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**DEVELOPMENT OF CONTAINER AND BREAK-BULK FLEETS
IN THE ESCWA REGION**

October 1987

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Explanatory notes and abbreviations

| | |
|---------------|---|
| Break-bulk | Freight handled in loose form, not in a container or as any other kind of unit load |
| Cellular ship | A ship with holds divided into units suitable for containers |
| C.I.F. | Cost, insurance and freight |
| DWT | Deadweight tonnage, the total load capacity of a ship |
| LCL | Less than container load |
| lo-lo | Lift on - Lift off |
| m | metre |
| NSCSA | National Shipping Company of Saudi Arabia |
| SABIC | Saudi Basic Industries Corporation |
| SADAF | Saudi Petrochemical Company |
| ro-ro | Roll on - Roll off |
| TEU | Twenty-foot equivalent unit equalling a container 8 feet wide, 8 feet deep and 20 feet long |
| UNCTAD | United Nations Conference on Trade and Development |

INTRODUCTION

The world container shipping industry is currently experiencing a period of rapid expansion and profound structural change resulting from a number of factors. One of them has been the containerisation of several break-bulk trades, such as those between Europe and South America, East Africa and the Indian sub-continent. This development has not had a strong impact on the balance between supply and demand, since in some instances new containers replaced existing break-bulk services and were only introduced after much deliberation and rationalization by the lines involved.

This containerisation strategy was first adopted by European and then by the Japanese and later by other Far Eastern carriers. Another important innovation which has been adopted by the current container trades was the use of chartered fleets. Thus in 1984 about 34 per cent of the total world TEU capacity, and 43 per cent of all container carrying vessels, were chartered.

A number of attempts have been made to implement significant international measures to regulate liner shipping. The United Nations Convention on a Code of Conduct for Liner Conferences entered into force in October 1983. After five years, i.e. in 1988, a review of the Code is due to take place and provisions in the Code can be amended or withdrawn.

This present study is based upon the latest developments in container shipping and in containerisation of international trade. It was prepared in accordance with the revised ESCWA transport programme of work and priorities for the biennium 1986-1987 as an output under programme element 1.1; thereof "Development of maritime transport in Western Asia".

The study includes five chapters. The development of container and break-bulk sea-borne trade in the world and in the ESCWA region is discussed in the first and second chapters respectively. The third chapter covers future prospects of container and break-bulk sea-borne trade in Western Asia while the fourth chapter is dedicated to the development issues and patterns of container and break-bulk fleets in selected ESCWA countries. The conclusions and the recommendations of the study are presented in the last chapter.

With the publication of the present study on container and break-bulk fleets, the ESCWA Transport and Communications Division has completed in-depth studies on various fields of shipping and fleet development in Western Asia. In fact, studies on development of inland waterways and coastal shipping^{1/} as well as on development of national merchant marines and multinational shipping enterprises in the ESCWA region^{2/} were already finalized during

^{1/} United Nations Economic Commission for Western Asia, Development of Inland Waterways and Coastal Shipping, Baghdad, 1 March 1984 (E/ECWA/TCT/84/7).

^{2/} Ibid., Development of National Merchant Marines and Promotion of Multinational Shipping Enterprises, Baghdad, 10 March 1984 (E/ECWA/TCT/84/6).

1984-1985 biennium, while another study was published in 1986 on possibilities of expanding the bulk fleets in Western Asia.^{1/}

On the basis of these previous studies, the Transport and Communications Division envisages, in its 1988-1989 work programme, the formulation of a regional maritime transport strategy including action oriented policies and project profiles in the field of shipping and ports.

This activity will also be linked to the programmes of action for the implementation of the Transport and Communications Decade in Western Asia (1985-1994), particularly within the framework of maritime transport sub-sector.

^{1/} United Nations Economic and Social Commission for Western Asia, The Possibilities of Expanding the Bulk Fleets in Western Asia, Baghdad, April 1986 (E/ESCWA/TCT/86/13).

1. DEVELOPMENT OF THE WORLD CONTAINER AND
BREAK-BULK SEA-BORNE TRADE

1.1 Development of the world dry cargo sea-borne trade

The container traffic is part of the world dry cargo sea-borne trade and makes up around 55 to 60 per cent of that trade.

World dry cargo sea-borne trade grew from 2.3 billion tons in 1970 to 3.7 billion tons in 1985, representing a growth of 23.2 per cent between 1970 and 1975, 29.5 per cent between 1975 and 1980 and only 1.4 per cent between 1980-1985.

The decrease of the trade in the latter period was attributed mainly to the world-wide economic recession in 1980-1984.

Table 1.1. World dry cargo sea-borne trade in 1970-2000
(millions of tons)

| | 1970 | 1975 | 1980 | 1985 ^{a/} | 1990 ^{a/} | 1995 ^{a/} | 2000 ^{a/} |
|---------------------------|-------|-------|-------|--------------------|--------------------|--------------------|--------------------|
| Goods loaded/ unloaded | 2,292 | 2,823 | 3,656 | 3,708 | 3,906 | 4,063 | 4,194 |

Source: "Review of maritime transport 1971-1985"

a/ Forecast prepared by ESCWA.

According to data received by ESCWA, the world dry cargo sea-borne trade is expected to increase to 3.9 billion tons by 1990, 4 billion tons by 1995 and 4.1 billion tons by 2000, or by 6.3 per cent during 1984-1990, by 4 per cent during 1990-1995 and by 3.2 per cent during 1995-2000.

Table 1.2. Average annual rates of growth of the world dry cargo sea-borne trade
(per cent)

| | 1970-1975 | 1975-1980 | 1980-1985 | 1985-1990 | 1990-1995 | 1995-2000 |
|---------------------------|-----------|-----------|-----------|-----------|-----------|-----------|
| Goods loaded/ unloaded | 4.25 | 5.32 | 0.28 | 1.05 | 0.80 | 0.64 |

Source: Based on table 1.1.

Analysis of the average annual rates of growth of the world dry cargo sea-borne trade showed a decrease which started in 1981; the average rate of growth was only 0.28 per cent over the period 1980-1985, in comparison with 5.32 per cent in the previous period 1975-1980. After 1985, it was expected

that growth would increase slightly to 1.05 per cent, and remain at a level not higher than 1 per cent up to the year 2000.

1.2 World container port and traffic development

The past few years have witnessed a boom in container movements through the world's ports and have seen rapid acceleration in the growth of international container traffic.

The world port container traffic grew from 7.1 mn TEU in 1970 to 55.7 mn TEU in 1985 or by 145 per cent between 1970 and 1975, by 113.8 per cent between 1975 and 1980 and by 49.7 per cent between 1980 and 1985. The growth of the traffic decreased in the latter period; this decrease was accompanied by a reduction of the world dry cargo sea-borne trade in the same period. In 1980 and 1982, the overall growth of international, domestic and trans-shipment movements was halved in comparison with successive years; 1984 witnessed the highest level of container movement through the world's ports.

World container traffic reached in 1984 52.7 mn TEU. In 1983 the traffic was 45.6 mn TEU, equivalent to 15.6 per cent growth. It should be noted that growth in 1983/1984 was only 6.5 per cent, in 1984/1985 only 5.7 per cent.

With regard to individual performances by countries, the United States and Japan occupied in 1984 the leading positions with 11.1 mn TEU, and 4.8 mn TEU respectively. The United States reached the 11 mn TEU from a 1983 total of 9.5 mn TEU, an increment of 16.5 per cent. Japan, in second place, similarly experienced a significant increase to 4.7 mn TEU from 4.1 mn TEU.

Amongst the European countries, Belgium, the Federal Republic of Germany, Italy and the Netherlands experienced increases of 18.5 per cent, 16.8 per cent, 17.9 per cent and 10.6 per cent respectively in 1983/1984 with a volume of traffic of 1.5 mn TEU, 2.1 mn TEU, 1.6 mn TEU and 2.7 mn TEU.

Table 1.3. World container traffic in 1970, 1975, 1980, 1985, 1990, 1995 and 2000
(millions of TEU)

| 1970 | 1975 | 1980 | 1985 | 1990 ^{a/} | 1995 ^{a/} | 2000 ^{a/} |
|------|------|------|------|--------------------|--------------------|--------------------|
| 7.1 | 17.4 | 37.2 | 55.7 | 69.5 | 86.0 | 102.5 |

Source: Containerisation International

^{a/} ESCWA forecast.

According to the data received by ESCWA, world container traffic is expected to increase by 25 per cent in the period 1985-1990, by 24 per cent in 1990-1995 and by 19 per cent in 1995-2000. This means that world container traffic would be 70 mn TEU by 1990, 86 mn TEU by 1995 and 102.5 mn TEU by 2000.

Substantial growth of world container traffic is also anticipated by the Fairplay World Shipping Year Book, which forecasted that world container traffic would have increased to 76 mn TEU by 1990 and 114.6 mn TEU by 2000, equivalent to a 106 per cent increase on the 1985 level of 55.7 mn TEU.

Table 1.4. Average annual rates of growth of world container traffic
(per cent)

| 1970-1975 | 1975-1980 | 1980-1985 | 1985-1990 | 1990-1995 | 1995-2000 |
|-----------|-----------|-----------|-----------|-----------|-----------|
| 19.62 | 16.41 | 8.42 | 4.52 | 4.35 | 3.57 |

Source: Based on table 1.3.

However, despite the substantial growth of world container traffic in terms of TEU, an analysis of the average annual rates of growth of this traffic showed a tendency towards its gradual reduction. According to the data received shown in table 1.4 the average annual rates were practically halved every few years from 16.4 per cent in 1975-1980 to 8.4 per cent in 1980-1985 and 4.5 per cent in 1985-1990. It is expected that rates of this decrease will remain at the same level of 4.4-3.6 per cent until 1995.

As regards destination, Fairplay predicted that European throughput overall will expand by about 90 per cent over the period 1985-2000, rising from 17.0 mn TEU to 32.2 mn TEU. North American throughput is expected to total some 24.9 mn TEU in 2000, an 82 per cent rise on the 13.65 mn TEU handled in 1985. Even more rapid traffic growth is anticipated in the Far East Asia region, which is expected to be handling 25.8 mn TEU in 2000, a 109.6 per cent increase on the 1985 of throughput which totalled some 12.31 mn TEU.

