various aspects. First, in terms of competitive pressures and low profitability services, and, second, in terms of changing customer requirements and services offered by ocean carriers. These services have different shapes and new dimensions where a supply chain is offered rather than a single product or service; pure sea transportation. This trend will have a great impact on ports because it will make them part of the hinterland service chain (land and rail transportation). However, these changes may, at the same time, create opportunities for ports of the region as the Middle East can not be isolated from the outside world. The present and the anticipated economic boom in the Far East is a good example of these opportunities which the Port of Aqaba should take advantage of benefiting from its location as far as trade with these countries is concerned in comparison with other rival ports. Thus, due to its location and abundant natural resources, the Middle East will be in the heart of these changes. Those who are going to survive in this highly competitive environment are the most efficient, the best equipped, the fastest to respond to these changes and, of course, the best marketed.

3.3.2 New and emerging technologies:

Breakthroughs in technology, communications and transportation are the main features of today's economic equation . The new technological developments such as the internet, electronic data interchange (EDI) and other information systems, the container, fast and large ships and sophisticated cargo handling equipment pose a big and real challenge to today's ports. Ports which can best use, own, harness and efficiently cope with these technologies will surely have a better chance. These changes can make or break any business and any delay or failure to keep up with them means a lost opportunity and the failure to remain competitive.

***3.3.3 Regulation and deregulation*:**

This element has to do with the extent of government intervention in economic activities and its policies which can either be constructive or destructive.

Today, more open and liberal policies are needed and all constraints and unnecessary regulatory policies have to be removed if a full advantage of opportunities offered by the market is to be taken. However, this new spirit should not be understood as a way to affect, avoid or bypass the right of each state to regulate and control its economic activities within the framework of the emerging spirit of change where isolation and protectionism are increasingly diminishing.

3.4 Change implications:

Perhaps, the greatest impact resulting from the above change trend is that trade in the region, as well as in the world, is nowadays driven by profit, markets and competition. Moreover, and most importantly, the development of these forces of change outpaces the capabilities of most small ports like the Port of Aqaba. So, the Port is likely to suffer unless it is able to adapt to the winds of change through providing higher quality and fast and cost-effective service. This goal can not be achieved unless the growing gap of technological advances and opportunities is narrowed or entirely removed through acquiring technology, having access to new developments and information technologies like the internet.

Also, the emergence of global carriers, global port operators, global multi-modal operators accompanied with the introduction of the latest ships in terms of size, lower cost and speed, alternative transportation modes and sophisticated handling equipment have put a heavy burden on the Port of Aqaba. In order to cope with these changes, the Port faces a big challenge; the challenge of acquiring these technologies, the challenge of dealing with these big players and the challenge of finding a place in this world-wide network of regional and global operators. These large operators are now putting great pressure on ports of the region, including the Port of Aqaba, as they are increasingly having or threatening to have their own terminals right next to the local terminals. In addition, they hold in their hands the three most important advantages necessary for the success of any port; technology, traffic and efficiency. The examples are clear: PSA in Aden, Maersk Sealand in Salalah and Port Said, DPA in Jeddah and Beirut and many more to come. It is true that investments in information technology, purchasing new equipment, short,

medium and long term planning and training programmes are badly needed. It is true also that the Port of Aqaba has to take the new changes into consideration and best-benefit from its own capabilities and advantages like the location, the infrastructure, the skilled and cheap labour force and the surrounding markets, although these advantages are changing and enjoyed by other competitors. However, that may not be the best answer and the most appropriate response to these challenges unless a long term commercial strategy is set up taking into account the far-reaching effects of these changes, on top of which is the question of whether you can survive if you are not part of the 'production line' or the global network of these big players and whether you are able to respond to their fast and constantly changing requirements.

In light of this, in order to survive, should the Port of Aqaba diversify its services? Can it grow larger or get involved in the regional network or the global supply chain? Can it remain small and work as a niche or a feeder port? Should the door be opened for private sector participation in operation? These issues will be tackled in more detail in chapter five when a new development and marketing strategy for the Port is discussed. However, the next chapter will be dedicated to discussing the capabilities of rival ports and looking at the elements which make ports competitive.

Chapter Four

4. The emerging competitive environment:

4.1 The new players:

The new political climate in the Middle East has triggered off new economic and trade practices in the region in general and in Jordan in particular where exports and imports are being transported through different accesses and by different modes. Following the signing of the peace accord with Israel, Jordanian exporters and importers are more and more yielding to the temptation of using the Israeli ports located on the Mediterranean for their trade to and from Europe and North America. Similarly, these exporters and importers are looking to the Lebanese and Syrian ports for the same purpose and even to the new Gaza port in the long run. The Israeli ports are the ports of Haifa and Ashdod while the main Lebanese and Syrian ports are mainly the ports of Beirut and Latakia respectively. If trade barriers, whether political or regulative, are removed, these ports can provide a direct and short access to and from the European and North American markets for trade originating from or heading for both Jordan and the neighbouring countries.

Unfortunately, the Port's transit traffic is also threatened from the east and the south by the new and emerging hub ports in the Red Sea region like the ports of Jeddah in Saudi Arabia, North El Sukhnah south of the Suez Canal and Dubai in the Arabian Gulf. These ports have already either established themselves as distribution and hub ports for the region like the port of Dubai or are in their way to do that like Jeddah and North El Sukhnah, Salalah and Aden ports. Prior to

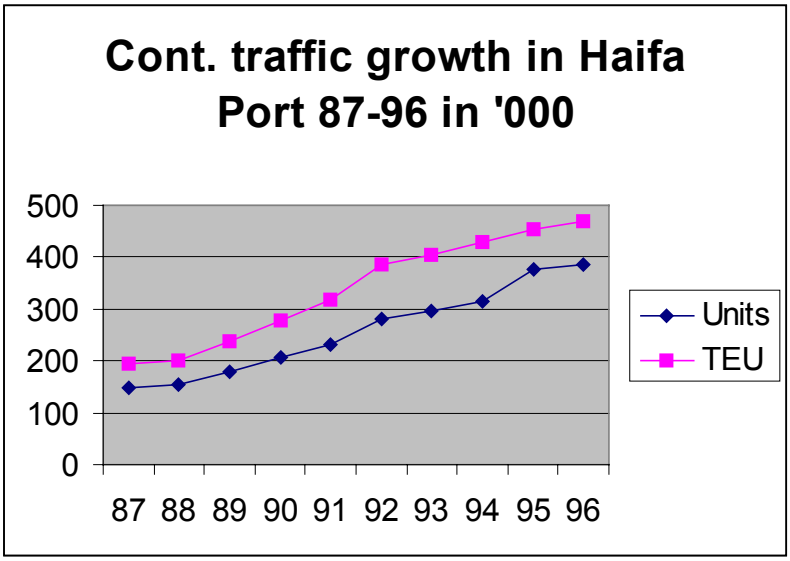
drawing a comparison between the Port of Aqaba and the rival ports, a brief review of these ports and other regional ports that may have an impact on the port industry in the region will be given in the following few pages.

4.1.1 Haifa Port:

Located 120km north of Tel Aviv, Haifa Port is considered the oldest and the largest port in Israel. It was built by the British and started operations in 1933. The port is protected by two main breakwaters and has a total quay area of 6417m, 4932m of which form the main port and 1485m form the Kishon zone. The port has berths for handling general cargo, containers, roll on / roll off cargo and grain. It is divided up into two parts; the East Quay and the West Quay. The East Quay is 1000m long with 14m water depth, 780m of which are dedicated for handling containers and 220m for handling bulk cargo. This part has a storage capacity of 15000 TEUs and 900 electrical points for reefer containers. The West Quay has a quay area length of 400m with a depth of 10.5m and has a storage area for 700 TEUs. In 1996, the port handled 13.5 million tons of cargo excluding oil and 427.000 passengers. In order to develop the port's capacity, meet the projected growth of cargo and establish a modern overland transport network, Haifa port has set a $ 1 billion-programme for the port's 2000-2004 development plan. Currently, a US$ 224m programme is being implemented to double the berthing capacity and to increase the handling capacity to 900.000 TEUs per year. Due to its location, Haifa Port can provide short transit services to the north and centre of Jordan and other surrounding countries like Iraq.

A quick look at the development plan of the port shows that it focuses on the development of the container handling capacity and the overland road and rail transport in order to be able to face the anticipated growth in container traffic in the future. The container traffic in the port has developed rapidly during the last decade as shown in graph 4.1 below, and with the port 2000 plan development, it is anticipated that this capacity will be doubled.

Graph 4.1



Source: Derived from Haifa Port Web Site 1999

As far as the container handling equipment is concerned, Haifa Port has the following:

Table 4.1

Container handling equipment in Haifa Port

Type	*Capacity in tons*	*Number*
Gantry crane	35	8
Transtainer	35	15
Portable	5-35	17

Source: Derived from Haifa Port Web site

The implications of the development of these facilities and equipment will be the area of discussion later in this chapter.

4.1.2 Ashdod Port:

Located 40km south of Tel Aviv and considered the second largest port in Israel. It started operation in 1965. It is protected by two breakwaters and has 4000 meters of quays with a maximum water depth of 14m. The berthing facilities and handling equipment of the port are as follows:

Table 4.2

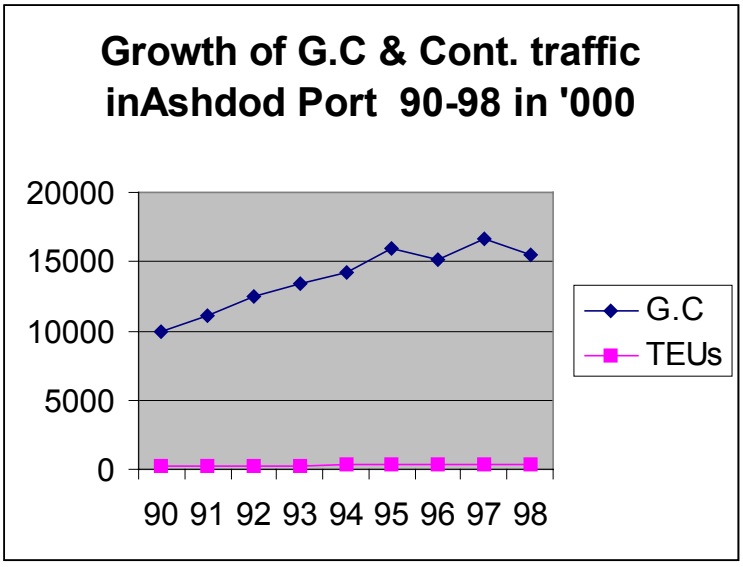
Berthing facilities and handling equipment in Ashdod Port

Berth	Length/m	Depth/m	Crane	No.
G.C, liquids, RoRo	770	5.10.5	8 - 25 ton	10
G.C	150	5	-	-
G.C & bulk	620	5-11.5	25-50 ton	9
Passenger & G.C	207	12.5-13	8 ton	3
G.C, bulk, RoRo	477	7-13.8	32-35 ton	6
RoRo	150	7	-	-
Containers & RoRo	481	10-12	35/70	5
Coal & containers	435	13.8	40	2
Phosphate & potash	400	12-14	-	-
Liquid bulk	150	7	-	-

Source: Derived from Ashdod Port Web site

As regards the throughput of the port, it was as follows during the period between 1990 - 1998.

Graph 4.2



Source: Derived from Ashdod Port Web site 1999

With regard to the development plan, Ashdod port has set a master plan to develop the port with three components:

1. Breakwaters
2. Quay layout and their uses
3. Development of operational areas

The plan, which is called Ashdod North, will take place in two stages. The first stage, Ashdod North A, and the second stage, Ashdod North B. The plan includes building an additional 3.850 meters of quayside which is equal to the present quay lengths of the port, 325 acres of operational areas (the present operational areas consist of 238 acres), 2150m of breakwaters (the present length of breakwaters is 3100m) and building a new container terminal. Ashdod North A is scheduled to be completed in 2002 and includes building 1150m of breakwaters, new general cargo and container quays with a length of 1900m and an operational area of 212 acres. The implementation of Ashdod North B plan will depend on future demand. The total cost of this development plan is estimated at $500 million for stage A and $400 million for stage B.

4.1.3 Beirut Port:

Lebanon's primary port, located between Nahr Beirut and Ras Beirut. The port played a major role during the early 70s as a transit point for cargo traffic to and from most of the surrounding countries including Saudi Arabia and the Arabian Gulf. Due to the damage that the port suffered during the civil war in Lebanon, the port has recently witnessed a large expansion and rehabilitation programme focussing on container berthing and handling facilities. Quay number 15 with a length of 280m has been completed, and work is currently underway to build quay 16. On completion of this berth, the port will have 1000 meters of quay wall with a water depth of 15m capable of accommodating 3 - 4 vessels at the same time and will be equipped with 4 post-panamax gantry cranes. This terminal, which will be operated

by Dubai Port Authority, is expected to add a further 400.00 TEUs to the port's capacity by 2001 noting that the Port handled 157070 TEUs in 1998. Another breakwater will be built.

Currently, the port area covers 61 hectares protected by a 2255m breakwater and has 14 berths for handling general cargo, bulk coal and break bulk distributed over four docks.

The port has also three mooring buoys for vessels handling cargo into lighters and one for tankers located 2.4km from the port's entrance where cargo is discharged through an underwater pipeline.

With regard to the storage capacity, the port has 75.000 square meters of covered storage, 120.000 sq. m of open storage and 90.000 sq. m of container stacking areas.