Table 1.5. Forecast of world container traffic by major destination
(millions of TEU)

| Destination | 1985 | 2000 | Growth % |
|-------------------|-------|-------|----------|
| European | 17.0 | 32.2 | 89.4 |
| North America | 13.65 | 24.9 | 82.4 |
| Far East and Asia | 12.31 | 25.81 | 109.6 |

Source: Fairplay World Shipping Year Book.

Table 1.6. World's leading container ports by region and country
in 1984 and 1985

| Region | Port | Country or area | Millions of TEU | | Percentage change 1984/1985 |
|--------------------------------------|--------------------|-----------------------------------|-----------------|-------|--------------------------------|
| | | | 1985 | 1984 | |
| North America | New York | USA | 2.37 | 2.24 | 5.8 |
| | Los Angeles | USA | 1.10 | 0.91 | 20.9 |
| | Montreal | Canada | 0.48 | 0.43 | 11.6 |
| | Houston | USA | 0.36 | 0.37 | -2.7 |
| North Europe | Rotterdam | Netherlands | 2.65 | 2.55 | 3.9 |
| | Antwerp | Belgium | 1.38 | 1.25 | 10.4 |
| | Hamburg | Federal Republic of Germany | 1.16 | 1.07 | 8.4 |
| | Felixstowe | United Kingdom | 0.81 | 0.78 | 3.8 |
| | Le Havre | France | 0.57 | 0.61 | -6.6 |
| Southern Europe and Mediterranean | Leghorn | Italy | None | 0.45 | |
| | Marseilles-Fos | France | 0.49 | 0.38 | 28.9 |
| | Algeciras-La Linea | Spain | 0.35 | 0.34 | 2.9 |
| | Piraeus | Greece | 0.20 | 0.18 | 11.1 |
| Asia and Far East | Hong Kong | Hong Kong | 2.29 | 2.11 | 8.5 |
| | Kobe | Japan | 1.85 | 1.83 | 1.1 |
| | Kaohsiung | Taiwan | 1.90 | 1.78 | 6.7 |
| | Singapore | Singapore | 1.70 | 1.55 | 9.7 |
| | Busan | Republic of Korea | 1.15 | 1.05 | 9.5 |
| South and Central America | San Juan | Puerto Rico | 0.88 | 0.77* | 14.3 |
| | Santos | Brazil | | 0.34 | |
| | Limon/Moin | Costa Rica | | 0.15 | |
| | Kingston | Jamaica | | 0.15 | |
| | Puerto Cortes | Honduras | | 0.14 | |
| | Port of Spain | Trinidad | | 0.10 | |
| Middle East | Jeddah | Saudi Arabia | 0.79 | 0.80 | -1.3 |
| | Dammam | Saudi Arabia | | 0.36 | |
| | Port Rashid | U.A.E. | 0.37 | 0.29 | |
| | Shuaiba | Kuwait | | 0.13 | |
| | Mina Sulman | Bahrain | | 0.11 | |

Table 1.6. (Cont'd)

| Region | Port | Country or area | Millions of TEU | | Percentage change 1984/1985 |
|---------|------------|-----------------|-----------------|------|-----------------------------|
| | | | 1985 | 1984 | |
| Africa | Durban | South Africa | | 0.45 | |
| | Abidjan | Ivory Coast | | 0.15 | |
| | Alexandria | Egypt | | 0.14 | |
| | Mombasa | Kenya | 0.10 | 0.09 | 11.1 |
| Oceania | Melbourne | Australia | 0.56 | 0.53 | 5.7 |
| | Sydney | Australia | | 0.40 | |
| | Auckland | New Zealand | | 0.16 | |

Source: Compiled from: Containerisation International.

The data from table 1.6 show the container traffic by region and country through the world's leading container ports.

In North America, the east coast port of New York occupied the first position with 2.37 mn TEU handled in 1985, in comparison with 2.24 mn TEU handled in 1984; the increase in traffic between 1984 and 1985 was thus around 6 per cent. On the west coast, Los Angeles experienced a remarkable 21 per cent upturn, handling over 1 million TEU in 1985. On the other hand Seattle dropped 20 per cent. The success of Los Angeles is explained by the increase in calls of vessels, particularly liner vessels. The largest container port in the Gulf is Houston, with 360,000 TEU in 1985. Canada was represented by the port of Montreal, which had an annual throughput of 480,000 TEU in 1985 in comparison with 430,000 TEU in 1984, equivalent to 11.6 per cent growth.

In Northern Europe, Rotterdam continued to occupy the leading place, not only among European countries but all over the world with 2.65 mn TEU in 1985. The second position was occupied by Antwerp (Belgium) and the third by Hamburg (Federal Republic of Germany). Felixstowe (United Kingdom) handled 810,000 TEU and Liverpool, the United Kingdom's principal west coast container port, experienced a 10 per cent rise in TEU throughput in 1985 with 132,000 TEU. Antwerp, seventh in the world container port traffic league, handled 1.38 mn TEU in 1985.

A record level of transit tonnage, according to Containerisation International, was reported by Amsterdam in 1985. Although its container traffic fell from 85,400 TEU to 77,500 TEU or by 9.3 per cent, ro-ro traffic increased by about one third to 400,000 tons. Hamburg's containerised tonnage rose to 10.8 mn tons, accounting for 51 per cent of its 21.2 mn tons of general cargo compared with 47 per cent a year earlier. Hamburg's results for the first quarter of 1986 showed a rise of 1.9 per cent which it hoped to maintain throughout the remainder of that year. The year-end figure was expected to be around 1.18 mn TEU.

The United Kingdom's port of Felixstowe continued to break its own records year after year. 1985 saw over half a million boxes handled, approximately 814,000 TEU, with cargo moving up from 9 to over 10 mn tons in weight.

Le Havre, the leading French container port on the North European coast suffered an 8 per cent fall in container throughput.

Le Havre's estimated 1986 year-end total is around 590,000 TEU, a gain of 4 per cent. Complete computerization of container handling was expected to be accomplished by the end of 1986.

Among South European and Mediterranean ports Leghorn (Italy) is the leading container port. The Marseille-Fos complex is second only to Leghorn and gave an impressive performance in 1985. The port handled 488,000 TEU, a rise of 29 per cent in comparison with 1984, landing 1.8 mn tons of cargo and shipping out 2.6 mn tons. Third rank in this league is occupied by the Spanish port of Alger-Ciras-La Linea, which was undergoing major development of its container traffic. Piraeus, the leading port of Greece, handled around 200,000 TEU in 1985. Trans-shipment movement through this port in the first half of 1986 doubled in comparison with the same period in the previous year, which led authorities to commence construction of the new container terminal in addition to existing ones.

In the Far East and Asian region the leading container ports in 1985 remained in the same positions namely: Hong Kong with 2.29 mn TEU, Kobe (Japan) with 1.85 mn TEU and Kaohsiung (Taiwan) with 1.90 mn TEU.

Hong Kong experienced a 9 per cent gain in TEU in 1985 over 1984. This compares with a 1984 increase of almost 15 per cent over the 1983 level of box traffic. By the end of 1986 the traffic was around 2.5 mn TEU.

Taiwan is said to be planning to increase container capacity at its major port in order to capture more trans-shipment traffic from Hong Kong. Kaohsiung, the country's main container port, handled an extra 6 per cent in 1985 and reached about 2 million TEU in 1986. Among the Japanese ports Yokohama had significant growth in container traffic, with a 20.2 per cent gain in 1985 in comparison with 1984. In 1986 the traffic in this port reached about 1.4 mn TEU.

In the Asian area, Singapore, Hong Kong and Kaohsiung are considered as the largest trans-shipment centres. Services from these points reach the Philippines, Indonesia, Thailand, China and Malaysia. In South Asia, Colombo (Sri Lanka) has been becoming a major trans-shipment base for feeding Pakistan, India and Bangladesh. India has designated four main ports as container terminal development centres, and has given them considerable emphasis in national planning.

Indonesia has determined that all exports should be directed over four main ports, and trans-shipment via Singapore is discouraged. Thailand has decided to go ahead with projects to build two deep-water ports.

In South and Central America, San Juan (Puerto Rico) is the leading port of the region with about 920,000 TEU handled in 1984. This port is followed by Santos (Brazil) which handled around two thirds of the country's total throughput, and increased its throughput by about 60 per cent over the period 1983/1984. The third position is occupied by port of Limon/Moin (Costa Rica) with practically the same level of throughput as the port of Kingston in Jamaica.

As regards container traffic by country, Venezuela was one of several countries in the Caribbean, Central and South Americas region which showed a high increase in container handling. Other countries in the region active in this field were Ecuador and Mexico, which had a high level of container activity.

In the Oceania area the Australian ports of Melbourne and Sydney are on the top of the list with around 530,000 TEU and 400,000 TEU respectively handled in 1984. Among the New Zealand ports, Auckland occupied the leading position with a throughput of around 161,000 TEU.

Middle East ports generally suffered in 1984 and three, namely Dammam, Port Rashid and Beirut, registered major losses of container traffic.

Despite the fact that the Saudi port of Dammam lost over 36,000s TEU in 1984, it held onto second place in the Middle East ports league with about 360,000 TEU in 1984. The top place in the list of leading ports in the region continued to be occupied by Jeddah (Saudi Arabia) with 790,000 TEU in 1986. The port of Mina Sulman (Bahrain) also showed significant progress in handling of containers in the region with 110,000 TEU per year.

In the African area there was a strong trend towards containerisation, particularly in the less developed areas such as East Africa. The South African port of Durban continued in first position followed by the port of Cape Town. On the west coast, the Ivory Coast port of Abidjan is the largest followed by Lagos/Apapa (Nigeria). Abidjan and the east coast port of Mombasa (Kenya) are the largest trans-shipment centres in Africa. The Nigerian port was built entirely to serve the country's import requirements while Abidjan handled both its own container traffic and that destined for the landlocked countries to the north: Mali, Burkuna Faso, Chad and others. In Mediterranean Africa the Egyptian port of Alexandria is the leading port.

The gradual expansion of containerisation of the coffee and tea trades and the relatively stable economic and political situation in Kenya have led to Mombasa's role as a regional container base.

1.3. Container traffic in developing countries

The developing countries' share of world container throughput has increased steadily, rising from a level of around 10 per cent in 1975 to 20.6 per cent in 1980 and 25.3 per cent in 1984. While world container traffic grew by 41.8 per cent in 1980-1984 the rate of growth for all developing countries was 73.9 per cent in the same period.

In 1986 the developing countries' traffic volume was at a level of around 42 mn TEU, as against the 13.3 mn TEU handled in 1984, i.e., and increase 216 per cent. The top three countries (or areas) were Hong Kong, Singapore and Saudi Arabia, all with container port turnovers in excess of 1 million TEU each year. The containerisation in developed countries started because the expensive labour impelled them to develop specialized cargo handling techniques with a high level of productivity - this despite the high cost of container terminals. On the other hand, the needs and resources of developing countries were not the same since labour was cheap and plentiful.

Table 1.7. Container traffic in developing countries in 1980-1984
(millions of TEU)

| Area | 1980 | 1981 | 1982 | 1983 | 1984 |
|-------------------------------------|--------|--------|--------|--------|--------|
| Southern and Eastern Asia | 4.186 | 4.963 | 5.371 | 6.223 | 7.069 |
| Western Asia | 1.639 | 1.988 | 2.278 | 2.416 | 2.674 |
| Latin America | 1.016 | 1.226 | 1.670 | 1.758 | 2.070 |
| Africa | 0.632 | 0.891 | 0.810 | 0.940 | 1.032 |
| Others | 0.193 | 0.,438 | 0.362 | 0.506 | 0.483 |
| Total developing countries | 7.666 | 9.506 | 10.491 | 11.843 | 13.328 |
| Total world | 37.163 | 40.576 | 42.845 | 45.570 | 52.715 |
| Developing countries of world, % | 20.6 | 23.4 | 24.0 | 26.0 | 25.3 |

Source: Calculated on the basis of data from the UNCTAD: Review of Maritime Transport, 1982-1985.

Nevertheless, containerisation in developed countries has created very strong pressures for developing countries, since the new technology must be matched at both ends of a trade route. The administrative and economic environments in the ports of developing countries are also different in some significant ways from the same systems in developed countries. There is, for example, relatively little competition between the ports of developing countries, mostly because there are fewer ports in each country and consequently little choice available to ship operators or shippers. The ports of developing countries are recognized as key elements in facilitating national trade, and national planning; therefore the development of ports, including their financing, very often is closely monitored and controlled by central governments.

This is at variance with the systems in many developed countries where local ports tend to have a large degree of autonomy and often must raise their own development fund. This difference may be largely attributed to the formative stage of many national transport networks in developing countries in which very important basic decisions often closely affecting ports are still being worked through, and for which financing is usually difficult and limited.

1.8. Average annual rates of growth of container traffic in developing countries
(per cent)

| Area | 1980/1981 | 1981/1982 | 1982/1983 | 1983/1984 |
|----------------------------|-----------|-----------|-----------|-----------|
| Southern and Eastern Asia | 18.6 | 8.2 | 15.9 | 13.6 |
| Western Asia | 21.3 | 14.6 | 6.1 | 10.7 |
| Latin America | 20.7 | 36.2 | 5.3 | 17.7 |
| Africa | 41.0 | -9.1 | 16.0 | 9.8 |
| Other | 126.9 | -17.4 | 39.8 | -4.5 |
| Total developing countries | 24.0 | 10.4 | 12.9 | 12.5 |
| Total world | 9.2 | 5.6 | 6.4 | 15.7 |

The increasing conversion of raw material and semi-finished export commodity trades to the container mode and the inauguration of direct-call container services have increased container volumes and the pressure to build dedicated container terminals in even more remote developing regions. In addition, political pressure for containerisation, primarily through the United Nations code of Conduct for Liner Conferences, has become more evident in some areas.

There are now major bases in most developing world regions, allowing neighbouring countries the option of constructing feeder container facilities in keeping with traffic requirements and available resources, without the need for major, and prohibitively expensive, terminal complexes. Such trans-shipment centres exist in Singapore, Hong Kong and Kaohsiung in South-East Asia, Abidjan in West Africa, Mombasa in Eastern Africa, Kingston and San Juan in the Caribbean area.

As regards regional data, table 1.7 shows that container traffic in developing countries has long been dominated by Southern and Eastern Asia, which have more than 50 per cent of the container traffic of all developing countries. Container traffic in Western Asia makes up around 20 per cent of this traffic followed by Latin America with 15 to 16 per cent. The share of the Africa region makes-up about 8 per cent only. The most significant growth in Latin America, where container traffic grew by about 104 per cent during 1980-1984. In other areas the growth was at the level of around 63 to 68 per cent.

As regards the rates of growth for container traffic in developing countries (see table 1.9), they were quite high in past years for all these developing countries, about 12 to 13 per cent, except in Latin America where their level was around 18 per cent in 1983-1984.

As regards future prospects, it is predicted that the developing countries throughput will represent about 35 per cent of world throughput by 1990 and 40 per cent by 2000.

1.4. World break-bulk sea-borne trade

Data from table 1.10 show that the volume of world break-bulk sea trade grew from 1,169 mn tons in 1970 to 1,537 mn tons in 1980 or by 31.5 per cent, but then decreased to 1,318 mn tons by 1985, equivalent to -14.2 per cent during the period of 1980-1985. This reduction was due to the world-wide recession in that period.

Data also show that the share of the break-bulk cargo sea-borne trade in total world dry cargoes is decreasing significantly: it fell from 51 per cent in 1970 to 35.5 per cent in 1985. This decrease is due to with the rapid growth of containerisation, and conversion growing volumes of break-bulk cargo into containerised cargoes.

Table 1.9. Development of world break-bulk sea-borne trade*
(Goods loaded/unloaded)
(millions of tons)

| | 1970 | 1975 | 1980 | 1985 |
|--|------|------|------|------|
| Break-bulk of the total dry cargo (per cent) | 51.0 | 45.2 | 42.0 | 35.5 |

Source: Estimated by ESCWA.

Break-bulk cargoes transported by sea include wheat and cement in bags, vehicles, machinery, fertilizer in bags, chemicals, food and other manufactures.

2. DEVELOPMENT OF ESCWA COUNTRIES CONTAINER AND BREAK-BULK SEA-BORNE TRADE

2.1 Container sea-borne trade

2.1.1. General

Containerisation continues to expand amongst ESCWA countries and moves are being undertaken to build and improve designated ro-ro and container facilities in the region. Although the area has long had experience with international deep sea ro-ro as a method of overcoming the problem of port congestion and, in some instances, rudimentary container handling equipment, the current schemes are not quite enough in some ESCWA countries to allow port authorities flexibility with various ship types being employed by leading operators in Middle East liner trades.

However, it should be mentioned that the lack of the necessary infrastructure amongst under-developed States in the ESCWA region has meant that containable cargo is still being shipped conventionally.

Ahead of local shipping lines in taking up containerisation has been a concerted effort of the region's port authorities to improve turnaround times and organize better onward transport. Many ESCWA countries ports now boast specialized container terminals or are planning to build them. For example, Bahrain's Mina Sulman, in trying for a position as the hub container port for the Gulf, is busy enlarging existing box handling facilities in response to demands by ship owners for fewer direct calls in the area.

In Saudi Arabia, the Saudi Port Authorities understandably concede that box cargo makes for more efficient handling. However, government concerns over illegal imports, such as drugs, alcohol and arms, make container use for shippers obligatory. Therefore shipping and containerisation of all boxes by the customs authorities causes considerable delays.

Saudi Arabia sees containerisation as a specialist function and has hired out terminal management to outside contractors. In Jeddah, for example, the three separate terminals are managed by Marine Transportation International (MTI). At Dammam container control is in the hands of Alireza Delta Transport, where onward shipment is made by rail to Riyadh dry port. Both ports have set aside areas for ro-ro operations as well as catering for ramp-equipped container/multi-purpose vessels. Jeddah's ro-ro berth can accommodate five ships simultaneously stern-on and an almost identical situation exists at Dammam. Container control in Saudi Arabian ports made it possible to reduce labour costs by around 15 per cent. This control not only aims to centralize and standardize information, but gives each of the authority's five major ports greater autonomy. The Saudi Arabia Port Authority has developed a sophisticated model for forecasting future import levels for a five-to-ten year period as the anticipated cargo mix. In 1985 their throughput reached around 50 million tons - with over half containerised.

Strategically, the port of Jeddah looks perhaps best placed to pick up one of the two calls allocated to the ESCWA region by the carriers.

In spite of the increasing charges to ESCWA region liner trades, the ESCWA Gulf ports are pushing ahead with container development.

The National Shipping Company of Saudi Arabia (NSCSA) has as a stated objective to enter the European/Middle East trade in addition to its existing services from the United States and the Far East. The NSCSA deep sea ro-ro operation, because of its size, is channelled through designated container terminals and as its vessels are equipped with their own tractor units this should not prove difficult for any new ports picked by the line for its proposed service.

As regards the volumes of ESCWA countries container traffic, it grew from 1.62 mn TEU in 1980 to 2.57 mn TEU in 1984, representing an increase of 58.6 per cent (see table 2.1). This growth was not even. Analysis of the average annual rates of growth of ESCWA countries container traffic showed that they dropped from 24.6 per cent in 1980/1981 to 9.2 per cent in 1981/1982, then rose to 13.6 per cent in 1982/1983 and dropped again to 2.8 per cent in 1983/1984.

As regards container traffic by country, data show that Saudi Arabia dominates in the region with about 46-48 per cent of the total ESCWA countries container traffic, followed by the United Arab Emirates with about 20 to 23 per cent, Kuwait by 10 per cent and Egypt with 7 to 8 per cent. Egypt developed its container traffic and achieved high rates of growth (101 per cent in 1980/1981 and 25 per cent in 1982/1983) in spite of decreases in 1981/1982 and 1983/1984.