Finally, the port has a free zone area of 104.100 sq. m

4.1.4. Dubai Port:

One of the leading distribution and transhipment ports not only in the Middle East but also in the world. In 1997, it was ranked 10th among the container ports in the world as it handled 2.6 million TEUs in that year, while in 1999 the port handled 2.336.787 million TEUs and a total cargo of 32.409.991 million tons. The port is well-established, well-equipped and has the advantage of the existence of Jebel Ali Free Zone which is one of the largest free zones in the world. The port uses advanced computer technology in its operations including a container terminal management system (CTMS), global container positioning system (GPS), container freight station (CFS) and a manifest and documentation system (MDS).

The port has the following container handling equipment (1998 statistics) as shown in table 4.3.

Table 4.3

Container handling equipment and reefer points in Dubai Port

Container cranes panamax	15
Container cranes post panamax	10
RTGs	34
Straddle carriers	27
Forklifts	117
Empty container handlers	24
Top loaders	14
Trailers	274
Terminal tractors	152
Mobile harbour cranes (up to 120t)	2
Reefer points	950

Source: Derived from DPA Web site 1999

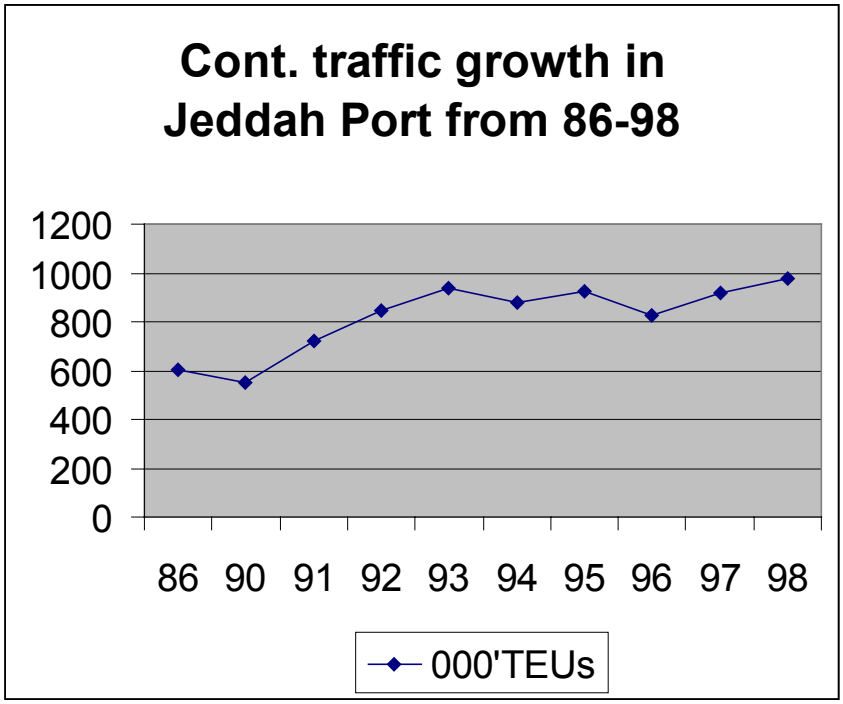
Due to its location, free trade policies, the existence of Jebel Ali Free Zone and the large and rich hinterland surrounding the area, Dubai Ports Authority has managed to attract a large number of shipping lines and cargo operations not only to the Arabian Gulf area but also to most Middle Eastern countries. The port has also established, for the first time, sea-air traffic to and from Europe and the Far East. In order to have a footstep on the Mediterranean, Dubai Ports Authority (DPA) managed, in 1998, to gain a management contract to operate Beirut Container Terminals. DPA managed also to win a 20-year concession contract to run the southern container terminal in Jeddah Port. The port has a ten-year investment plan with the aim of reaching a throughput of 3m TEUs in 2000 and 3.7m TEUs in 2005.

4.1.5 Jeddah Islamic Port:

This is the main hub port for Saudi Arabia on the Red Sea and the major access to Saudi Arabia's imports and exports to and from Europe and USA. Until 1996/97, the port was suffering from poor performance and low productivity. However, the Saudi Authorities took a number of measures to correct the situation

through private management contracts and concession arrangements. The new North Terminal was developed by converting bulk and general cargo berths into a container terminal which became operational early this year. This terminal project includes building a 1000m quay, dredging operations to allow vessels up to 14.5m draft to berth and acquiring three post-panamax gantry cranes and seven RTGs in the first stage. The operator will be required to purchase another four post-panamax gantry cranes and five RTGs. On the other hand, the operation of the South Terminal was awarded to a different private operator who is a joint venture between Dubai Ports Authority and Saudi Maintenance Corporation in order to create a competitive environment in the port. This terminal will have 1.680m quayside length and be equipped with eleven gantry cranes, three of which will be super post-panamax. Graph 4.3 shows the container throughput of Jeddah Port in 1986 and from 1990 to 1998 in '000 TEUs.

Graph 4.3



Source: Derived from World Container Port, Markets to 2010, Ocean Shipping Consultants Ltd.

4.1.6 Mina Raysut - Salalah:

A new hub, opened in 1998, owned and operated on a concession basis grouping Salalah Port Services with a 20% share, private investors with a 50% share, and most importantly Maersk Sealand with 30%. The hub has four berths with a total length of 1.236m and a water depth of 15m and is equipped with twelve super post-panamax gantry cranes, six of which have an outreach of 22 cell widths designed to handle the next generation of container ships of 10.000 TEUs. The future plan of this project envisages building 24 berths. This port will serve as a major transhipment centre for the whole region with feeder destinations to all Middle Eastern countries, the Arabian Gulf and the Indian Subcontinent. To the surprise of the port operators, this relatively new hub handled 666.000 TEUs in 1999, 40% more than the projected figure.

4.1.7 North el Sukhnah:

A new port being built 40 km south of the southern entrance of the Suez Canal south of Adabiya. The port will be constructed in four phases where four basins will be built. The first basin with a total cost of $ 200 million is expected to be completed by September 2000 and will have a quay length of 1500m for handling containers and bulk cargo. This project is a joint venture grouping local Egyptian companies and the Stevedoring Services of America (SSA) which has a 25% share. The project plans to have a capacity of 1.5 million TEUs per year to be increased to 5 million TEUs by year 2020.

4.1.8 Port Said Port

Lies on the northern entrance of Suez Canal and, due to its location, it has become the biggest transit port in the world. It has also become a target for many major shipping lines planning to build their transhipment terminals in it like P & O and Maersk-Sealand for traffic to the East Mediterranean and Black Sea regions.

4.1.9 Aden Port:

Due to its location, Aden Port was one of the busiest ports until the late 1960s when it was severely affected by the civil war. However, in March 1999, the Aden Container Terminal (ACT) was opened and will be run by PSA Corp. under a 20-

year contract. At present, the port has a 700-hundred meter quay with a depth of 16m equipped with four super post-panamax container gantry cranes. The next expansion phase of the port includes the deepening of the quayside draft to 18 meters, extension of the terminal to 1700m and purchasing 12 container gantry cranes. The plan also comprises the establishment of a free trade zone and an industrial area. ACT managed to handle 80.000 TEUs in the first nine months of its operation and is projected to hit 300.000 TEUs in 2000.

4.2 The potential challenge:

Having a quick glance at the capabilities and development plans of the above ports whether on the Mediterranean or on the Red Sea, the following is noticed:

1. All of the ports are trying to upgrade their berthing and handling capacity through building new terminals and purchasing new equipment. For this purpose large investments have been made in co-operation with foreign investors.

2. New ports have been built or are being built especially in the Red Sea region, opening the door wide for fierce competition and a potential over-capacity.

3. All port investments and expansions are focussing on container traffic. This is apparently in response to the anticipated growth in containerised traffic at the expense of breakbulk traffic. This trend has been shown in a recent demand forecast done by Ocean Shipping Consultants Ltd which anticipates a rise in demand for the East Mediterranean from 6.25 million TEUs in 1998 to 13.40 million TEUs in 2012, and for the Red Sea region from 1.42 million TEUs in 1998 to 7.25 million TEUs in 2012. (World Container Demand, Ocean Shipping Consultants Ltd, 1999).

4. The involvement of major shipping lines, like Maersk-Sealand, and major port operators like Port of Singapore Authority (PSA) and Port of Dubai Authority (PDA) is very clear in current and, most likely, in future development projects.

5. These projects reflect the general trend of the global carriers to serve major but a limited number of hub ports, in addition to the growing sophisticated requirements of these carriers; fast, efficient and timely service.

6. The private sector is increasingly having the lion's share in port development and operation which highlights the growing need for private sector

involvement as a guarantee for efficient, cost-effective and competitive service on the one hand, and the governments' unwillingness to continue to be involved in running and operating ports on the other.

These developments pose a real threat to the Port of Aqaba in the medium and the long term in various aspects:

First, they are likely to have a comparative and competitive advantage over the Port of Aqaba due to the huge investments made in building new terminals and purchasing new equipment. This means that they will be able acquire the most advanced technologies in port operations which will result in a competitive service.

Second, the involvement of major shipping lines in these ports will ensure a captive traffic for these ports.

Third, most of these ports are supported by sophisticated hinterland road and rail networks which will enable them to provide a full service package and multi-modal transport.

Fourth, in addition to the major shipping lines, some of these ports, like the Israeli and Arabian Gulf ports, are served by large national shipping carriers which are Zim and United Arab Shipping Company (UASC) respectively.

Fifth, the network nature of these developments is worrying where a major part of traffic will be concentrated in the hands of a few operators.

Sixth, the increasing number of newly-built terminals carries the risk of over-capacity which may have a negative impact on smaller ports in terms of price and competitiveness.

In light of the above, the Port of Aqaba is facing a real and serious challenge which may leave it with a small market share of its own captive bulk exports and limited feeder services coming from these large ports. Unless necessary measures are taken to develop the port at the same pace as other ports and benefit from the emerging economic and political climate in the region, the situation may even become worse. However, weaknesses and strengths of the Port of Aqaba and the ports mentioned above are necessary to be investigated prior to discussing the possible ways and means of improving the competitive position of the Port of Aqaba

in the face of these challenges. This will be the area of discussion for the following section.

4.3 *Weaknesses and strengths of Aqaba Port and rival ports*:

For the purpose of analysing the competitive position of the Port of Aqaba and the rival ports, the following criteria will be used:

I. A comparison will be made between these ports using the following eleven elements which are also considered vital for both the port and the port users or customers: (Port Marketing, Ma Shuo, WMU, 2000).

1. Geographical position
2. Nautical access
3. Port facilities
4. Hinterland connections
5. Port cost
6. Output
7. Value added
8. Information technology and other services that can be offered
9. Labour force and social climate
10. Development and institutional structure
11. Flexibility to change

II. The comparison will be made between the Port of Aqaba and the ports of Beirut, Haifa, Ashdod, Jeddah and Dubai as they pose a more direct challenge to the Port of Aqaba in terms of its local containerised and imports and exports on the one hand, transit cargo to and from surrounding countries via the Med. route and transit traffic coming through the Red Sea route on the other.

III. The comparison approach will mainly focus on container traffic and container berthing and handling facilities for the following reasons:

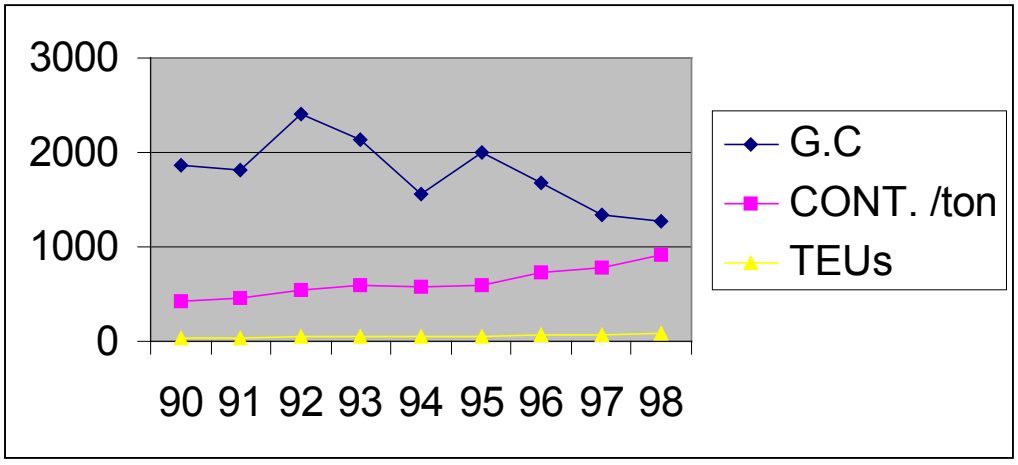
a. The general trend in world container trade is towards containerisation which is anticipated to witness a considerable growth in the coming decade as has been confirmed by a recent survey conducted by Ocean Shipping Consultants Ltd. in 1999.

b. All of the ports in the East Mediterranean and Red Sea regions are focussing their development plans on enhancing their container handling capacity either through building dedicated container handling terminals or purchasing new container handling equipment.

c. The containerised traffic via the Port of Aqaba during the last ten years has been growing steadily at the expense of the non-containerised traffic which has been declining almost at the same rate as shown in graph 4.4 below.

Graph 4.4

Imports via Aqaba Port by mode of discharge from 90-98 in 000'



Source: Derived from Aqaba Port Statistics Sheet 1998

4.3.1 Geographical position:

This element is connected to the geographic location of the port in relation to both the main shipping routes and the production and consumption zones. Although it has been repeatedly said that the Port of Aqaba is located far from major shipping routes (180 km from Tiran Straits), this distance through clear and open seas can not be considered a severe hindrance to shipping lines if efficiency and handling speed at the Port compensate for that. The best example in this regard is the Port of Antwerp which is located 70 km from the North Sea and connected to it by the River Scheldt

which is a tidal river. Thus, the trip to the port can take up to 3 hours let alone the time consumed in using the locks or in case of low tide and congestion.

The Port of Aqaba enjoys an ideal location deep in land which assures a short transit for eastern traffic in comparison with other ports. Mediterranean ports, on the other hand, enjoy an ideal location for western traffic as the distance and sailing time to these ports is shorter and ships calling at these ports don not have to use the Suez Canal. As far as the hinterland is concerned, although the northern and the central parts of Jordan as well as Iraq have been traditionally considered a hinterland for the Port of Aqaba, the picture after the peace process and the rehabilitation of Beirut Port and Syrian ports will be different. Also, with the development of hinterland transport systems and assuming that border and other trade barriers are removed, these areas can be looked at as a hinterland for the Mediterranean ports, especially the ports of Haifa, Ashdod and Beirut. The same thing can be said about Dubai Port which sees Iraq and most of Middle Eastern countries as its hinterland for the eastern traffic. Table 4.4 shows overland distances between the concerned ports and some major cities and industrial zones in the region.

Table 4.4

Distances table in km

City / **Port**	***Amman***	***Irbid***	***Baghdad***	***Damascus***
Aqaba	***334***	***405***	***1225***	***551***
Beirut	***306***	***235***	***1000***	***70***
Haifa	***260***	***180***	***1100***	***250***
Ashdod	***170***	***235***	***1070***	***400***

Source: Distances Atlas and other sources

4.3.2 Nautical access:

For this element, the ship draft will be the main factor to be taken into account as the ports in question have no lock or severe tidal constraints. The maximum ship

draft available in the dedicated container terminals of these ports is as follows:

Table 4.5

Ports' ship draft

Port	***Draft in meters***
Aqaba	***20***
Beirut	***15***
Haifa	***13.6***
Ashdod	***14***
Jeddah	***14.5***
Dubai	***15***

Source: Aqaba Port Statistics & concerned ports'web sites

While the ports on the Mediterranean are located in the open sea and so have to be protected by breakwaters, the Port of Aqaba has the advantage of being naturally sheltered by mountains from the east and the west providing favourable weather and navigational conditions and a clear entrance all around the year.

4.3.3 Port facilities:

This element will take into consideration both ship and containerised cargo facilities including the number of container handling cranes, dedicated container berths and storage capacity for different purposes. The container stacking storage capacity will be included although it is effected by the dwelling time of the container and the number of stacking tiers which differs from port to port. Table 4.6 shows the container berthing facilities, container handling shore cranes and the storage capacity for each port.

Table 4.6

Container handling cranes & storage and berthing facilities

Port	Panamax G.C	Post-Pan. G.C	Berth length/m	Storage/sqm
Aqaba	2	0	540	311000
Beirut	0	4	1000	90000
Haifa	5	3	1180	14940
Ashdod	7	0	916	31000
Jeddah	0	17	2680	210000[1]
Dubai	15	8[2]	-	431800

Source: Aqaba Port Statistics & concerned ports' Web sites

4.3.4 Hinterland connections:

This element is increasingly becoming a decisive factor in port competition in view of its impact on the total cost and the supply chain operation. The availability and cost of road and rail facilities connecting the port with overland production and consumption areas and the transit time between ports and these areas can boom or doom a port's competitive position. For this element, border barriers and the average labour cost will be used as an indicator for hinterland transport costs. A modern road network links the Port of Aqaba with major cities in Jordan and the surrounding countries. In general, one can say that the region is linked with a relatively good road network. With regard to rail service, this is not widely used and is still far below the requirements of the potential future trade growth. However, there are plans to link Jordan with other countries in the region with a standard gauge rail network.

4.3.5 Port costs:

This element will be based on the handling cost per one TEU in the ports concerned with a view to the average sea freight rate to Aqaba from New York, Rotterdam and Japan according to a survey carried out by The Services Group, Inc.

[1] Used for containers, general cargo, RoRo and vehicles
[2] 1998 statistics

in their Aqaba Freeport and Special Economic Zone Study conducted in 1998. (TSG, Aqaba Free Port and Special Economic Zone Study, 1998)

Table 4.7

Sea freight and Port Handling Charges (US $ per 20' container)

Port	*Average port handling charges*	*Average sea freight rates*	
Aqaba Port	**95**	**New York**	**1900-2900***
		Rotterdam	**550 - 600**
		Japan	**650**
Port Said Port	**82-130**	**New York**	**600-900**
		Rotterdam	**224-308**
		Japan	**1200-1425**
Jeddah Port	**80-106****	**New York**	**1000-1350**
		Rotterdam	**450-600**
		Japan	**450-600**
Haifa Free Port	**100**	**New York**	**1400-1500**
		Rotterdam	**350**
		Japan	**950**
Jebel Ali Port	**110-160**[3]	**New York**	**1200-2300**
		Rotterdam	**700-900**
		Japan	**450-900**

Sources: Collected from a survey of 20 freight forwarders operating in the region.

*** Includes Suez Canal fee plus handling in USA**

**** Handling charges levied on imports only**

As far as Beirut Port is concerned, the handling charges per TEU are as follows:

Beirut Port **$200 (*includes delivery and receiving operation to and from town) (local market fee)***

$75 (Free zone, transit, re-export and export fee)

From the above table, we can conclude that, while the handling cost per 20' container and sea freight rates to Japan (eastern cargo) are competitive for the Port of Aqaba, sea freight rates to Europe and the USA are not, although a recent decision by the Suez Canal Authority to reduce transit fees on ships calling at Aqaba Port carrying containers or wheat in bulk by 20% and 10% respectively may help to bridge the gap.

4.3.6 Output:

For this element, container traffic in the ports concerned during the past 10 years will be looked into in order to assess the development rate and the performance of each port in container handling. The development in container traffic in the concerned ports from 1990 to 1998 was as follows:

Table 4.8

Container traffic in 000' TEUs

Port	*1990*	*1996*	*1998*	*Growth rate 90/98*
Aqaba	**83.3**	**139.3**	**174.3**	**109%**
Beirut	**-**	**-**	**157.07**	**-**
Haifa	**277**	**470**	**530**	**91%**
Ashdod	**176**	**339**	**364**	**107%**
Jeddah	**549.9**	**827.1**	**974.9**	**77%**
Dubai	**916.3**	**2247**	**2772.9**	**203%**

Source: Aqaba Port Statistics, Ocean Shipping Consultants Ltd.

These figures show that container traffic in Dubai Port has the highest growth rate followed by the Port of Aqaba then Ashdod. This reveals two facts:

1. That the container traffic in the Middle East is growing steadily and will witness more growth in the coming years.
2. The container traffic is gaining ground at the expense of break-bulk traffic as shown in the case of the Port of Aqaba earlier in this chapter.

[3] The 1999 published standard handling rate per TEU is 385 UAE DH which is equal to $105.

4.3.7 Value Added:

Although the availability of value added facilities and the ability of each port to create value out if its traffic may give an indication about value added activities and returns in each port, the non-availability of sufficient data about this element and about the tariff and tariff structure of the rival ports makes it difficult to estimate the value added in these ports. However, the availability and size of stuffing and unstuffing areas may serve as an indicator of the added value in each port because the availability of such facilities is likely to enhance and attract value added activities while the lack of them may hinder such activities. Table 4.9 shows stuffing/unstuffing facilities in the concerned ports.

Table 4.9

Container stuffing/unstuffing areas

Port	*CFS covered area in sqm*
Aqaba	18.119
Beirut	-
Haifa	9340
Ashdod	10.000
Jeddah	5 sheds
Dubai	27.140

Source: Aqaba Port Statistics, Ports' web sites

4.3.8 Information technology:

This factor includes the use of information technology in port operations and services offered to port customers. Ports with this advantage can have a competitive edge over other ports because this element reflects the ability of the port to offer better, cost-effective and fast services which are the main customer requirements these days. Among the ports concerned, the Port of Dubai is the only port that has advanced computer systems for different operations as has been mentioned earlier in

this chapter. Haifa Port has a computerised control centre for container operations but on a limited scale.

4.3.9 Labour force and social climate:

This element refers to the cost of labour and other social climate aspects such as strikes, over-manning and labour union matters. With regard to the social climate and labour-related problems, Jordan is considered one of the most stable countries in the region with a well-organised labour force with no labour disputes or strikes. Also, the workforce in Jordan is abundant, and highly competitive in terms of skills and wages. However, for comparison purposes and due to lack of sufficient information about the social climate in other ports, only the average labour cost per hour in the concerned countries will be taken as an indicator of the labour cost in the ports sector. The average labour cost per hour was calculated by dividing the 1999 GNP per capita in each country according to the World Bank Releases, by 12 (months), then by 30 (days), then by 6 (the average daily working hours).

Table 4.10

Average labour cost per hour in selected countries

Country	*GNP / Capita in US$*	*Average labour cost/hr in US$*
Jordan	**1553**	**0.75**
Israel	**15940**	**7.3**
UAE	**18220**	**8.3**
S. Arabia	**9510**	**4.5**
Lebanon	**3560**	**1.6**
Bahrain	**7600**	**3.5**
Japan	**32380**	**14.9**
USA	**29340**	**13.5**

Source: Derived from World Bank Releases

4.3.10 Development and institutional structure:

This element is related to issues like the development plans for each port, tariff structure, flexibility to modify or set a new tariff and the freedom to take decisions. As far as development plans are concerned, it has been seen that most of the ports have ambitious plans for future development. As far as the Port of Dubai is concerned, it is a well-established port and has the flexibility and the capital needed for any expansions required. The ports of Haifa, Ashdod, Beirut and Jeddah have almost completed their expansion projects and still have plans for further expansions. As for the Port of Aqaba, it has a plan to expand the container terminal by 60m to become 600m long, and to purchase a post-panamax container crane and three straddle carriers which are expected to be delivered by the end of this year. With regard to decision-taking, the ports of Jeddah, Beirut and Dubai relatively have more flexibility in taking decisions than the ports of Aqaba and the Israeli Ports because the former ports are privately operated. However, the Port of Aqaba provides considerable reductions on transit and transhipment cargo. On the other hand, DPA has a multi-layer tariff which includes a standard tariff for TEU transhipment volumes under 6000 moves and a reduced tariff beyond that.

4.3.11 Flexibility to change:

This element is linked to the degree of port autonomy or independence and its ability to respond to economic changes and customer requirements. The more the port is distanced from government domain the higher the freedom it has to take decisions and respond adequately to market changes. Due to their privatisation policy, the ports of Dubai, Jeddah and Beirut have more flexibility than the other ports though the Port of Aqaba is presently taking serious steps to commercialise and privatise its container handling operations.

Based upon the above analysis, a competitive spidergram will be developed for each of the five ports based on the afore-mentioned eleven elements of competition (Roman numerals I-XI in the first row of the table below) according to their role in the competitiveness of the port using a scale from 1 to 5 where the best

competitive advantage was given the highest point while less competitive advantages were given lower points as shown in table 4.11. The geographical position will be assessed twice; the first to indicate the comparative advantage for Western Traffic (I W) while the second for Eastern Traffic (I E). However, due to their importance in competition, the following five elements (shown in bold print in the table below) will be given more weight and, accordingly, will be double-counted:

1. Geographical position (IW – IE)
2. Port facilities (III)
3. Information technology (VIII)
4. Flexibility to change (XI)
5. Port costs (V)