Although Oman's container traffic constitutes only 3 to 4 per cent of ESCWA countries' traffic, its rates of growth were quite high, at a level of 36 to 55 per cent in the past few years. Owing to the continuing hostilities, Lebanon lost its position as a container traffic and trans-shipment centre in the East Mediterranean.

There was no growth at all in traffic in 1980/1981 and 1981/1982 (see table 2.2). However, in 1982/1983 there was a sharp increase in container traffic with a 237 per cent rate of growth. Because the data are not available for 1984 it was impossible to determine future trends in the development of containerisation in Lebanon. Despite the high rates of growth of container traffic in Kuwait, they showed a tendency towards reduction. Rates dropped from 30.4 per cent in 1980/1981 to 3.2 per cent in 1983/1984. Containerisation developed significantly in Bahrain, Jordan and the United Arab Emirates. In the past few years container traffic has increased substantially in the Syrian Arab Republic.

The ESCWA region is served by a number of major international container trades from Europe, the Far East, North America and Australia. There are also short sea and feeder lines operating within the region and outside. These activities will be explored in the next chapter.

2.1.2. Europe-ESCWA region trade

One of the major operators (in terms of annual capacity) on the Europe-Red Sea area trade is Ignazio Messina, with around 43,700 TEU capacity per year. This carrier was followed by Red Sea Express, with 40,317

Table 2.1. Container port traffic of ESCWA countries in 1980-1984
(millions of TEU)

| Country | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 |
|----------------------|--------------|--------------|--------------|--------------|--------------|-------|
| Bahrain | 0.060 | 0.122 | 0.093 | 0.095 | 0.112 | - |
| Egypt | 0.069 | 0.139 | 0.143 | 0.179 | 0.186 | - |
| Jordan | 0.042 | 0.077 | 0.104 | 0.086 | 0.102 | - |
| Kuwait | 0.171 | 0.223 | 0.284 | 0.250 | 0.258 | - |
| Lebanon | 0.057 | 0.036 | 0.027 | 0.091 | | |
| Oman | | 0.029 | 0.045 | 0.067 | 0.091 | - |
| Saudi Arabia | 0.819 | 0.914 | 1.049 | 1.187 | 1.176 | - |
| Syrian Arab Republic | 0.062 | 0.073 | 0.049 | 0.047 | 0.051 | - |
| United Arab Emirates | 0.340 | 0.406 | 0.411 | 0.503 | 0.598 | 0.594 |
| Total | 1.620 | 2.019 | 2.205 | 2.505 | 2.574 | |

Source: UNCTAD, Review of Maritime Transport 1981-1985.

Table 2.2. Average annual rates of growth of ESCWA countries
container traffic in 1980-1984
(percentage)

| Country | 1980/1981 | 1981/1982 | 1982/1983 | 1983/1984 |
|----------------------|-------------|------------|-------------|------------|
| Bahrain | 103.3 | -23.8 | 2.2 | 17.9 |
| Egypt | 101.4 | 2.9 | 25.2 | 3.9 |
| Jordan | 83.3 | 35.1 | -17.3 | 18.6 |
| Kuwait | 30.4 | 27.4 | 12.0 | 3.2 |
| Lebanon | -36.8 | -25.0 | 237.0 | |
| Oman | | 55.2 | 48.9 | 35.8 |
| Saudi Arabia | 11.6 | 14.8 | 13.2 | -0.3 |
| Syrian Arab Republic | 17.7 | -32.9 | -4.1 | 8.5 |
| United Arab Emirates | 19.4 | 1.2 | 22.4 | 18.9 |
| Total | 24.6 | 9.2 | 13.6 | 2.8 |

Source: Based on table 2.1.

TEU in 1985, and the Trio Group, with 28,800 TEU. This group included EMEC (CMB, Aapag-Lloyd, Nedlloyd), Ellerman, OCL and UASC with a space charter agreement with Scan carriers. Container services to the Red Sea area from Northern and Southern Europe had a 235,000 TEU annual capacity in 1985 and covered practically all major ESCWA countries ports in the area, namely: Jeddah, Yanbu (Saudi Arabia), Aden (Democratic Yemen), Mukha, Hodeidah (Yemen Arab Republic), and Aqaba (Jordan). The major operator on the Europe-Arabian Gulf trade is the Joint Container Service (JCS) with 111,400 TEU annual capacity. This line represents around 26 per cent of the total annual

capacity operating on the route. Trident service, which combines NCHP, Merzario and Sea-Land, carried 44,106 TEU per year and Andrea Merzario 43,901 TEU. In 1985 the total capacity of all operators amounted to 430,220 TEU per year. Container services from Europe to the Arabian Gulf of various carriers cover the major ESCWA countries Gulf ports.

It should be noted that during the period from mid-1985 to mid-1986 there was a decline in container trade from Europe to the Arabian Gulf of about 10 to 15 per cent. There was also a decline in the trade from Europe to the Red Sea area, and the major operators serving Jeddah used this port as a wayport only. The decline occurred because the dramatic increase in trade from Europe declined in 1985 and showed no signs of improving in 1986.

Owing to a decrease of demand in 1986, there has been a further reduction in the tonnage deployment of JCS, which operates six-day frequency sailings between the United Kingdom/Northern Europe/Mediterranean and the Arabian Gulf, as mentioned above. The 1,800 TEU Nedlloyd "Clarence" has been withdrawn from JCS, and is now being deployed on Nedlloyd's North Atlantic trade. This leaves the following vessels which are currently deployed within JCS: Overseas Containers Ltd's "Providence Bay" (1,940 TEU); CMB's "Maeterlinck" (2,257 TEU); Hapag Lloyd's "Rhein Express" (1,985 TEU); and three United Arab Shipping Co. (UASC) ships. These are the Zatari "Ibn Al Fuja'a"; the "Dubai", and the "Al Ihsa'a" (1,846 TEU capacity each). The withdrawal of tonnage has been occasioned by the fall in demand for capacity which has been experienced by JCS and other carriers in the Europe/ESCWA region trade, although the UASC indications concerning forward bookings in October and November 1986 showed a slight upturn in demand.

One of the major operators on the Europe-Red Sea trade, the Marseille based Compagnie Maritime d'Affrètement (CMA), increased its own tonnage deployment by adding a fourth vessel "Ville du Mistral" (950 TEU) to the three ships of 1,100-TEU capacity which it was already deploying. This was done to improve frequency of sailings in response to demand from shippers.

CMA's own service to the Red Sea began in the early 1980s, but initially only to Aqaba, Hodeidah and Yanbu. Jeddah was at that time omitted because it was a very expensive port to call in. When by early 1986 rates to the Red Sea had increased, and volumes had decreased, at least partially as a result of the large number of carriers offering wayport capacity to Jeddah and dumping rates, CMA reduced its deployment in the trade from three vessels of between 800 TEU and 900 TEU capacity to two ships, and entered into a pool agreement with Andrea Merzario and the Cunard Steamship Company. These operators together with CMA were always the most important carriers on the Europe to Red Sea trade. CMA now expects improved results from the trade due to more stable rates following the deployment of less capacity. Currently only four ships offer a combined capacity of 3,328 TEU as compared with the three carriers' previous combined capacity amounting to 8,657 TEU. CMA's the Arabian Gulf service began in April 1985, and quickly made substantial gains by offering 17-day frequency sailings, outside the Joint Container Service arrangements, with three vessels of around 1,000-TEU capacity.

Table 2.3. Container services between Northern/Southern Europe and ESCWA countries
(Red Sea area) as of end-January 1986

| Carrier | Annual TEU capacity | Service type | Service frequency | Loading port range | Discharge port range |
|--|--|--------------|-------------------|---|----------------------------------|
| Baltic Shipping Co. (Balt Orient Line) | 520 | FC | Fortnightly | Gothenburg, Tilbury Bremenhaven, Le Havre | Jeddah |
| Compagnie Maritime d'Affretement | 22 438 includes Aqaba | FC | Fortnightly | Felixstowe, Hamburg, Le Havre, Valencia | Jeddah, Hodeidah, Yanbu |
| Evergreen Line | 2 080 | FC | Fortnightly | Felixstowe, Rotterdam, Hamburg, Le Havre, Valencia, Leghorn | Jeddah |
| Finn carriers' | 2 400 | BC | 2 per month | Hamina, Kotka, Norrköping, Osakarhamn, Helsingborg | Jeddah |
| FOS | 5 426 includes capacity to Piraeus and Limassol | FC | Every 16 days | Antwerp, Rotterdam, Felixstowe Piraeus | Jeddah, Aqaba |
| Hoegh Upland Auto Liners | Subject to demand | RR | Fortnightly | Bremenhaven, Southampton | Jeddah |
| Ignazio Messina | 43 680 | RR | Weekly | La Spezia, Naples, Marseille | Jeddah, Aqaba, Hodeidah |
| Jugolinija | 4 200 | FC | Every 20 days | Genoa, Leghorn | Jeddah |
| Maersk Line | 5 200 | FC/CC | Weekly | Hull, Felixstowe, Hamburg, Le Havre, Dublin | Jeddah |
| Navale et Commerciale Havraise Peninsulaire/Merzario | 27 618 | RR | Every 10 days | Castellon de la Palma, Valencia, Sete, La Spezia, Leghorn, Ravenna, Ancona | Jeddah, Aqaba |
| Pakistan National Shipping Corp. | 570 | FC/SC | Every 18/20 days | Bremen, Hamburg, Rotterdam, Antwerp, London | Jeddah |
| Polish Ocean Lines(UK/North Europe/Australasia service) | 240 | RR | Monthly | Gdynia, Hamburg, Rotterdam, Le Havre, Southampton, Lisbon, Marseille, Genoa | Jeddah |
| Polish Ocean Lines (North Europe/ Far East/Japan service) | 240 | SC | Monthly | Gdynia, Hamburg, Antwerp, (Rotterdam on inducement) | Jeddah |
| Polish Ocean Lines (Baltic/North Europe/UK, Red Sea/East Africa service) | 1 740 | SC | Monthly | Gdynia, Uddevalla/Gothenburg, Copenhagen, Hamburg, Bremen, Rotterdam, Antwerp | Aqaba, Jeddah, Aden, Hodeidah |