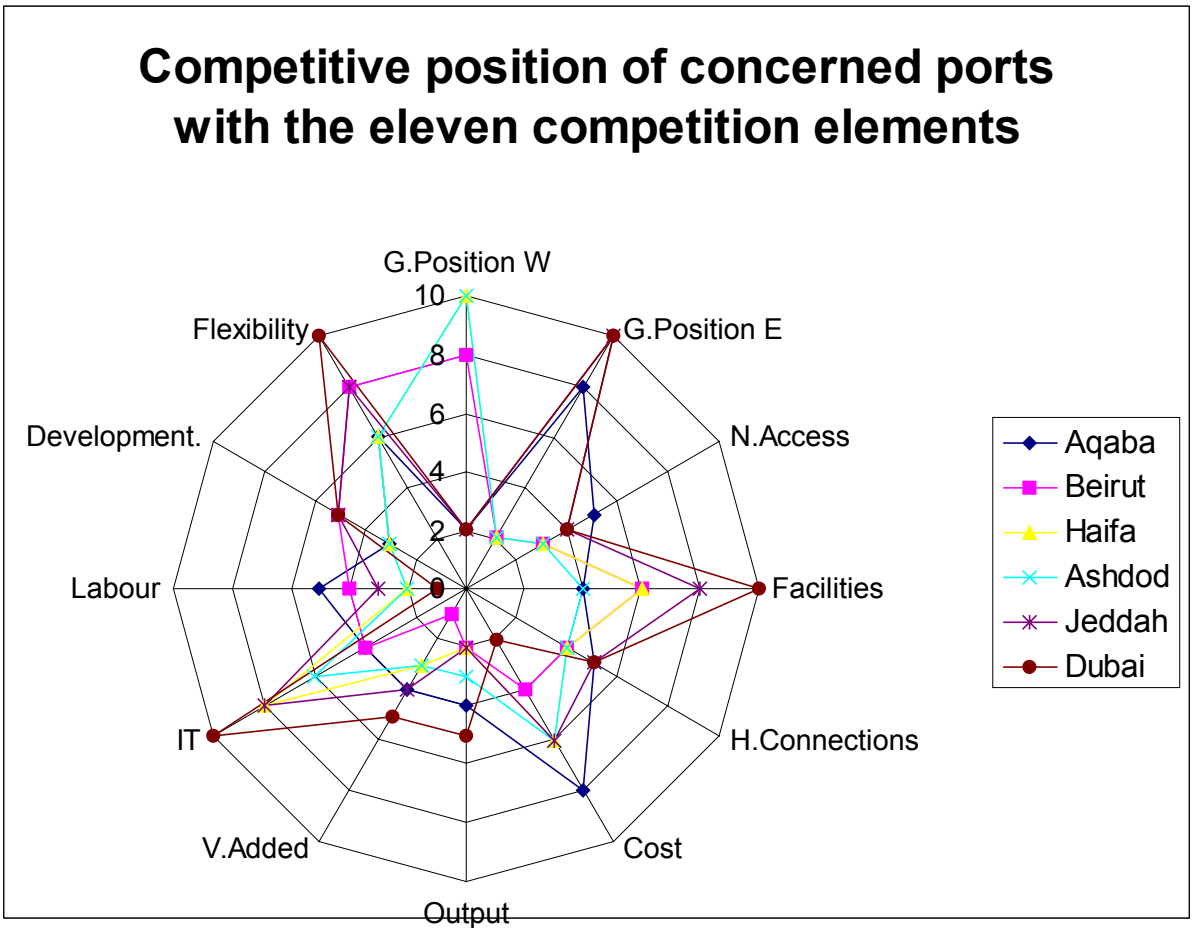
Table 4.11

Ranking of concerned ports according to the elements of competition

	IW-IE	*II*	***III***	*IV*	***V***	*VI*	*VII*	***VIII***	*IX*	*X*	***XI***	***total***
Aqaba	1 4	5	2	5	4	4	4	2	5	3	3	58
Beirut	4 1	3	3	4	2	2	1	2	4	5	4	51
Haifa	5 1	3	3	4	3	2	3	4	2	3	3	55
Ashdod	5 1	3	2	4	3	3	3	3	2	3	3	52
Jeddah	1 5	4	4	5	3	2	4	4	3	5	4	65
Dubai	1 5	4	5	5	1	5	5	5	1	5	5	69

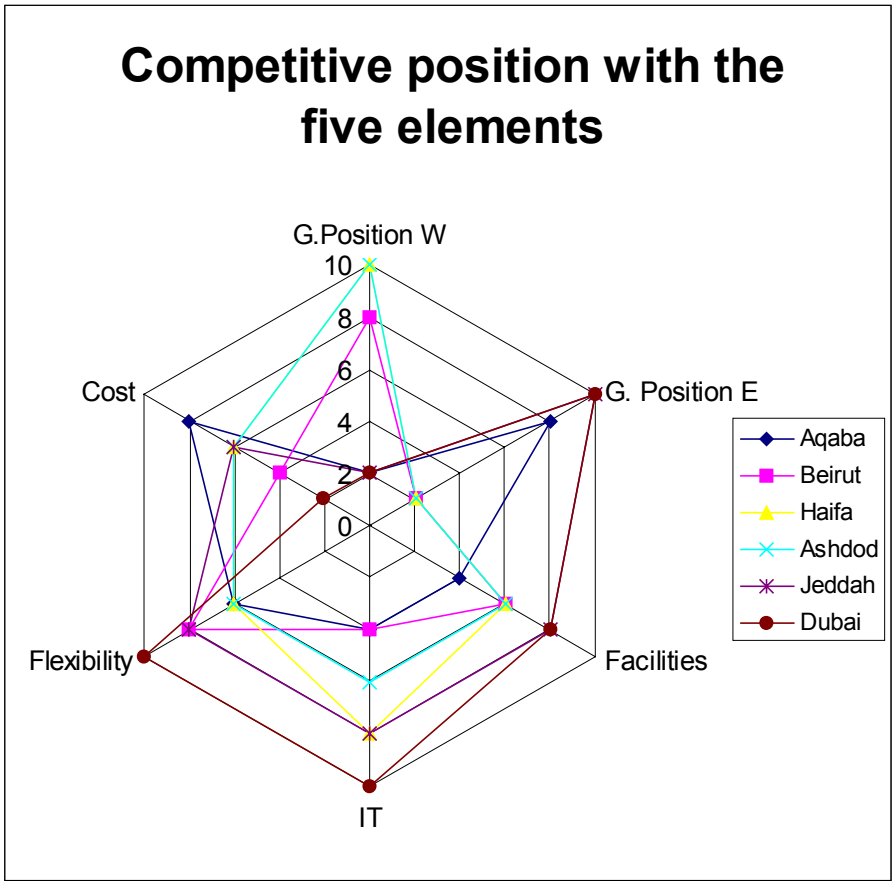
The following spidergram reflects the strengths and weaknesses of each port using these eleven comparison elements.

Graph 4.5:



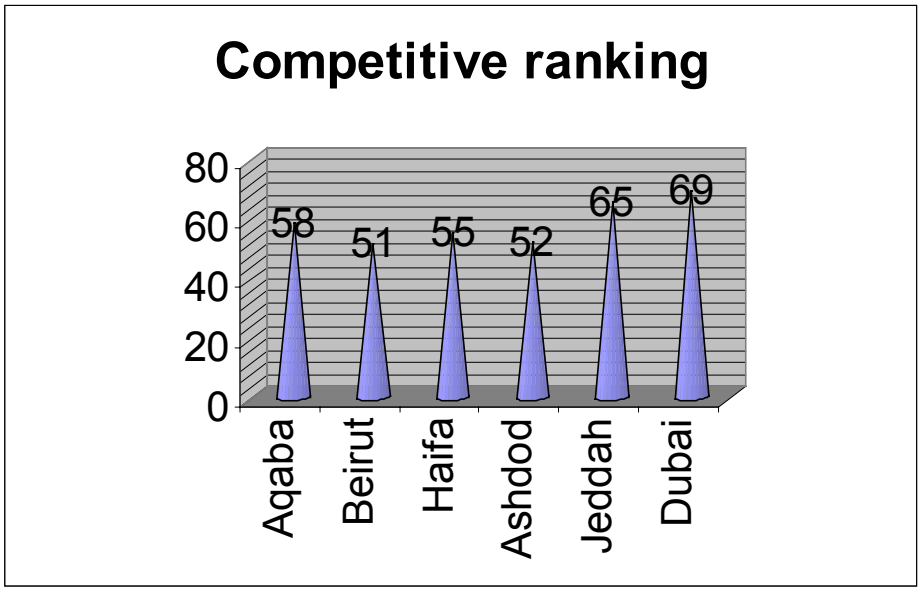
Graph 4.6 below shows the competitive position of the concerned ports under the selected five competition elements.

Graph 4.6:



The total ranking of each port is shown by the following cones.

Graph 4.7:



Thus, it is noticed that Haifa port has the highest ranking among the Mediterranean ports and so has a competitive edge over the other ports particularly in terms of transit time, total cost and location. On the other hand, the ports of Dubai and Jeddah will be the dominant ports for the cargo coming from the East due to their location and facilities. However, the Port of Aqaba can benefit from its location close to the hinterland, good overland connections, deep water, cheap labour force and, most importantly, the incentives provided by the Suez Canal Authority to ships calling or originating from Aqaba in order to attract direct and feeder ship calls and serve as a transit point to the surrounding countries including Israel. This issue will be tackled in more detail in the next chapter when building a competitive strategy for the Port is discussed.

4.4 Competition implications:

It has been seen so far that the world, in general and the Middle East in particular, are pregnant with changes and developments. New terminals are being born, new operators appearing and new technologies are being introduced. These changes are giving birth to unprecedented competition. The Port of Aqaba has no choice but to find its way through these challenges. It has to adapt itself to such challenges and investigate the opportunities brought about by them and look for new horizons. Although the threat may not come tomorrow, it is real and the Port should be prepared to face it. This can be done through market analysis, aggressive marketing, understanding of customers' needs, strategic planning and above all putting the Port's house in order. The emerging free trade environment requires, among many others, free-handed decision makers, flexible policies and competitive management.

I would like to close this chapter with the following excerpt from the proceedings of the Port of Hamburg Seminar on Port Marketing held in WMU from 14-18 June 1999 which will be used also as a basis for the discussion in the following chapter.

The law of competition tells us that a missing opportunity can become a threat to the port from its rivals. The wants and needs of customers are not homogenous and everlasting, they are fast-changing and in various forms. Ports have to constantly examine a number of areas from where the opportunities and threats will most likely come. It is important that such an examination should always be done in comparison with the competing ports.

Chapter Five

5 Developing a business strategy:

5.1 Introduction:

It has been understood from the discussion in the previous chapters that the Port of Aqaba operates in an increasingly competitive environment, an environment which is very demanding and very challenging. Such a situation requires strategic planning and far-sighted decisions taking into consideration the changes taking place in the region and other changes taking place in the business world of today, a world which is no longer predictable and constant but uncertain, fast changing and directed by competence and high performance. Therefore, the strategy of the Port of Aqaba should be built on these new business *values and norms.* In his book *Management Challenges for the 21st Century,* Drucker states that "Every organisation operates on a Theory of the Business, that is a set of assumptions as to what its business is, what its objectives are, how it defines results, who its customers are, what the customers value and pay for. Strategy converts this Theory of the Business into performance. Its purpose is to enable an organisation to achieve its desired results in an unpredictable environment". (Drucker, 1999, p.43).[1]

In such an 'unpredictable environment', having a clear vision of the future may not seem an easy task. However, the Port of Aqaba has no option but to assess its external and internal environment, identify the constraints and threats, address the problems and focus on the opportunities. This task will be done by conducting a

[1] Quoted from Michael C. Ircha's article "North American Port Reform" prepared for possible publication in International Journal of Maritime Economics, Feb. 2000.

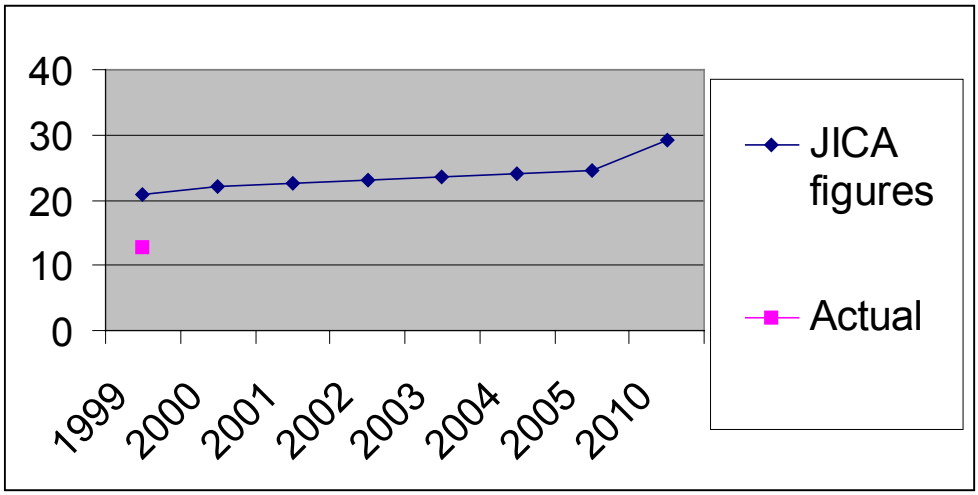
SWOT analysis which will be the area of discussion later in this chapter. The next section will discuss the anticipated traffic via the Port in the next ten years.

5.2 Demand forecast:

Port traffic forecasting is a systematic process which requires a wide knowledge of economic, commercial and market trends. Therefore, such knowledge is not easy to grasp making the whole process subject to uncertainty and ambiguity. However, there are various tools that may help in estimating the future trend of traffic such as looking at the past traffic, fluctuations and events whether political or seasonal or industrial or agricultural, technological changes, growth of economic indictors like GDP and population, and other trade and transport policies. In 1996, an attempt was made by a study team to forecast traffic via the Port of Aqaba up to 2010.[1] In this study, three scenarios were selected based on two main factors that were believed to have the greatest impact on the traffic via the Port, which are the progress of the peace process in the Middle East and the lifting of sanctions on Iraq. The following graph shows the result of this forecast (middle case) compared with the actual traffic as of 1999.

Graph 5.1

Comparison between JICA forecast and actual throughput in '000 tons



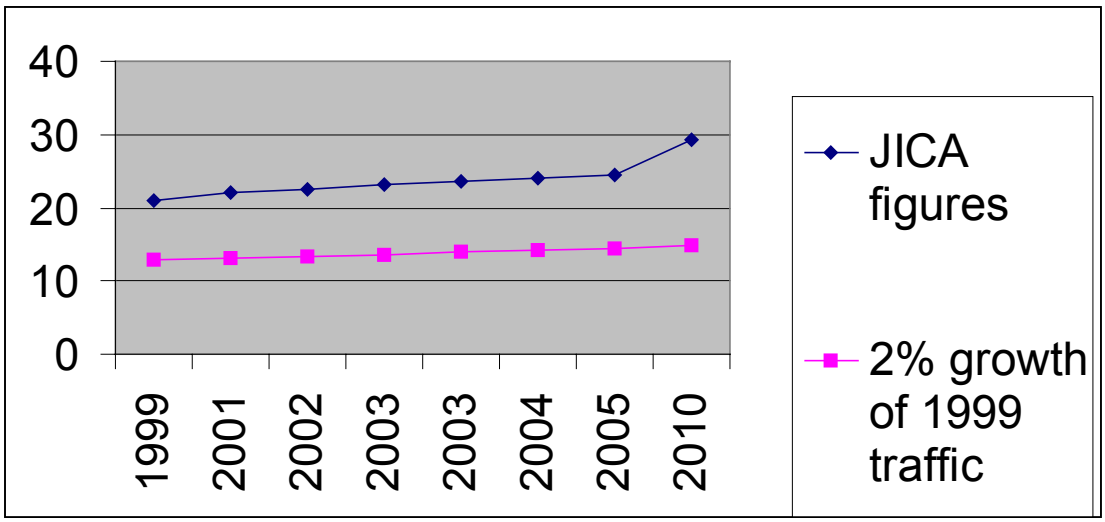
Source: JICA report and Aqaba Port statistics

[1] This study was conducted by Japan International Co-operation Agency (JICA). For more information, see their final report, pp13-40.

However, if we assume an annual growth rate equal to that during the last nine years (see Chapter 2, graph 2.2) which was around 2% taking 1999 throughput as a basis, we will have the following trend:

Graph 5.2

JICA forecast in comparison with 2% growth of 1999 throughput in '000 tons



Source: JICA report and Aqaba Port statistics

In JICA's forecast, future cargo volumes were estimated using the GDP and the population growth indexes for break-bulk, containers and bulk cargo as far as foodstuffs are concerned, while project plans and world and regional market trends indexes were used for the industrial and transit cargo forecast. From the above graphs, it is clear that JICA's forecast does not reflect reality as it included over-estimations even in the lower case where the year 2010 forecasted figure was 26.645 million tons. The reasons for this can be:

1. Over-estimation of project plans and bulk exports.[1]
2. Linking cargo growth to GDP and population growth rates.

The second reason is of special importance. A regression and correlation analysis was carried out to identify the relation between cargo throughput in the Port on the one hand and population, GDP, GNP, GDP per capita and GNP per capita on

[1] It is worth-mentioning that such estimates were provided to the study team by concerned industries and companies.

the other. This showed that the cargo throughput and these variables are not highly correlated. (Appendix B). This may be due to the following reasons:

1. The bulk of Jordan's external trade is with neighbouring countries, particularly Iraq and GCC states.
2. The emergence of other accesses to Jordan's trade via Mediterranean ports.
3. The use of other modes of transport like road and air transportation.

Although the first and the third reasons can not be overlooked in this regard, the second one is more likely to be the main force behind this lack of correlation and is likely carry more weight in the medium and the long run.

5.3 SWOT analysis:

A SWOT analysis outlines the strengths, weaknesses, opportunities and threats that every organisation has in a business environment. This analysis should include both the external and internal environment factors where the external environment focuses on the opportunities and threats while the internal environment focuses on strengths and opportunities. In this connection, geographical, commercial, physical, institutional, technical and financial features will be looked at in addition to factors related to forces of change. Although it is difficult for the port to meet all changing trade requirements, the port's ability to turn these factors of market change into opportunities instead of threats is vital for the development and survival of the port. Having a quick glance at the economic and political changes in the region and other forces of change discussed earlier in chapter three, it can be noticed that the following challenges face the Port of Aqaba. They will be categorised into external threats, external opportunities, internal strengths and internal weaknesses as follows:

5.3.1 External threats:

- Political factors:
  - Trade diversion to Mediterranean ports as a result of the peace process.
- Technology:
  - The introduction of new cargo handling equipment in rival ports.

- The introduction of information technology in rival ports.
- The growth of vessel size which requires fast and high quality service on the one hand and reduces the number of port calls on the other.
- The development and possible introduction of non-ISO size containers to the region which requires new and higher capacity handling equipment.
- Improved inland transport connections which contribute to the expansion of a port's hinterland and consequently trigger fiercer inter-port competition.

- Globalisation:
  - Developing the supply chain, the multi-modal or the integrated continual transportation network which reduces the port's role and provides a substitute service by other modes of transport.
  - Over-supply due to increased capacities.
  - The increasingly sophisticated customer requirements.
  - Consolidation and alliances in the shipping industry.
  - Appearance of fourth generation network ports run either by global port operators or shipping lines.

5.3.2 External opportunities:

- Relaxation or lifting of sanctions on Iraq.
- The expected growth and improvement of the economies of the countries in the region as a result of the political relaxation.
- The very favourable trade relations that Jordan enjoys with neighbouring countries and a privileged and preferential access to most international markets like the EU, North America, Japan, Australia and Scandinavia.
- The anticipated growth in regional container traffic in the next ten years.
- Consolidation of trade and economic relations among countries in the region.

5.3.3 Internal strengths:

- The location of the Port close to a large hinterland, a link between Arab countries in Asia and Africa and a transit point for neighbouring countries.
- A good infrastructure especially concerning bulk handling facilities.
- The good reputation of the Port with regard to the social and operation environment; no strikes, relatively good service at a reasonable price, no congestion, no labour disputes, no record of excessive loss, pilferage or damages and finally the availability of deep water.
- The availability of other services like airports, hotels, banks, reliable road network and transportation services.
- A promising emerging economy and market with a favourable investment climate especially after the introduction of economic reforms, privatisation and the revision of all related laws and regulations and the recent government decision to convert the Aqaba region into a Special Economic Zone.

5.3.4 Internal weaknesses:

- "Relative" port distance from main shipping routes.
- Information technology and EDI in the Port lags behind other rival ports.
- Continued civil service mentality in the port whether in operations, decision-making, employment, level of flexibility of port tariff, etc.
- Capacity constraints in container operations in terms of productivity, equipment, IT and terminal layout.
- Lack of sufficient integration, communication and co-ordination among port community.
- Non-availability of sufficient cargo base to justify frequent and bigger ship calls.

Having identified the internal and the external environment factors that may have an impact on the competitive position of the port, the following section will be

dedicated to formulating alternatives and solutions taking into account these factors. The same factors will be used later in this chapter as a basis for developing a marketing strategy for the Port.

5.4 Prospects and Alternatives:

5.4.1 Introduction:

In view of the competition elements mentioned in the previous chapter, the changes that have taken place regionally and globally with regard to the shipping industry, the emergence of new technologies and the appearance of new players in the region, the Port of Aqaba should look for alternatives and prospects to enhance its market share. These should include serving as an efficient feeder port, increasing its own captive traffic and attracting new traffic, particularly, transit, bulk and containerised cargo. However, before discussing these alternatives, areas that ports can look into in their search for new business particularly container traffic will be briefly reviewed. (Shuo Ma, Port Marketing, 2000).

1. Being a dedicated hub port.
2. Being a hub and load centre.
3. Being a direct call port.
4. Being a feeder port.
5. Being a transit port.

For the port to become a hub, there are several requirements which include:

- Geographical location: The port should be located on main shipping routes adjacent to major hinterland and trade activities. The best examples are the ports of Malta, Hong Kong and Singapore.
- The availability of sufficient cargo base to justify calls of big ships.
- The availability of sufficient infrastructure and equipment like cargo handling and berthing facilities.
- A quality performance and competitive cost are a must as big ships calling such ports require fast, cost-effective and high quality performance.

- Reliable and flexible labour: This is vital to avoid any unnecessary delays and ensure high productivity.
- Effective information services such as IT and EDI.
- Efficient administrative services and flexible decision-taking process.

Such requirements are also necessary for the port to be a hub and load centre and a direct call port with an additional requirement, that is having a large hinterland traffic. These requirements along with the following factors have a direct and decisive impact on the decision of the shipping lines to select a port of call:

- Port efficiency resulting in fast handling and short turnaround time.
- Reasonable overall costs.
- Zero default
- Zero delays.
- Overall supply chain cost.

5.4.2 Alternatives:

The Port of Aqaba has unsuccessfully been trying to attract transhipment traffic due to its location at a relative distance from main shipping routes and ports of neighbouring countries coupled with container handling equipment constraints. The result is that the volumes of transhipped cargo remained very limited (2% in 1998). Therefore, the alternatives that will be reviewed hereunder will focus on the activities that generate high added value and which are more appropriate for the conditions of the Port.

As has been mentioned earlier, the location of the Port of Aqaba has been a major factor for making it a transit centre for cargo going to and originating from many neighbouring countries as shown in chapter three. In light of this, the ***first alternative*** for the Port should be to consolidate its position as a transit point for incoming and outgoing cargo to and from neighbouring countries. This can be achieved in many ways including reducing land transport costs, improving port and transport services and creating an integrated port community. Volumes of incoming transit cargo distributed among different countries during the period between 1983

and 1998 have been reviewed in chapter three. It is worth mentioning here that 1999 saw volumes of transit cargo imported to both Israel and the Palestinian Authority which amounted to 11238 ton to Israel and 2003 ton to the Palestinian Authority. Also, transit traffic was not restricted to incoming cargo but there were considerable volumes of exported cargo originating from different countries, especially Iraq.

Thus, the Port of Aqaba has the potential to be a transit centre for most of the surrounding countries, and so, this is one of the options that the Port can make use of in the future.

However, it has to be realised that this option may not be easy to realise and efforts in this direction should start from the Ministry of Transport, which is the umbrella authority of the transportation and maritime sectors. A meeting with the participation of all concerned parties should be organised to identify the problem, discuss it and propose an action plan. A follow-up committee can be formed to monitor, assess and report progress and the implementation of the plan.

The ***second alternative*** for the Port is to make use of its good bulk handling facilities and of Jordan's position as a major producer of phosphate, fertilisers, potash, Dead Sea salts and other related industries to serve as a bulk handling centre especially for Israeli bulk exports. This issue has been an area of discussion between the concerned authorities in the two countries on more than one occasion. This alternative has been enhanced by the fact that three major joint ventures involving companies from Japan, India and Norway have been established in Aqaba and the former two have been working for several years.

Reaching this target requires a joint effort between the Port, the Fertilisers Co, Arab Potash Co. and other chemical industries. A committee can be set up for the purpose of surveying the market, approaching consumers and producers in the region and providing sufficient and reliable information about the Port's capabilities in this field.

The ***third alternative*** is to make use of the ferry link between Jordan and Egypt (Aqaba-Nwebe´ ferry line) and of Aqaba-Eilat-Southern Red Sea region as a major tourist attraction area to attract passenger, vehicle and cargo traffic originating

from and going to North Africa in addition to cruise-ships. This traffic from 1986 to 1998 is shown in table 2.7 in chapter two.

Increasing the number of passengers and cruise-ships can be reached by launching an aggressive marketing campaign with the participation of the Port Authority, Arab Bridge Maritime Co., Ministry of Tourism, travel agents and other local authorities. This step should be preceded by improving the services provided to ferry users.

The ***fourth alternative*** is to enhance container handling capacity and efficiency in order to meet the anticipated growth in container traffic locally and regionally. This should include purchasing new equipment, training staff, introducing information technology, improving land transport and simplifying all related administrative procedures and formalities.

This issue carries special importance because of the reasons mentioned in this paper on top of which is the fierce competition in container handling. Purchasing new handling equipment, training staff, introducing IT and co-ordinating the efforts of all concerned parties are only a few of the many measures needed to improve this aspect. Training programmes where refresher and training courses are provided within a work plan are necessary and badly needed. On the other hand, necessary capital to purchase new equipment and introduce IT can be sought by opening the door to private sector participation.

However, trade prospects for the Port of Aqaba should not be restricted to the aforementioned alternatives as in today's business there is room for several opportunities in view of the anticipated boom in container traffic in the region. This element, in addition to the creation of several hub ports in the Red Sea area, should provide an opportunity for the Port of Aqaba to serve as a main feeder port for distribution and transit purposes. In addition to these major alternatives, the Port should look into all other possible areas which can contribute to enhancing its role and increase its market share such as:

1. **Entering into co-operation arrangements with rival ports**:

The aim of this option is to create a chain of friendly rivals. By this, the Port can, first, make up for the expected loss of cargo to other rival ports and, second, face the pressure of other terminal operators, be they port authorities or shipping lines. According to this option, arrangements can be made where the Port of Aqaba, for example, is entrusted with handling Eastern traffic for Port A on the Med., while port A is entrusted with handling Western traffic for the Port of Aqaba. This arrangement can be for one or more types of cargo. Through this deal, the Port of Aqaba can attract additional traffic and at the same time avoid unnecessary competition. For example, the port of Aqaba has the capacity to handle Israeli exports to the Far East like potash produced in the Dead Sea area, Israeli break-bulk and container imports and other agricultural products, while Israeli ports can be used to handle Jordan's exports of manufactured goods and imports of general cargo, particularly foodstuffs, going to and coming from Europe. The same applies to other countries like Lebanon, Syria and Palestinian Authority. This, of course, should be done within a win-win formula where both sides benefit from this co-operation.

2. **Adapting to changing trade patterns and requirements:**

Although this option may seem difficult to achieve in the short run because it means additional costly investments in purchasing new equipment, introducing information technology systems and providing fast, quality and efficient service, however, to survive in a fast changing world, the Port of Aqaba has no option but to adapt to these requirements through a long term plan and invite the private sector to participate in port development and operations.