Table 2.3. (Cont'd)

| Carrier | Annual TEU capacity | Service type | Service frequency | Loading port range | Discharge port range |
|--|-----------------------------|--------------|-------------------|--|--|
| Red Sea Express (Camel/Merzario integrated schedule) | 40 317 includes Praiseus | FC/CC/RR | Weekly | Rotterdam, Felixstowe, Hamburg and Le Havre (alternate sailings) | Jeddah plus inducement calls and Yanbu (alternate calls) |
| Scandutch (North Europe/Scandinavia to Far East service) | 5 200 | FC | Weekly | Gothenburg, Hamburg, Rotterdam, Le Havre, Marseille-Fos | Jeddah |
| Scandutch (Mediterranean/Far East/Near East service) | 1 200 | FC | Monthly | Lisbon, Algeciras, Marseille-Fos, Leghorn | Jeddah |
| Trans-suez | 22 186 | FC | Every 9 days | Trieste, Venice, Ancona | Jeddah |
| Trident Service (joint service of Merzario, NCHP and Sea-Land Service) | 2 920 | FC/CC/RR | Every 10 days | Hamburg, Bremenhaven, Rotterdam, Felixstowe, Le Havre, Algeciras, Valencia | Jeddah |
| Trio group | 28 800 | FC | 8 per month | Hamburg/Le Havre range | Jeddah (east-bound only) |
| United States Line | 21 840 | FC/RC | Weekly | Rotterdam (feeders from UK/North Europe), Marseille-Fos (feeders from Mediterranean) | Jeddah |
| VEB Deutfracht/Seereederei Rostock (DSR) | 4 320 | FC/SC | 3 per month | Hamburg, Rotterdam, Antwerp | Jeddah, Aqaba |
| West European Container Lines (UK/Europe-Red Sea/East Africa service) | 5 550 | FC | Fortnightly | Felixstowe, Rotterdam (feeders from Antwerp), Hamburg, Le Havre (on inducement) | Jeddah |
| Yangming Marine Transport Corp. | 2 607 | FC | Fortnightly | Hamburg/Le Havre range | Jeddah |
| Yemen Gulf Line | 5 669 | SC | Every 15 days | Ipswich, Rotterdam, Hamburg, Bremen, Antwerp | Mokha, Hodeidah |
| Joint Container Service | 6 083 | FC | Every 6 days | Aarhus (alternately), Antwerp Tilbury, Bremenhaven, Le Havre, Genoa (alternately), Leghorn (fortnightly) | Jeddah |

Source: Containerisation International.

Notes: BC = bulk container.
 CC = converted container.
 FC = fully cellular.
 RR = ro-ro.
 SC = Semi-container.

Table 2.4. Container services between Northern/Southern Europe and ESCWA countries
(Arab Gulf area) as of end-January 1986

| Carrier | Annual TEU capacity | Service type | Service frequency | Loading port range | Discharge port range |
|----------------------------------|---|--------------|-------------------|--|---|
| Andrea Merzario | 43 901 includes capacity for Indian sub-continent | RR | Every 18 days | Ravenna, Venice, Marina di Carrara | Jebel Ali, Bahrain, Dammam Kuwait |
| Barber Blue Sea | 4 000 includes capacity to Indian Sub-Continent | RR | Every 20 days | Barcelona and Leghorn (alternate sailings) | Mina Qaboos (Muttrah) Dubai with trans-shipment to other Gulf ports |
| Compagnie Maritime d'Affretement | 32 409 includes capacities to Indian Sub-Continent | FC | Every 12 days | Rotterdam, Antwerp, Felixstowe, Hamburg to Le Havre, Barcelona, Marseille, Leghorn | Mina Qaboos, Dubai (feeder to Abu Dhabi, Doha, Sharjah, Dammam, Bahrain, Kuwait) |
| Finn carriers | 24 000 includes capacity Karachi | BC | 2 per month | Hamina, Kotka, Norrköping, Oskarshamn, Helsingborg | Muscat, Abu Dhabi, Dubai Sharjah, Dammam, Kuwait Bahrain |
| Fos | 12 663 | FC | Every 16 days | Hamburg, Antwerp, Rotterdam, Felixstowe, Le Havre, Piraeus, Limassol | Dubai, Bahrain, Dammam, Abu Dhabi, Salalah, Sharjah, Mina Qaboos |
| Heogh Upland Auto Liners | Subject to demand | RR | Fortnightly | Bremenhaven, Southampton | Mina Qaboos, Muscat, Dubai, Abu Dhabi, Dammam, Kuwait |
| Ignazio Messina | 36 690 | RR | Every 15 days | La Spezia, Naples, Marseille | Dubai, Dammam, Kuwait |
| Jugolinija | 12 500 | RC/SC | Fortnightly | Rijeka, Koper, Trieste, Venice, Ancona, Naples | Muttrah, Dubai (feeders to Bahrain and Doha), Abu Dhabi, Dammam, Kuwait, Mina Qaboos |
| Maersk Line | 26 000 | FC/CC | Weekly | Hull, Felixstowe, Hamburg, Le Havre, Dublin | Dubai, Sharjah, Bandar Abbas, Jebel Ali, Abu Dhabi, Doha, Rasal Mishab, Dammam, Bahrain |
| Norasias Line | 4 000 | BC/FC | Fortnightly | Southampton, Valencia, Hamburg, Le Havre | Mina Qaboos, Dubai, Abu Dhabi, Dammam, Kuwait |
| Pakistan National Shipping Corp. | 6 378 includes Karachi | FC/SC | Every 18-20 days | Bremen, Hamburg, Rotterdam, Antwerp, London | Dammam, Kuwait, Dubai (feeder to Abu Dhabi, Sharjah) |
| Pakistan National Shipping Corp. | 5 952 includes Karachi | SC | Monthly | Barcelona, Marseille, Genoa, Venice, Naples, Piraeus | Dubai, Dammam, Kuwait, trans-shipment to Abu Dhabi and Doha via Karachi |

Table 2.4. (Cont'd)

| Carrier | Annual TEU capacity | Service type | Service frequency | Loading port range | Discharge port range |
|---|---|--------------|-------------------|--|--|
| Polish Ocean Lines | 4 284 includes Limassol | SC | Monthly | Gdynia, Hamburg, Bremen, Bilbao, Valencia | Dubai, Abu Dhabi, Bahrain, Kuwait |
| Trident Service (joint service of Merzario NCHP and Sea-Land Service) | 44 106 includes capacity to Indian sub-continent | FC/CC/RR | Every 10 days | Hamburg, Bremenhaven, Rotterdam, Felixstowe, Le Havre, Algeciras, Valencia | Mina Qaboos, Dubai, Dammam, Bahrain, Kuwait |
| United States Lines | 31 200 | FC | Weekly | Rotterdam (feeders from UK/Europe), Marseille-Fos (feeders from Med) | Khor Fakkan (feeders to Muscat, Dammam, Kuwait, Dubai) |
| VEB Deutfracht/ Seereederel Rostock (DSR) | 26 226 | FC/SC | Fortnightly | Rostock, Hamburg, Rotterdam, Antwerp, London | Kuwait, Dammam, Abu Dhabi, Dubai |
| VEB Deutfracht/ Seereederel Rostock (DSR) | 4 506 | | Every 3 weeks | Marina di Carrara, Marseille Valencia, Leghorn, Larnaca | Kuwait, Dammam, Sharjah, |
| Joint Container Service | 111 405 | FC | Every 6 days | Aarhus (alternately), Bremenhaven, Le Havre, Genoa and Leghorn (fortnightly) | Mina Qaboos, Dubai, Abu Dhabi, Bahrain, Dammam, Kuwait |

Source: Containerisation International.

Notes:
 BC = bulk container.
 CC = converted to cellular.
 FC = fully cellular.
 RR = ro-ro.
 SC = Semi-container.

A Jeddah call was included in the schedule, but the first calls within the Arabian Gulf were at Dubai only. Dammam and Bahrain were added soon afterwards. Then Mina Qaboos was chosen as a relay centre for traffic moving between Europe and Bombay and Karachi, because it is a low-cost port and because, by being the first carrier to call there regularly, CMA was able to secure first priority berthing rights at no additional cost.

CMA, together with Cunard Arabian Middle East Line (Camel) and Andrea Merzario, has also restructured services from the United Kingdom/Northern Europe to the Red Sea. With effect from July 1986 the three carriers are operating a rationalized service, named Red Sea Express. CMA has contributed the 810 TEU "Ville de Ponant" and the 962 TEU "Ville de Mirage" and Camel's contribution is the 854 TEU "Sudan Crown". Andrea Merzario deployed the 1,840-TEU "Dorothee" within Red Sea Express. All of these vessels are cellular. Camel and Andrea Merzario came together in June 1985 to form the original Red Sea Express. This was under a 12-month agreement and it had five ships. One party chartered three ships and the other two. The new Red Sea Express has therefore been enlarged in partnership terms with the inclusion of CMA. One of the partners is to charter two ships and the other partners one each, but this is for operational convenience and could change. The southbound service frequency has been increased to 10 days to the ESCWA countries ports of Aqaba, Hodeidah and Jeddah, and every 20 days to Yanbu. Capacity to Jeddah, largely as the result of numerous carriers making wayport calls, has now reached saturation point. Consequently, while continuing to serve Jeddah, Camel intends to place increased emphasis on serving other Red Sea ports. In June 1986, CMA also launched a new Europe/East Mediterranean service with three 1,000-TEU vessels displaced from the former Europe/Arab Gulf service, namely, "Ville du Sahara", "Ville d'Aurare", "Ville de Lumiere". This trio now links Europe with Barcelona, Marseille, Alexandria, Beirut, Lattakia, Mersin and Limassol at 15-day intervals. CMA's six 1,600-TEU charterships were introduced into Europe/ESCWA region service with extension to the Far East.

The Maersk line transferred the 1,200 TEU "Cristian Mearsk" from the United States to the Middle East trade. This was done in order to reduce the line's tonnage deployment on the depressed trade from the United States to the Middle East, and simultaneously to offer a new service from Northern Europe without committing itself to any extra tonnage.