3. Enhancing the commercial side of port operations:

In order to improve performance and respond to trade changes and competition requirements, governments today tend to disengage themselves from port operations. This trend is very clear in most of the ports in the region like Dubai, Jeddah, Salalah, Beirut and the major Egyptian ports. This policy does not necessarily mean privatisation of port activities (although this option should not be excluded, especially in handling and equipment maintenance operations), but can be done

through creating a pro-business culture in the Port including flexibility in decision making and tariff enforcement.

4. **Building an effective marketing strategy based on the needs and wants of both the customer and the market.** This element will be the area of discussion in the next section although the needs of the market are difficult to foresee due to the changing conditions the uncertain nature of the future.

5.5 Building a marketing strategy:

Marketing can be defined as "the process whereby an organisation seeks to identify, quantify and anticipate the needs and wants of its markets both present, and potential and develops the product or service to satisfy such wants. (Shuo Ma, Port Marketing, WMU, 2000).

Thus, the purpose of marketing is to create a commercial environment where both the market and the customer are surveyed, their needs are identified and then fulfilled. This is increasingly becoming necessary in a dynamic and fast changing world where competition is high and trade barriers are diminishing. The idea of fortified and seemingly impregnable port captive position has lost much of its validity and begun to weaken. These changes scraped the old belief of 'captive hinterlands' and replaced it with 'shared hinterlands'.

In view of these changes, a commercial marketing strategy will be proposed taking into account the three marketing pillars; product, price and promotion. Bearing in mind the ten elements that make up the product and determine the competitiveness of the port discussed in chapter four, the proposed strategy will be based on both Porter's three generic strategies; ***leadership***, ***differentiation*** and ***focus*** (Porter, M E, Competitive Strategy, 1980) and UNCTAD's four marketing strategies; to be a ***market leader***, a ***market challenger***, a ***market follower*** or ***a market nicher***. In fact, there is no fundamental difference between these two approaches as they view the marketing strategy with a mixture of market and customer orientation. They, further, propose the right marketing policy to be followed based on the organisation's competitive position and its ability to influence or benefit from the market. In other words, to be in the front, in the flank or in the aft. According to

Porter, the organisation can select an overall cost leadership strategy where the focus is on offering the lowest cost without neglecting the quality, or a differentiation strategy where the organisation should offer a unique and distinct service or a focus strategy whereby a specific traffic/cargo/customer is serviced (nicher). UNCTAD's strategies almost fall into the same category where the market leader represents both the overall leadership and differentiation strategies, while the nicher represents the focus strategy.

As to the Port of Aqaba, its approach to marketing should be based on differentiation and focus strategies.

5.5.1 Differentiation:

The Port of Aqaba should strive to provide a quality and cost-effective level of service to both ships and shippers, which should include:

1. Reducing ship turnaround time by co-ordination and improvement of all ship-related services like customs, health, land transport, shipping agencies, etc, in such a way that ensures the elimination of unnecessary delays on the one hand and raising productivity on the other.
2. Acquiring cargo handling technology, particularly container handling equipment.
3. Improving cargo-related services; value added, storage, distribution, damage and loss free, etc.
4. Introducing information technology at both port and port community levels.
5. Commercialising port activities including management, operations and pricing.
6. Introducing an effective Customer Relation Management (CRM) system, which is a very important factor in the differentiation strategy.

5.5.2 Focus:

It has been noticed from the discussion in previous chapters that the location of the Port of Aqaba gives it the advantage of being a transit port for the region. In fact, the Port has played that role very successfully in the past two decades as shown earlier. Also, due to the fact that Jordan is one of the major producers of phosphate, potash and fertilisers, the Port has good facilities for handling these products and so

it is qualified to be a focus regional point for handling these materials. In light of this, the Port should focus on the following areas:

1. To benefit from its location to attract transit traffic. This should be accompanied by the measures mentioned above to cut overall costs as much as possible.
2. To improve the container handling capacity through the measures mentioned earlier.
3. To attract bulk traffic, especially the Israeli Dead Sea products of potash. In this regard, building the Dead-Red railway connection is important.
4. To attract cruise-ship traffic taking advantage of the existence of tourist attractions both in Jordan and in the surrounding countries like Egypt, Palestine and Israel.
5. To take necessary measures to improve and upgrade the Aqaba-Nuwebe' ferry service and introduce it as an international link connecting Africa with Asia in general and the tourism-rich Egypt with tourism and religious attractions in Jordan and Palestine in particular.

The above points are only ideas that can be built on to consolidate the competitive setting of the Port of Aqaba. Although today's world is pregnant with challenges and surprises, however, it is full of opportunities which can be taken advantage of through dedication, training, improving efficiency and systematic planning.

Chapter Six

Conclusions and recommendations

The peace process in the Middle East has triggered off a host of changes in the region both on the economic and political levels. These changes, along with other global changes created by technological advances, globalisation and deregulation trends have put much pressure on different economic activities in Jordan including the Port of Aqaba which was one of the first to feel the heat. Instead of being the only access to Jordan's exports and imports, the Port started to see part of its cargo sneaking through other rival ports located on the Mediterranean facing Europe and North America like the ports of Haifa, Ashdod and Beirut. These ports provide shorter and cost-effective access to the country's traffic going to or originating from Europe and the USA avoiding the Suez Canal. They also enjoy the same advantage for Jordan's transit traffic to neighbouring countries. It is estimated that about 55.6% of incoming containers, 67% of the total imports and 20% of the exports (1998 figures), excluding transit traffic, is threatened to be lost to ports lying on the Mediterranean coast. Such a challenge, along with the challenge coming from Red Sea and Arabian Gulf ports pose a threat also to the Aqaba Port's future efforts to increase its market share. Therefore, what once has been the Port's captive hinterland has now become a shared hinterland where the lion's share is for the one enjoying these advantages. Such a new competitive environment poses a real challenge to the Port. The challenge of adapting to these changes, the challenge of the ability to compete and the challenge of maintaining and, if possible, increasing its market share. Given these circumstances, and after the factors that make up the

competitiveness of the port has been assessed, this paper suggests that the Port of Aqaba has a lot to capitalise on.

First, the Port has an advantage of an established good infrastructure which can be used without need to spend much capital on building new facilities.

Second, the Port has an advantage of proximity to European and rapidly growing Asian markets.

Third, the Port has the necessary social and labour climate, particularly cheap and skilled labour, which can provide an excellent business environment.

Fourth, the Port has the advantage of an emerging economy of a country which has saved no effort in the direction of creating a healthy economic environment, liberal economic policies, deregulation, investment-encouraging laws, etc.

Finally, the recent decision to transform Aqaba into a Special Economic Zone is likely to create new opportunities and generate more businesses for the Port.

In light of the above factors, and bearing in mind the Port's traffic in the past three decades, the Port can focus on the following areas in its effort to find its way through the projected tough competition:

First, building upon the Port's reputation as a transit point for surrounding countries. This requires facilitating all related procedures and setting up a unified policy including not only the Port, but also other authorities and sectors like customs, road transport, border police, etc.

Second, taking advantage of the good bulk handling infrastructure to attract cargo like potash, Dead Sea products, fertilisers and agricultural chemicals to and from neighbouring countries.

Third, pressing on with the privatisation/commercialisation and concessioning policy to ensure private sector participation in port development and operation.

Fourth, taking advantage of the projected growth in tourism and the heritage and cultural attractions of the region to attract cruise-ship traffic. Such traffic has been very active in the past years as seen earlier in this dissertation.

Fifth, co-ordination of the efforts of the port community such as, shipping agents, land transport, freight forwarders, customs, shippers and other related economic activities in order to ensure a unified direction.

Sixth, introduction of information technology in Port operations and other relevant activities as in today's business this factor is of primary importance in ensuring distinct and quality service.

Seventh, taking advantage of the existence of chemical and fertiliser-related businesses, the availability of some big companies' joint ventures in the area and the transformation of Aqaba into a Special Economic Zone to transform the Port into a logistics and multi-modal transport centre.

Eighth, putting more emphasis on developing human resources through training.

Ninth, enhancing the container handling capacity and efficiency.

Finally, launching an aggressive marketing campaign to ensure that the Port is introduced and presented to its users in a systematic, cultured, well-organised and informative way.

The Port of Aqaba is one of Jordan's main national assets and the above ideas should serve as a basis for further discussions and studies to ensure the 'smiling mouth' of Jordan remains smiling for ever.

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Appendix A:

Export commodities via Aqaba Port in 1998 in tons

Country	Phosphate	Fertilisers	Potash	Cement	G.C	Transhipment	Re-export	Empty Cont.	Transit	Total
Far East	***1220765***	***190720***	***572900***	***000***	***5967***	***000***	***282***	***16431***	***000***	***2007065***
Indonesia	600200	000	13200	000	14	000	265	000	000	613679
Japan	160400	152220	40000	000	501	000	11	000	000	353132
Korea	153275	000	56250	000	1152	000	000	000	000	210677
Thailand	188350	000	15400	000	000	000	000	000	000	203750
Malaysia	22500	15300	165400	000	172	000	5	000	000	203377
China	000	000	165000	000	1153	000	1	3734	000	169888
Taiwan	96040	000	48550	000	85	000	000	000	000	144675
Philippines	000	23200	49100	000	1388	000	000	000	000	73688
Singapore	000	000	20000	000	1474	000	000	12697	000	34171
Vietnam	000	000	000	000	28	000	000	000	000	28
S.W.Asia	***1250895***	***739962***	***543005***	***000***	***41405***	***111***	***366***	***7167***	***000***	***2582905***
India	1223895	609212	490755	000	24128	89	345	4952	000	2353376
Iran	000	96500	52250	000	98	000	000	000	000	148848
Pakistan	27000	34250	000	000	16966	000	2	2209	000	80427
Srelanka	000	000	000	000	213	22	19	000	000	254
Aust&Newz	483350	000	55600	000	1267	000	154	000	000	590371
Australia	402350	000	12600	000	1195	000	42	000	000	416187
Newzeland	81000	000	43000	000	72	000	112	000	000	124184
Gulf States	***000***	***000***	***000***	***37682***	***99767***	***2234***	***25729***	***26626***	***6607***	***198645***
S.Arabia	000	000	000	000	27909	000	24311	21975	6607	80802
Gulf States	000	000	000	000	57051	1377	149	4651	000	63228
Yemen	000	000	000	37682	14807	857	1269	000	000	54615
East Africa	***000***	***136339***	***15950***	***150800***	***106197***	***000***	***5949***	***1027***	***000***	***416262***
Sudan	000	000	000	95000	13224	000	4844	000	000	113068
Ethiopia	000	97431	000	000	606	000	329	000	000	98366
Kenya	000	000	000	000	89252	000	460	000	000	89712
Eritrea	000	000	000	55800	523	000	2	000	000	56325
Djibouti	000	38908	000	000	1493	000	61	93	000	40555
S.Africa	000	000	1000	000	386	000	84	934	000	11404
Angola	000	000	3700	000	131	000	1	000	000	3832
Mozambique	000	000	2250	000	14	000	168	000	000	2432
Tanzania	000	000	000	000	550	000	000	000	000	550
Malagasy	000	000	000	000	18	000	000	000	000	18
N.&W.Africa	***000***	***1500***	***34000***	***144280***	***25322***	***12681***	***1219***	***2982***	***57912***	***279896***
Egypt	000	1500	7500	144280	16716	12681	1171	2982	56916	243746
Morocco	000	000	26500	000	131	000	000	000	000	26631
Algeria	000	000	000	000	5449	000	000	000	000	5449
Libya	000	000	000	000	2961	000	32	000	996	3989
Tunisia	000	000	000	000	65	000	16	000	000	81
West Europe	***633290***	***000***	***266308***	***000***	***16174***	***49***	***1393***	***1238***	***000***	***918452***
Netherlands	515990	000	37150	000	2083	000	17	000	000	555240
Finland	97300	000	000	000	2	000	000	000	000	97302
Italy	000	000	73363	000	4318	000	317	1238	000	79236
Spain	000	000	75845	000	733	000	3	000	000	76581
Greece	20000	000	51600	000	348	000	16	000	000	71964
France	000	000	14000	000	647	000	000	000	000	14647
Portugal	000	000	14350	000	60	000	000	000	000	14410
Britain	000	000	000	000	4573	000	55	000	000	4628
Germany	000	000	000	000	2749	49	191	000	000	2940
Belgium	000	000	000	000	613	000	772	000	000	1434
Malta	000	000	000	000	34	000	000	000	000	34
Denmark	000	000	000	000	000	000	22	000	000	22
Sweden	000	000	000	000	11	000	000	000	000	11

Ireland	000	000	000	000	3	000	000	000	000	3
East Europe	***140235***	***000***	***5900***	***000***	***11651***	***000***	***372***	***000***	***000***	***158158***
Bulgaria	116985	000	000	000	10425	000	000	000	000	127410
Macadonia	23250	000	5900	000	150	000	000	000	000	29300
Romania	000	000	000	000	37	000	372	000	000	409
Slovenia	000	000	000	000	191	000	000	000	000	191
Croatia	000	000	000	000	90	000	000	000	000	90
Lithuania	000	000	000	000	38	000	000	000	000	38
Ukraine	000	000	000	000	720	000	000	000	000	720
E.Mediterran	***000***	***000***	***000***	***000***	***49706***	***719***	***9160***	***1159***	***18***	***60762***
Turkey	000	000	000	000	47209	000	000	000	000	47209
Lebanon	000	000	000	000	1878	412	8296	000	000	10586
Israel	000	000	000	000	586	307	839	1159	000	2891
Syria	000	000	000	000	6	000	25	000	000	31
Palestine	000	000	000	000	7	000	000	000	18	25
Cyprus	000	000	000	000	20	000	000	000	000	20
USA/Canada	000	000	000	000	31802	000	1140	6	000	32948
USA	000	000	000	000	31012	000	1138	6	000	32156
Canada	000	000	000	000	790	000	2	000	000	792
S. America	***000***	***000***	***14500***	***000***	***167***	***000***	***11***	***000***	***000***	***14678***
Brazil	000	000	14500	000	8	000	000	000	000	14508
Colombia	000	000	000	000	76	000	11	000	000	87
Argentina	000	000	000	000	79	000	000	000	000	79
Chile	000	000	000	000	4	000	000	000	000	4
Others	***000***	***000***	***000***	***000***	***000***	***000***	***000***	***100114***	***000***	***100114***
Total	**3728535**	**1068521**	**1508163**	**332762**	**389425**	**15794**	**45775**	**156744**	**64537**	**7310256**

Source: Aqaba Port Statistics Sheet 1998

Appendix B:

POPULATION: **IN 000'**

GDP/GNP **IN 000 $**

YEAR	POP.	GDP	GNP	GDP/CAP.	GNP/CAP.
1993	**4152**	3596	3459	1340	1325
1994	**4268**	3956	3859	1467	1410
1995	**4387**	6601	6360	1595	1537
1996	**4509**	6820	6540	1780	1789
1997	**4635**	7102	6789	1970	1895
1998	**4764**	7345	7123	2146	2020
1999	**4897**	7600	7355	2486	2310

year	x	y	xy	x2	y'	y-y'	(y-y')2	(y'-y-)2	(y-y-)2
1993	**4125**	11.63	47973.75	17015625	11.1	0.6	0.3	0.8	0.1
1994	**4268**	10.57	45112.76	18215824	11.4	-0.8	0.7	0.3	1.9
1995	**4387**	11.75	51547.25	19245769	11.7	0.1	0.0	0.1	0.0
1996	**4509**	12	54108	20331081	11.9	0.1	0.0	0.0	0.0
1997	**4635**	12.31	57056.85	21483225	12.2	0.1	0.0	0.1	0.1
1998	**4764**	12.64	60216.96	22695696	12.5	0.1	0.0	0.3	0.5
1999	**4897**	12.8	62681.6	23980609	12.8	0.0	0.0	0.8	0.7
	31585	**83.7**	**378697.2**	**142967829**	**83.7**	**0.0**	**1.0**	**2.4**	**3.4**

Y- = **11.9571429**

X- = **4512.14286**

B = 7215.69 / 3162578

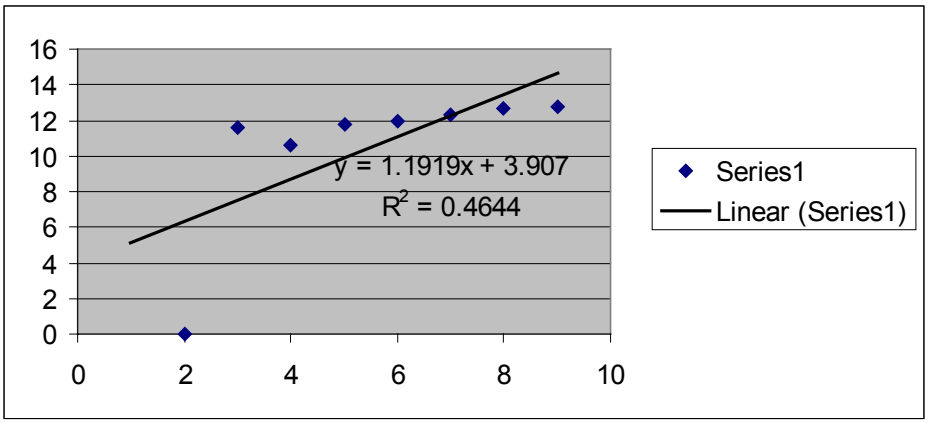
0.002

A = **Y- - BX =** **1.7**

Y = **11.9571429**

Syx = **0.4** 0.0

r2 = **0.835**



GDP:

POPULATION: **IN 000'**

GDP/GNP **IN 000 $**

YEAR	POP.	**GDP**	GNP	GDP/CAP.	GNP/CAP.
1993	4152	**3596**	3459	1340	1325
1994	4268	**3956**	3859	1467	1410
1995	4387	**6601**	6360	1595	1537
1996	4509	**6820**	6540	1780	1789
1997	4635	**7102**	6789	1970	1895
1998	4764	**7345**	7123	2146	2020
1999	4897	**7600**	7355	2486	2310

year	**x**	**y**	**xy**	**x2**	**y'**	**y-y'**	**(y-y')2**	**(y'-y-)2**	**(y-y-)2**
1993	**3596**	11.63	41821.48	12931216	11.0	0.6	0.4	0.9	0.1
1994	**3956**	10.57	41814.92	15649936	11.1	-0.6	0.3	0.7	1.9
1995	**6601**	11.75	77561.75	43573201	12.1	-0.4	0.1	0.0	0.0
1996	**6820**	12	81840	46512400	12.2	-0.2	0.0	0.1	0.0
1997	**7102**	12.31	87425.62	50438404	12.3	0.0	0.0	0.1	0.1
1998	**7345**	12.64	92840.8	53949025	12.4	0.2	0.1	0.2	0.5
1999	**7600**	12.8	97280	57760000	12.5	0.3	0.1	0.3	0.7
	43020	**83.7**	**520584.6**	**280814182**	**83.7**	**0.0**	**1.0**	**2.3**	**3.4**

Y- = **11.9571429**

X- = **6145.71429**

B = 43317.99 / 114978874

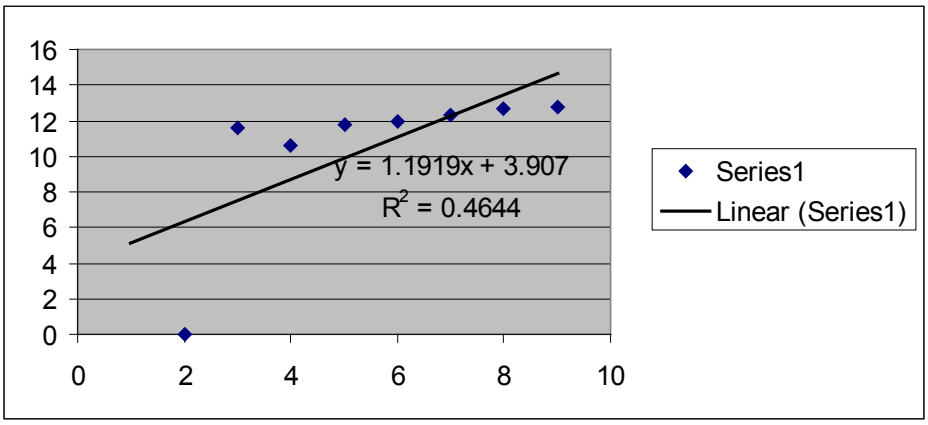
0.000

A = **Y- - BX =** **9.6**

Y = **11.9571429**

Syx = **0.4** 0.0

r2 = **0.831**



GNP:

POPULATION: **IN 000'**

GDP/GNP **IN 000 $**

YEAR	POP.	GDP	**GNP**	GDP/CAP.	GNP/CAP.
1993	4152	3596	**3459**	1340	1325
1994	4268	3956	**3859**	1467	1410
1995	4387	6601	**6360**	1595	1537
1996	4509	6820	**6540**	1780	1789
1997	4635	7102	**6789**	1970	1895
1998	4764	7345	**7123**	2146	2020
1999	4897	7600	**7355**	2486	2310

year	**x**	**y**	**xy**	**x2**	**y'**	**y-y'**	**(y-y')2**	**(y'-y-)2**	**(y-y-)2**
1993	**3459**	11.63	40228.17	11964681	11.0	0.6	0.4	0.9	0.1
1994	**3859**	10.57	40789.63	14891881	11.1	-0.6	0.3	0.7	1.9
1995	**6360**	11.75	74730	40449600	12.1	-0.4	0.1	0.0	0.0
1996	**6540**	12	78480	42771600	12.2	-0.2	0.0	0.1	0.0
1997	**6789**	12.31	83572.59	46090521	12.3	0.0	0.0	0.1	0.1
1998	**7123**	12.64	90034.72	50737129	12.4	0.2	0.0	0.2	0.5
1999	**7355**	12.8	94144	54096025	12.5	0.3	0.1	0.3	0.7
	41485	**83.7**	**501979.1**	**261001437**	**83.7**	**0.0**	**1.0**	**2.3**	**3.4**

Y- = **11.9571429**

X- = **5926.42857**

B = 41559.27 / 106004834

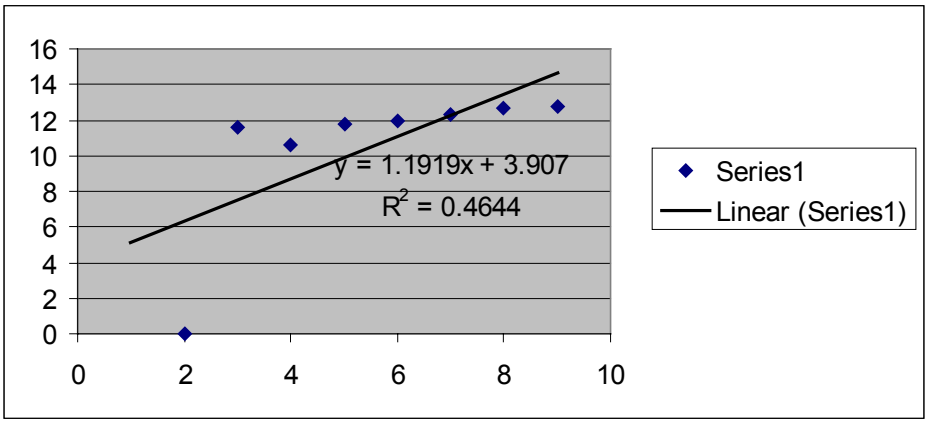
0.000

A = **Y- - BX =** **9.6**

Y = **11.9571429**

Syx = **0.4** 0.0

r2 = **0.830**



GDP/CAPITA:

POPULATION: **IN 000'**

GDP/GNP **IN 000 $**

YEAR	POP.	GDP	GNP	**GDP/CAP.**	GNP/CAP.
1993	4152	3596	3459	**1340**	1325
1994	4268	3956	3859	**1467**	1410
1995	4387	6601	6360	**1595**	1537
1996	4509	6820	6540	**1780**	1789
1997	4635	7102	6789	**1970**	1895
1998	4764	7345	7123	**2146**	2020
1999	4897	7600	7355	**2486**	2310

year	**x**	**y**	**xy**	**x2**	**y'**	**y-y'**	**(y-y')2**	**(y'-y-)2**	**(y-y-)2**
1993	**1340**	11.63	15584.2	1795600	11.2	0.4	0.2	0.6	0.1
1994	**1467**	10.57	15506.19	2152089	11.4	-0.8	0.7	0.3	1.9
1995	**1595**	11.75	18741.25	2544025	11.6	0.2	0.0	0.1	0.0
1996	**1780**	12	21360	3168400	11.9	0.1	0.0	0.0	0.0
1997	**1970**	12.31	24250.7	3880900	12.2	0.1	0.0	0.1	0.1
1998	**2146**	12.64	27125.44	4605316	12.5	0.2	0.0	0.2	0.5
1999	**2486**	12.8	31820.8	6180196	13.0	-0.2	0.0	1.1	0.7
	12784	**83.7**	**154388.6**	**24326526**	**83.7**	**0.0**	**1.0**	**2.4**	**3.4**

Y- = **11.9571429**

X- = **1826.28571**

B = 10699.26 / 6855026

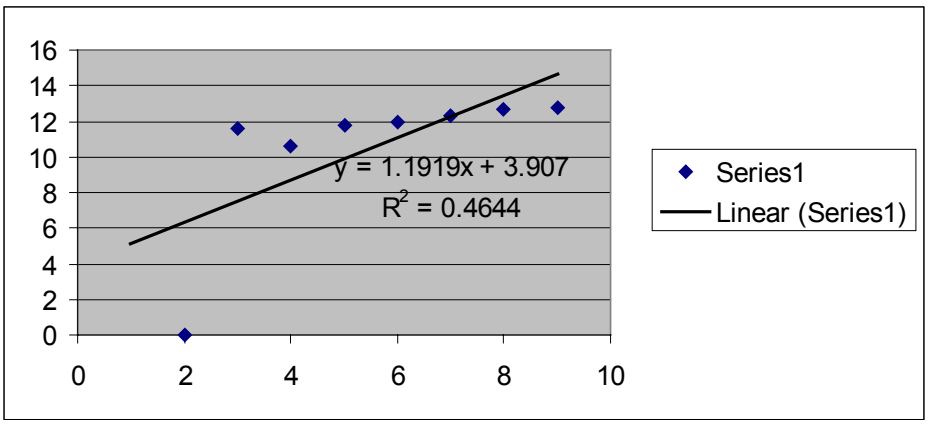
0.002

A = **Y- - BX =** **9.1**

Y = **11.9571429**

Syx = **0.4** 0.0

r2 = **0.840**



GNP/CAPITA:

POPULATION: **IN 000'**

GDP/GNP **IN 000 $**

YEAR	POP.	GDP	GNP	GDP/CAP.	**GNP/CAP.**
1993	4152	3596	3459	1340	**1325**
1994	4268	3956	3859	1467	**1410**
1995	4387	6601	6360	1595	**1537**
1996	4509	6820	6540	1780	**1789**
1997	4635	7102	6789	1970	**1895**
1998	4764	7345	7123	2146	**2020**
1999	4897	7600	7355	2486	**2310**

year	**x**	**y**	**xy**	**x2**	**y'**	**y-y'**	**(y-y')2**	**(y'-y-)2**	**(y-y-)2**
1993	**1325**	11.63	15409.75	1755625	11.2	0.5	0.2	0.6	0.1
1994	**1410**	10.57	14903.7	1988100	11.3	-0.8	0.6	0.4	1.9
1995	**1537**	11.75	18059.75	2362369	11.6	0.2	0.0	0.2	0.0
1996	**1789**	12	21468	3200521	12.0	0.0	0.0	0.0	0.0
1997	**1895**	12.31	23327.45	3591025	12.2	0.1	0.0	0.1	0.1
1998	**2020**	12.64	25532.8	4080400	12.4	0.2	0.0	0.2	0.5
1999	**2310**	12.8	29568	5336100	13.0	-0.2	0.0	1.0	0.7
	12286	**83.7**	**148269.5**	**22314140**	**83.7**	**0.0**	**0.9**	**2.5**	**3.4**

Y- = **11.9571429**

X- = **1755.14286**

B = 9547.95 / 5253184

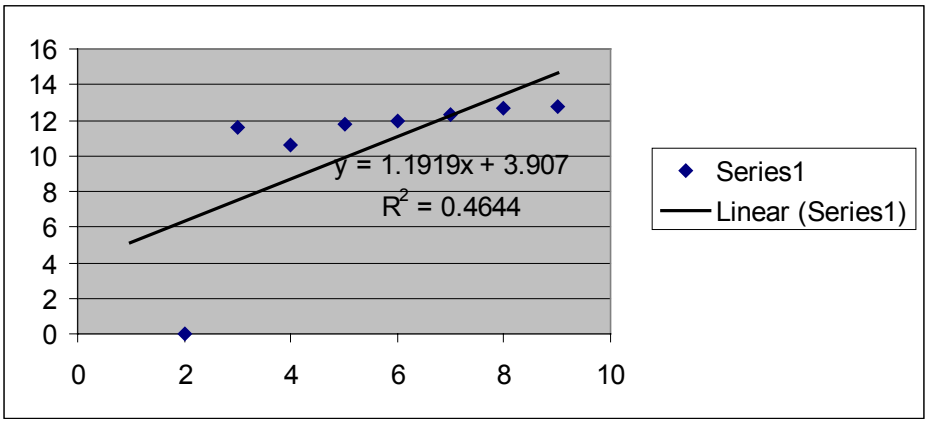
0.002

A = **Y- - BX =** **8.8**

Y = **11.9571429**

Syx = **0.4** 0.0

r2 = **0.857**



Appendix C:

Imported commodities via Aqaba Port in 1998

	Flour	Rice	Sugar	Grains	Veg.Oil	Cars	Steel	Timber	Min. Oil	Const.Mater.	Ammonia	Bagged Cargo	Frozen Meat	G.C	Total
USA&Canada	**555**	**41349**	**000**	**597577**	**23166**	**7577**	**942**	**3006**	**1066**	**1264**	**33000**	**6036**	**2922**	**80710**	**799170**
USA	555	41276	000	573903	22665	7576	869	1147	1045	1264	000	5656	2788	77840	736584
Canada	000	73	000	23674	501	1	73	1859	21	000	33000	380	134	2870	62586
West Europe	**4801**	**2125**	**88538**	**265950**	**20121**	**34590**	**47414**	**5696**	**6472**	**7579**	**97**	**103301**	**19387**	**353924**	**959995**
Britain	000	000	000	202	42	3053	1565	32	170	903	000	11752	483	29185	47387
France	129	501	10032	243749	739	1147	524	83	500	392	000	3102	7538	37283	305719
Netherl.	000	139	444	428	5462	3228	1714	000	948	338	000	17734	5831	51718	87984
Belgium	000	364	70026	4139	569	10791	27839	362	2852	1797	000	35366	1831	92110	248046
Italy	4666	22	2006	1291	3085	935	6605	167	1859	2136	000	18431	674	55139	97016
Germany	6	172	6030	16120	1323	14674	5935	000	82	1597	000	10819	1080	45662	103500
Spain	000	927	000	21	138	629	1110	37	24	18	000	2690	1925	27561	35080
Greece	000	000	000	000	67	000	469	21	37	217	000	1811	000	2331	4953
Sweden	000	000	000	000	000	133	429	4963	000	000	000	177	000	10893	16795
Denmark	000	000	000	000	000	000	000	10	000	000	000	844	000	218	1072
Norway	000	000	000	000	000	000	000	000	000	131	97	147	000	231	606
Portugal	000	000	000	000	8696	000	1024	000	000	50	000	19	000	729	10518
Malta	000	000	000	000	000	000	000	000	000	000	000	000	25	429	454
Finland	000	000	000	000	000	000	000	21	000	000	000	409	000	435	865
E.Eur& Russia	**000**	**000**	**5848**	**210190**	**1429**	**4**	**314467**	**56**	**90**	**279**	**145706**	**5318**	**000**	**27897**	**711284**
Ukraine	000	000	000	27820	000	000	88584	000	000	000	140254	75	000	17673	274406
Russia	000	000	000	32376	000	000	211426	000	000	000	000	159	000	918	244879
Estonia	000	000	000	52500	000	000	000	000	000	000	000	000	000	000	52500
Latvia	000	000	000	47545	000	000	000	000	000	000	000	000	000	000	47545
Romania	000	000	000	33769	000	000	5477	41	90	279	1004	207	000	1936	42803
Croatia	000	000	000	16180	000	000	1062	000	000	000	512	904	000	1875	20533
Poland	000	000	5848	000	000	000	6527	000	000	000	000	201	000	1485	14061
Bulgaria	000	000	000	000	1429	1	1361	000	000	000	3936	3644	000	685	11056
Slovenia	000	000	000	000	000	3	30	15	000	000	000	128	000	3321	3497
Hungary	000	000	000	000	000	000	000	000	000	000	000	000	000	4	4
E.Mediteranean	**1582**	**000**	**000**	**462297**	**1000**	**90**	**12285**	**6**	**199**	**29**	**000**	**914**	**40**	**11278**	**489720**
Turkey	1560	000	000	462297	1000	31	12265	000	16	29	000	493	000	6978	484669
Cyprus	22	000	000	000	000	59	20	6	183	000	000	128	000	3736	4145
Israel	000	000	000	000	000	000	000	000	000	000	000	293	40	553	886
Lebanon	000	000	000	000	000	000	000	000	000	000	000	000	000	11	11
South America	**000**	**21**	**45180**	**358199**	**000**	**000**	**745**	**40**	**70**	**000**	**000**	**1416**	**905**	**95652**	**502228**
Argentina	000	000	000	358135	000	000	90	40	70	000	000	906	633	87859	447733
Brazil	000	21	45180	64	000	000	655	000	000	000	000	465	272	7294	53951
Guatemala	000	000	000	000	000	000	000	000	000	000	000	000	000	211	211
Costaric a	000	000	000	000	000	000	000	000	000	000	000	000	000	131	131
Peru	000	000	000	000	000	000	000	000	000	000	000	21	000	70	91

Mexico	000	000	000	000	000	000	000	000	000	000	000	000	000	87	87
Colombia	000	000	000	000	000	000	000	000	000	000	000	24	000	000	24
N&W. Africa	**000**	**30845**	**000**	**340**	**1026**	**151**	**15754**	**86**	**28**	**000**	**20735**	**11559**	**283**	**222921**	**303728**
Egypt	000	30845	000	340	1026	148	3424	26	28	000	20735	11321	207	220102	288202
Libya	000	000	000	000	000	000	11778	000	000	000	000	175	000	8	11961
Algeria	000	000	000	000	000	000	000	000	000	000	000	000	000	1447	1447
Morocco	000	000	000	000	000	000	552	000	000	000	000	000	000	534	1086
Tunisia	000	000	000	000	000	3	000	000	000	000	000	20	000	776	799
Ivory Cost	000	000	000	000	000	000	000	60	000	000	000	000	000	26	86
Namibia	000	000	000	000	000	000	000	000	000	000	000	000	76	000	76
Ghana	000	000	000	000	000	000	000	000	000	000	000	43	000	27	70
Nigeria	000	000	000	000	000	000	000	000	000	000	000	000	000	1	1
Japan & Far East	**000**	**24247**	**18**	**21**	**124432**	**36643**	**31260**	**69466**	**1080**	**1113**	**60**	**45181**	**3320**	**249425**	**586266**
Malaysia	000	000	000	000	108827	1519	51	4470	43	000	000	2874	000	6594	124378
Indonesia	000	000	000	000	13233	1064	515	62534	000	22	000	416	192	42055	120031
Singapore	000	8379	000	000	2034	598	2287	1491	915	69	60	11159	2792	81433	111217
China	000	2004	18	000	33	64	6741	40	45	726	000	22374	176	54547	86768
Korea	000	000	000	000	000	14643	10242	30	67	21	000	5980	000	31649	62632
Japan	000	000	000	21	84	18091	591	000	000	209	000	516	64	13433	33009
Taiwan	000	108	000	000	000	8	10833	901	10	19	000	1633	25	6141	19678
Vietnam	000	13756	000	000	000	000	000	000	000	000	000	000	000	4250	18006
Thailand	000	000	000	000	221	656	000	000	000	18	000	178	71	9077	10221
Philippines	000	000	000	000	000	000	000	000	000	29	000	51	000	246	326
South West Asia	**000**	**6880**	**000**	**000**	**000**	**1260**	**1081**	**000**	**14**	**000**	**12016**	**67717**	**7370**	**29705**	**126043**
India	000	6230	000	000	000	1231	1081	000	14	000	12000	66981	7365	15944	110846
Srilanka	000	000	000	000	000	21	000	000	000	000	000	736	5	11444	12206
Pakistan	000	628	000	000	000	2	000	000	000	000	16	000	000	1404	2050
Iran	000	000	000	000	000	6	000	000	000	000	000	000	000	553	559
Bngladesh	000	22	000	000	000	000	000	000	000	000	000	000	000	360	382
Australia &Newz.	**000**	**541**	**000**	**33250**	**758**	**117**	**64**	**000**	**000**	**000**	**000**	**527**	**11673**	**57270**	**104200**
Australia	000	541	000	33250	758	117	64	000	000	000	000	527	923	56131	92311
Newzeland	000	000	000	000	000	000	000	000	000	000	000	000	10750	1139	11889
Arab Gulf States	**000**	**791**	**000**	**60**	**505**	**391**	**1157**	**000**	**10996**	**15**	**645216**	**8246**	**2721**	**24222**	**694320**
S.Arabia	000	24	000	60	000	158	000	000	10885	000	597946	56	61	701	609891
G.States	000	729	000	000	80	208	1115	000	111	15	47270	7601	2213	17935	77277
Yemen	000	38	000	000	425	25	42	000	000	000	000	589	447	5586	7152
S. & East Africa	**000**	**773**	**000**	**43**	**77**	**71**	**21944**	**000**	**26**	**272**	**388**	**20454**	**347**	**12387**	**56773**
S.Africa	000	000	000	43	18	000	21543	000	000	272	388	712	347	6569	29892
Sudan	000	000	000	000	000	26	000	000	000	000	000	17811	000	563	18400

Djibouti	000	773	000	000	59	39	401	000	26	000	000	1749	000	4360	7452
Kenya	000	000	000	000	000	4	000	000	000	000	000	77	000	817	898
Tanzania	000	000	000	000	000	2	000	000	000	000	000	60	000	69	131
Total	**6938**	**107572**	**139584**	**1927927**	**172514**	**80894**	**447113**	**78356**	**20041**	**10551**	**857218**	**270669**	**48968**	**1165382**	**5333727**

Source:Aqaba Port Statistics Sheet 1998

Main imported and exported commodities from 1990-1998 in 000 tons

Imports	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**
General Cargo	1392	1213	1579	1793	1226	1062	1020	1370	1165
Grains	2848	2307	2441	1718	996	1589	1343	1607	1928
Flour	11	270	33	27	4	24	39	5	7
Sugar	557	316	648	356	356	503	428	193	140
Other bagged cargo	364	228	309	283	231	566	550	279	516
Steel	326	315	459	406	332	474	465	364	447
Cars, Vehicles, Tyres	31	10	32	65	36	38	52	63	81
Mineral oil	274	507	17	7	7	18	18	27	20
Vegetable oil	112	156	233	244	213	283	163	272	173
Ammonia & Sulphur	249	226	275	354	523	520	534	598	857
Total	**6164**	**5548**	**6022**	**5253**	**3924**	**5077**	**4612**	**4778**	**5334**
Exports									
Phosphate	4874	4246	4246	3556	3825	3878	4350	4367	3729
Chemical fertilisers	668	663	549	412	518	637	674	724	1068
General cargo	91	119	139	102	108	151	188	182	389
Re-exports	43	17	27	26	33	31	38	57	46
Transhipment	5	000	1	1	1	8	72	92	16
Transit	349	37	39	28	41	46	47	77	64
Empty containers	82	62	102	100	105	97	113	125	157
Potash	1394	1265	1235	1452	1501	1722	1698	1447	1508
Cement	1366	1268	1006	695	516	109	216	464	333
Total	**8872**	**7677**	**7362**	**6381**	**6648**	**6679**	**7396**	**7535**	**7310**

Source: Aqaba Port Statistics Sheet 1998