By calculating the weekly capacity from Northern Europe to the Arabian Gulf as 50 per cent of 1,200 TEU, less a possible 100 TEU for Jeddah, the additional capacity being inputted by Maersk can be calculated as 5,200 TEU per annum to Jeddah, and 26,000 TEU to the Arabian Gulf.

Estimating the capacity from Europe to Jeddah presents considerable difficulties. Virtually every carrier which passes through the Red Sea calls at Jeddah as a wayport, often to dump surplus capacity or reposition boxes. However, owing to extremely low freight rates, and depressed trucking rates within Saudi Arabia, there are indications of consignees opting for Jeddah as the entry port for Riyadh instead of Dammam. "Evergreen Line" started a 16-day service between Europe and the ESCWA region in March 1986 with its three 956-TEU "F" type vessels which cover Hamburg, Felixstowe, Rotterdam, Le Havre, Valencia, Leghorn, Jeddah, Dubai, Dammam, Kuwait, Bahrain and Muscat.

Table 2.5. Compagnie Maritime d'Affretement (CMA) Liner services, as of 1 October 1986

| Service | Vessels deployed or to be deployed | Effective TEU capacity | Frequency in days | Ports served |
|---|------------------------------------|------------------------|-------------------|--|
| North Continent/United Kingdom/ Mediterranean Arab Gulf/Indian Sub-Continent/South East Asia/Far East | Ville de Jupiter | 1 500 | 14 | Hamburg, Felixstowe, Rotterdam, Antwerp, Le Havre, Salerno, Mina Qaboos, Singapore, Hong Kong, 1 500 |
| | Ville de Mercure | 1 500 | | |
| | Ville d'Uranus | | | |
| | Ville de Pluton | 1 500 | | |
| Arab Gulf/Indian sub-continent feeder service | Ville de Mars | 1 500 | | Mina Qaboos, Kuwait, Dammam, Bahrain, Karachi |
| | Ville de Venus | 1 500 | | |
| | Ville d'Oman | 1 500 | | |
| Arab Gulf/Indian sub-continent feeder service | Theodore Fontane | 330 | 14 | Mina Qaboos, Dubai, Karachi, Bombay |
| North Europe/United Kingdom/Red Sea (Red Sea Express) | Ville de Mirage | 780 | 14 | Felixstowe, Hamburg, Rotterdam, Antwerp, Le Havre, Valencia, Marseille, Aqaba, Jeddah, Hodeidah, Yanbu |
| | Ville de Ponant | 750 | | |
| Western Mediterranean/Red Sea | Ville de Zenith | 862 | 14 | Valencia, Marseille, Genoa, Limassol, Aqaba, Jeddah, Hodeidah |
| | Ville de Jupiter | 780 | | |
| | Ville de Mistral | 880 | | |
| | Ville de Providence | 750 | | |
| North Europe/United Kingdom/ East/West Mediterranean | Ville du Sahara | 1 000 | 14 | Antwerp, Rotterdam, Hamburg, Bremenhaven, Felixstowe, Le Havre, Barcelona, Marseille, Leghorn, Alexandria, Beirut, Lattakia, Mersin, Limassol, Izmir |
| | Ville d'Aurore | 1 000 | | |
| | Ville de Lumiere | 1 000 | | |

Source: Containerisation International.

Note: The above excludes capacity offered by CMA from the United States East and Gulf coasts, and from the east coast of South America. This is available to the Red Sea, Arabian Gulf and Indian sub-continent destinations through connecting carrier agreements via Rotterdam and Leghorn. Traffic to/from Ireland and Scandinavia connects with CMA services at, respectively, Rotterdam and Hamburg. Mina Qaboos is used as a feeder point for calls within the Arab Gulf, and at Bombay and Karachi. The Red Sea Express service is operated in conjunction with Andrea Merzario and Cunard Steamship Co. A total of five vessels are deployed; landbridge connections are available from Aqaba to Iraq; trans-shipment is available over Hodeidah to Sana'a and Taiz.

2.1.3. North America - ESCWA region trade

One of the major operators on the trade from the United States Gulf and east coasts to the ESCWA region is the United States Lines (USL), which operates with nine containerships of 4,482 TEU capacity each, and with a frequency of seven days (see table 2.6). In August 1985 USL started its calls at Khor Fakkan in the United Arab Emirates, as part of its round-the world service. This provides United States lines with an entry into the Arabian Gulf, through sea feeder and/or road haulage connections from Khor Fakkan. The operator is planning to load 388 TEU weekly off the United States east coast to be shipped to the Arabian Gulf. An estimated 80 to 85 per cent of carryings to the Red Sea and Arabian Gulf ports are lifted by members of the New York based "8900 Lines Agreement"; adherents to the agreements are Barber Blue Sea (BBS), Nedlloyd Lines, Maersk Line, Sea-Land Service, United Arab Shipping Co., National Shipping Co. of Saudi Arabia and Waterman Isthmian Line. The latter is a lighter-carrying operator, which serves only Jeddah, Dammam and Oman as part of its trade to Port Said, Aqaba, Port Sudan, the Indian sub-continent and South-East Asia. Consequently, it has been excluded from table 2.6; also omitted in Sea-Land Service, since it does not operate any tonnage of its own from the United States to the ESCWA region.

In 1984 and 1985 there was a decrease of carryings from the North American east and Gulf coasts to the Red Sea and Arabian Gulf of around 30 per cent, one of the specific reasons for the declining fortunes of the "8900" members as they relate to the Mid-East trades. Around 60 per cent of Nedlloyd's liftings to Saudi Arabia were routed through the Arabian ports of Dammam and Jubail, and around 40 per cent through Jeddah and Yanbu. Now it appears the proportions have reversed, partly as a consequence of the improved transport infrastructure linking Riyadh with Jeddah, but also because of the war risk insurance premium into the Arabian Gulf, and lower freight rates to Jeddah.

Nedlloyd deploys four vessels in the trade - the 774-TEU ro-ro "Rochester" and "Rotterdam", and the 1,280-TEU "Rouen" and "Rosario", and is now able to offer an increased sailing frequency of 10 days, instead of 17 days as previously. The port rotation for Nedlloyd and Barber Blue Sea, also operating on the North American Gulf and east coasts to ESCWA region trades, is as follows: New Orleans, Houston, Savannah, Norfolk, Baltimore and New York. Houston and New York are to be the most important lifting ports. Other Gulf and east coast ports like Galveston and Wilmington are called at, subject to inducement. Since the agreement, Nedlloyds has increased its loading factors from between 60 and 70 per cent per sailing to around 80 per cent.

The United Arab Shipping Company, a Pan-Arab operator which is owned by six ESCWA countries, namely Bahrain, Kuwait, the United Arab Emirates, Saudi Arabia, Iraq and Qatar, set up an agreement with Sea-Land Service in 1985. This agreement provided Sea-Land with up to 150 by 20-ft slots in each of UASC's sailings from the United States Gulf and east coasts to the Red Sea and Arabian Gulf, at a fixed price. For shippers it was an advantage because their cargo was moved direct, instead of being trans-shipped through Rotterdam. UASC maintains the service by using four "A"-class vessels of 1,160-TEU capacity and one "F"-type of 850-TEU capacity. UASC serves the United States Gulf and east coasts ports as well as ESCWA countries ports in

Table 2.6 Container services offered by principal operators in trade between North America (Gulf and east coast) and the ESCWA region

| Operator | Vessels deployed | Type | TEU | Sailing frequency | North America direct loading ports | Red Sea discharge ports | Arabian Gulf discharge ports |
|---------------------------------------|--------------------|------|-------|-------------------|--|-------------------------|---|
| Barber Blue Sea | Barber Hector | RR | 2 400 | 10 days | New Orleans, Houston, Savannah, Norfolk, Baltimore, New York | Aqaba, Jeddah, Yanbu | Dammam, Mina Qaboos, Dubai, Sharjah, Abu Dhabi, Bahrain, Kuwait, Doha (f), Bandar Abbas |
| | Barber Texas | RR | 2 400 | | | | |
| | Barber Tampa | RR | 2 400 | | | | |
| | Barber Perseus | RR | 1 800 | | | | |
| | Barber Toba | RR | 1 800 | | | | |
| Jugoliniija | Hreljnj | FC | 574 | 28 days | New York, Baltimore, Norfolk Savannah | Aqaba, Jeddah | Dubai, Dammam Kuwait, Abu Dhabi |
| | Jordan Express | FC | 926 | | | | |
| | Rijeka Express | FC | 934 | | | | |
| | Susak | FC | 574 | | | | |
| Hoegh Upland Auto Liners | Hual Carmencita | RR | 1 190 | 14 days | Halifax (Canada)**, New York, Baltimore, Wilmington, Charleston Jacksonville | Aqaba Jeddah | Dubai, Dammam, Jubail, Kuwait |
| | Hual Trader | RR | 1 190 | | | | |
| | Hual Transporter | RR | 1 190 | | | | |
| Maersk Line | Alva Maersk | FC | 1 800 | 14 days | Miami, Houston, New Orleans, Savannah, Baltimore, New York | Jeddah | Dubai, Abu Dhabi (f), Dammam, Bahrain, Doha (f), Ras al Mishab (f), Jubail (f), Muscat, Sharjah (f), Bandar Abbas (f), Kuwait (f) |
| | Arild Maersk | FC | 1 800 | | | | |
| | Lica Maersk | FC | 2 100 | | | | |
| | Christian Maersk | CC | 1 200 | | | | |
| | Clifford Maersk | CC | 1 200 | | | | |
| National Shipping Co. of Saudi Arabia | Saudi Abha | RR | 2 025 | 16 days | New Orleans, Charleston, Savannah, Philadelphia, Boston, Newport News, Baltimore, New York, Halifax (Canada), Houston, Miami | Yanbu, Jeddah | Dammam, Jubail, Jebel Ali, Abu Dhabi, Sharjah |
| | Saudi Diriyah | RR | 2 025 | | | | |
| | Saudi Hofuf | RR | 2 025 | | | | |
| | Saudi Makkah | RR | 1 250 | | | | |
| | Saudi Riyadh | RR | 1 250 | | | | |
| | Saudi Tabuk | RR | 2 025 | | | | |
| Nedlloyd Lines | Nedlloyd Rochester | RR | 774 | 17 days | New Orleans, Houston, Savannah, Norfolk, Baltimore, New York | Aqaba, Jeddah | Dammam, Mina Qaboos, Dubai, Sharjah (f), Abu Dhabi, Bahrain, Kuwait, Doha (f) |
| | Nedlloyd Rosario | RR | 1 280 | | | | |
| | Nedlloyd Rotterdam | RR | 774 | | | | |
| | Nedlloyd Rouen | RR | 1 280 | | | | |
| United Arab Shipping Co. | Addiriyah | FC | 1 160 | 14 days | Houston, Savannah, Wilmington, Norfolk, Baltimore, New York | Aqaba, Jeddah | Dubai, Dammam, Kuwait, Bahrain, Abu Dhabi (f), Sharjah (f), Doha (f) |
| | Al Wattyah | FC | 1 160 | | | | |
| | Barzan | FC | 1 160 | | | | |
| | Jebel Ali | FC | 1 160 | | | | |
| | Al Almadiah | CC | 850 | | | | |

Table 2.6 (Cont'd)

| Operator | Vessels deployed | Type | TEU | Sailing frequency | North America direct loading ports | Red Sea discharge ports | Arabian Gulf discharge ports |
|----------|---------------------|------|-------|-------------------|------------------------------------|-------------------------|---|
| US Lines | American Alabama | FC | 4 482 | 7 days | Charleston, New York | | Khor Fakkan, Dubai (f), Sharjah (f), Abu Dhabi (f), Bahrain (f), Kuwait (f), Doha (f), Muscat (f) |
| | American California | FC | 4 482 | | | | |
| | American Illinois | FC | 4 482 | | | | |
| | American Kentucky | FC | 4 482 | | | | |
| | American Main | FC | 4 482 | | | | |
| | American Nebraska | FC | 4 482 | | | | |
| | American New York | FC | 4 482 | | | | |
| | American Oklahoma | FC | 4 482 | | | | |
| | American Virginia | FC | 4 482 | | | | |

Source: Containerisation International.

Note: The above excludes carriers which call en route at Red Sea ports (but not in the Arabian Gulf) as part of services on other trades; Sea-Land Service is excluded since it moves containers from the United States to the ESCWA region through a slot-charter agreement with the United Arab Shipping Co., and by linkage between its North Atlantic and Northern Europe to ESCWA region services; United States loading ports indicated are those at which regular, direct loading calls are made. Other ports may be served on an inducement basis, or through feeder/local haulage arrangements.

(f) = served by local feeder, or trucking arrangements in Mid-East Gulf zone;

* Jugoliniya also moves containers at Aqaba and Jeddah on its United States Gulf/east coasts trade to the Mediterranean and thence by trans-shipment;

** alternate calls at Halifax.

Table 2.7 Container services offered by principal carriers in trade between North America (west coast) and the ESCWA region

| Carrier | Vessels deployed | Type | TEU | Sailing Frequency | North America loading ports | Arabian Gulf discharge ports |
|--------------------------|---------------------|------|-------|-------------------|---|---|
| American President Lines | President McKinley | CC | 1 094 | 7 days | Seattle, Oakland, Los Angeles | Fujairah, Dubai (f), Dammam (f), Muscat (f), Bahrain (f), Doha (f), Sharjah, Abu Dhabi (f) |
| | President Van Buren | CC | 1 094 | | | |
| | President Johnson | FC | 1 504 | | | |
| | President Madison | FC | 1 504 | | | |
| Barber Blue Sea | Barber Hector | RR | 2 400 | 10 days | Los Angeles | Dammam, Mina Qaboos, Dubai Sharjah (f), Abu Dhabi, Bahrain, Kuwait, Doha (f), Bandar Abbas (f), plus Red Sea calls at Aqaba, Jeddah and Yanbu |
| | Barber Texas | RR | 2 400 | | | |
| | Barber Tampa | RR | 2 400 | | | |
| | Barber Perseus | RR | 1 800 | | | |
| | Barber Toba | RR | 1 800 | | | |
| Hoegh Lines | Hoegh Dene | BC | 1 660 | 20 days | Vancouver, Tacoma, Vancouver (Washington), Oakland, Los Angeles | Dubai, Dammam, Jubail (f), Kuwait (f), Bahrain (f), Abu Dhabi (f) |
| | Hoegh Drake | BC | 1 660 | | | |
| | Hoegh Duke | BC | 1 660 | | | |
| | Hoegh Dyke | BC | 1 660 | | | |
| Maersk Line | Adrian Maersk | RC | 1 800 | 14 days | Tacoma, Vancouver, Long Beach, Oakland | Dubai, Dammam, Bahrain, Kuwait, Doha (f), Abu Dhabi (f), Ras el Mishab (f), Jubail (f), Muscat (f), Sharjah (f) Bandar Abbas (f), plus Red Sea call at Jeddah |
| | Arnold Maersk | RC | 1 800 | | | |
| | Albert Maersk | FC | 1 800 | | | |

Source: Containerisation International.

Note: Loading ports indicated are those at which regular calls are made. Other ports may be served on an inducement basis, or through feeder/local haulage arrangements;

(f) = served by local feeder, or trucking arrangements in Arab Gulf zone.

the Arabian Gulf and Aqaba and Jeddah in the Red Sea. Since all of the carriers on the west Coast to ESCWA region trade are spearheading their marketing drives with what is described as creative pricing, it was surely optimistic for the four major participants (APL, Maersk, Hoegh Lines and BBS) to attempt to form a rate agreement.

Unlikely though it is that the West Coast to ESCWA region service will grow, APL is enhancing its service to North American shippers by redeploing an additional ship into its Taiwan-India-ESCWA region service. This provides a trans-shipment facility from Kaohsiung to Fujairah, from where containers are on-feedered to a range of ESCWA region destinations. All four vessels deployed on the service now call at Fujairah, thus enabling APL to improve its service frequency to the Arabian Gulf from 14 days to seven days. The move was prompted by the rising volumes of cargo from the Far East.

The National Shipping Company of Saudi Arabia (NSCSA), another national Arab shipowner operating on the North America-ESCWA region trade, has five Ro-Ro carriers. Three of them have a capacity of 2,025 TEU each and two 1,250 TEU each. NSCSA serves United States Gulf and east coast ports and the Arabian Gulf ports, namely Dammam, Jubail, Jebel Ali, Abu Dhabi and Sharjah, with a sailing frequency of 16 days. NSCSA, incidentally, is the only line which makes regular calls at the Canadian port of Halifax. The Company claims that it has been sailing with full ships since the beginning of 1985. It should be mentioned that the North American trade has been affected by the hostilities in the Arab Gulf. Thus the United States exports to the ESCWA Gulf countries fell from \$4.4 billion to \$3.5 billion in the first six months of 1985 compared with the previous year, and this reduction shows no signs of being reversed. As with the other principal trade routes, capacity agreed on by liner conference has been cut. Of the 8900 Line agreement participants, only two Arab operators, the United Arab Shipping Company and the National Shipping Company of Saudi Arabia, remained unaffected.

In the second half of 1986, US Lines dropped its weekly calls to Jeddah, on the east-bound, round-the world service. Withdrawal from Jeddah (as well as from Marseille-Fos) has been interpreted as a sign of the troubles which confront USL, as it seeks to restructure itself in the face of the mounting losses, increased by its parent company McLean Industries Inc. during the first six months of 1986. In this half-year period McLean lost \$147.7 million. The US-Mediterranean, US-Red Sea and Mediterranean/Middle East trades continue to be overtonnaged and plagued by poor rate levels, so their attraction for US Lines waned. In this situation Barber Blue Sea also dropped out of the US/ESCWA region trades, while its partner of less than a year, Nedlloyd, stopped its direct service on the route.

2.1.4. Far East - ESCWA region trade

The major carriers on the trade are OASIS (which includes NYK, K. Line, Mitsui OSK, YS Line and OCL), Maersk, American President Lines, Joint UASC/Willine/OOCL, Evergreen, NSCSA, Scan Dutch, Red Sea Container Line and UASC.

OASIS Container Express Line recently completed a vessel rationalization programme for their Japan/Far East to Arabian Gulf service.

The total vessel deployment has been reduced from six units to five. These are "New OASIS" (MOL 2,214 TEU), "OASIS Altair" (NYK, 1,970 TEU), "Tokyo Bridge" (K-Line/Showa, 2,084 TEU), "Tor Bay" (OCL, 1,940 TEU), and "YS Prosperity" (Y-S Lines, 1,934 TEU). The Oasis ships have recently reduced their steaming speeds for the sake of economy. Consequently, the round-trip voyage time is now 50 days, compared with the previous 45 days, and the service is now operating on a 10-day frequency, instead of weekly.

Willine, the United Arab Shipping Co. (UASC) and the Orient Overseas and Container Line (OOCL) have also agreed on a rationalization programme. Thus, Willine chartered one vessel (1,846 TEU) from UASC. UASC is to operate either three or four ships on the trade. It is believed that in future OOCL will not deploy a vessel of its own, but will charter slots from Willine and UASC.

Evergreen Line of Taiwan added in 1986 a pair of 1,560-TEU conbulklers to its Far East/Mediterranean schedule. Their addition gives Evergreen a fleet of eight vessels on the service and enables it to improve frequency from 12/13 days to around nine. The existing fleet consists of six "O" type vessels with a capacity of around 1,200 TEU each. Two of the vessels, "Hawthorn Hill" and "Wisteria Hill", were built by the Republic of Korea's Hyundai Heavy Industries at its Ulsan Yard for the Indonesian carrier line Gesuri Lloyd and launched in 1985. The ships are now owned by Japan's Marubeni Corporation and IBJ Leasing and Evergreen is to operate them under a management contract.

In 1986, shortly after announcing the introduction of four new 1,600 TEU charterships into its European/ESCWA region service, the Compagnie Maritime d'Affretement (CMA) revealed that the new fleet would actually consist of six new ships from the end of 1986 and provide a service extending right through to the Far East. The Marseille-headquartered company with Lebanese connection plans to provide a 14-day frequency with the Villes de "Jupitar", "Mercure", "Mars", "Pluton", "Vaenuce" and "Providence", calling at Felixstowe, Hamburg, Rotterdam, Antwerp, Le Havre, Salerno, Mina Qaboos, Dubai, and further to the Far East at Singapore, Busan, Yokohama, Kobe, Hong Kong, Keelung, Singapore, then back at Mina Qaboos and Salerno. The trade is to cover the West Mediterranean, the Arab Gulf and Indian sub-continent with dedicated feeders. The Salerno feeder will call at Southern Europe (Leghorn, Genoa, Marseille, Barcelona and Valencia) while two separate feeder ships will operate from Mina Qaboos, one to cover the rest of the Arab Gulf and the other to India/Pakistan. This latest CMA development is interesting in its use of feeders to permit combining the Arab Gulf trades with the Europe/Far East trade in both directions. As regards the east-bound trade, CMA is allocating 750 TEU on each ship for the Europe/ESCWA region sector and the rest for the Far East, so as to be able to spread its marketing across the two trades.

A significant cut in conference capacity came in March 1986, with the merging of UASC and the OOCL/Willine joint service. All the OOCL/Willine ships, or at least the four remaining after two were lost due to the hostilities in the Gulf, were sold, leaving only UASC's five 1,846-TEU ships in the new joint service.

Table 2.8. Container service between the Far East and the ESCWA region

| Area of origin | Operator | Country of destination | Frequency |
|--|--|--|------------|
| | | <u>Arabian Gulf area</u> | |
| Far East/South-East Asia Emirates, (*North America) | Maersk | (*Oman, Qatar), United Arab Saudi Arabia, Bahrain, Kuwait | 14 days |
| Far East/South-East Asia | NSCSA | Saudi Arabia, United Arab Emirates | 18 days |
| South-East Asia | American | UAE, *Oman, Qatar, Bahrain | |
| *Far East, North America | President Lines | Saudi Arabia, Kuwait | 7 days |
| Far East/South-East Asia | UASC/Willine/ OOCL ⁽¹⁾ | Oman, United Arab Emirates, Saudi Arabia, Kuwait, Bahrain | 10 days |
| Far East/South-East Asia | OASIS ⁽²⁾ | UAE, Saudi Arabia, Kuwait, Bahrain, Oman | 9 days |
| Far East/South-East Asia | Evergreen | United Arab Emirates, Saudi Arabia, Bahrain | 14 days |
| *Far East/South-East Asia | Ceylon Shipping | United Arab Emirates, , Saudi Arabia, Kuwait | 10 days |
| China/South-East Asia | COSCO | United Arab Emirates, Saudi Arabia, Kuwait | Monthly |
| | | <u>Red Sea area</u> | |
| Far East/South-East Asia | Evergreen | Saudi Arabia | Max 7 days |
| South-East Asia (*Far East) | Balt Orient | Saudi Arabia | Max 7 days |
| Far East/South-East Asia | Polish Ocean | Saudi Arabia | Monthly |
| Far East/South-East Asia | Yangming | Saudi Arabia | 17 days |
| Australasia, Far East, South-East Asia | Contship (Eagle) | Saudi Arabia, Jordan | 14 days |
| Far East/South-East Asia | UASC | *Saudi Arabia, Jordan | 10 days |
| Far East/South-East Asia | NSCSA | Saudi Arabia | 18 days |
| Far East/South-East Asia | Scan Dutch | Saudi Arabia | Max 7 days |
| Far East/South-East Asia | Scan Dutch | Saudi Arabia, Jordan | Monthly |
| Far East/South-East Asia Arabia, Jordan | Red Sea container 12 days service ⁽³⁾ | | Saudi |

Table 2.8. (Cont'd)

| Area of origin | Operator | Country of destination | Frequency |
|---|-------------------------|---------------------------------------|-----------|
| | | <u>East Mediterranean Area</u> | |
| Far East/South-East Asia | Scan Dutch | *Egypt, Syrian Arab Republic, Lebanon | Monthly |
| Australasia, Far East, South-East Asia | Eagle Container Line | Egypt | 16 days |

Source: Compiled from Arab Shipping Guide, 1986, (Seatrade, London).

Notes: (*) With trans-shipment.

(1) Services merged in March 1986.

(2) NYK, K. Line, Mitsui OSK, US Line and OCL.

(3) NYK, Mitsui OSK, Ben Ocean.

2.1.5. Australasia-ESCWA region trade

The AMEG conference operates on the trade from Australasia to the Middle East Gulf and includes the following carriers: Nippon Yusen Kaisha (NYK), Overseas Containers Ltd. (OCL), Blue Star and Scan Carriers. In a trade which is still mainly one-way as far as loadings are concerned, but which has to cover a round-trip ocean voyage distance of some 22,400 km, restricted direct calls geared to centralization enable comparatively fast times to be achieved. The round trip takes around 55 days.

Blue Star deploys two purpose-built cellular vessels, the "Australia Star" and "New Zealand Star", each of 650 TEU capacity. OCL participation in the trade began in 1981 and OCL now deploys the 422 TEU "Muscat Bay". Then in 1983 two lines which had been providing extremely effective non-conference competition on the trade, NYK and Scan Carriers, became full AMEG members. The entry of NYK and Scan Carriers into AMEG effectively removed non-conference competition from the trade and raised non-tariff rates. NYK operates with the 911-TEU "Helene Delmas" and the 328-TEU "Plata" containerships. Scan carriers deploys six ro-ro carriers, two of them with a capacity of 1,707 TEU each, another two with a capacity of 1,420 TEU each and one of 1,319 TEU.

The main non-conference competition is provided by the Hong Kong-headquartered Orient Overseas Container Line (OOCL) which loads boxes at Australian ports, and trans-ships them at Kashsiung, Taiwan, to connect with sailings into the Arabian Gulf. In general, its rates are about 5 per cent below the conference tariff. OOCL loads in Brisbane, Sydney, Melbourne and Burnie, and its ESCWA region destinations are Muscat, Dubai, Dammam, Kuwait, Bahrain and other ports. It offers weekly departures from Australia and fortnightly from Kaohsiung. Its transit time is from 8 to 10 weeks.

Currently being promulgated in Australia is a joint sailing schedule on behalf of all the conference members. The Arab Gulf discharge ports are Muscat, Dubai, Bahrain, Dammam and Kuwait, but through bill of lading are issued to other destinations, including Abu Dhabi, Sharjah, Doha and Riyadh, as well as points of Iraq.

Between 30 and 35 per cent of Blue Star liftings are designed for Saudi Arabia; about 30 per cent move to Dubai and the balance moves to Kuwait and Bahrain. Blue Star has a substantial share of the reefer market and dry cargo trade from New Zealand.

Scan carriers, which calls at Dubai only with every alternate northbound sailing and feeds to other Arabian Gulf points from Dubai, calculates that 30-40 per cent of its carryings consists of reefer traffic.

Lack of return cargoes from the Gulf is compensated by Blue Star and OCL with southbound calls at Karachi, Bombay, Cochin and Colombo, which offer some opportunities for dry cargoes to be lifted.

2.1.6. Container feeder services in the ESCWA region

In the past few years there has been rapid development of feeder services within the ESCWA region. These are operated as specialized

feeder facilities on behalf of mainline carriers, by mainline carriers as dedicated feeders to complement their own services, or as common carrier services. Sometimes all three categories are covered simultaneously.

The feeder container services in the region were initiated about 10 years ago by the national line of Qatar, Qatar National Navigation and Transport Co. (QNTC) as part of a range of activities within the Arabian Gulf on behalf of several major mainline carriers. Currently, at least 13 carriers are engaged in the relaying of containers within the Arab Gulf, and between the Arab Gulf and the Indian sub-continent, as well as East Africa. These carriers, excluding the barge capacities of QNTC, Pan Gulf and the Al-Marjan Shipping Co., now deploy an estimated annual capacity of around 168,000 TEU. Barge carrying capacity is excluded from the calculation, as the barge carriers operate partially on an inducement basis, although QNTC and Al-Marjan offers some regular liner-type services between the Arab Gulf ports. Barge capacity is not being fully utilized. Al-Marjan Shipping Co. operates a mixed fleet of flat-top barges and one 145 TEU semi-containership "Jork". This deployment enables it to offer a scheduled fortnightly liner service between Dubai, Muscat, Karachi and Bombay, and twice-monthly sailings between Dubai, Sharjah and Abu Dhabi, but on-inducement capacity between all Gulf ports.

During the past 10 years the feedering and short-sea services have expanded in the ESCWA region, namely in the Arabian Gulf. This involves traffic consigned between the States bordering the Arab Gulf and the trades between the Arab Gulf ports and Bombay, Karachi, Colombo, Mombasa and Dar-es-Salaam. Certain carriers involved in the trades are now lifting containers as common, or third party carriers, directly on behalf of shippers/consignees between one or two points in the Arab Gulf - Indian sub-continent - East Africa triangle. They are also relaying containers to interconnect with mainline services in which they are involved and/or are simultaneously lifting on behalf of main haul principals. Thus two major mainline carriers, US Lines (USL) and American President Lines (APL) discharge containers at ports in the Gulf of Oman, not even entering the Arab Gulf and then use feeder vessels to enable them to offer final destination ports in the Arab Gulf, the Indian sub-continent and East Africa.

Such major United Arab Emirates ports in the Gulf of Oman as Fujairah and Khor Fakkan support the idea as relay centres for the Arabian Gulf, Indian sub-continent and East Africa and of using feedering in the ESCWA region.

One of the major feeder operators in the Arabian Gulf area is the West Asia Kontena Line (WAKL). Its estimated annual capacity (excluding its separate Intra-Asian services) is 36,920 TEU. WAKL is managed by Sea Consortium of Singapore. Since it began operations in 1983, WAKL has achieved a substantial increase in liftings. In 1983, WAKL and its sister operator Bengal X-Press Container Line moved around 51,000 TEU. In 1984, total throughput was around 86,000 TEU and in 1985, 128,000 TEU. Liftings for only the first quarter of 1986 are calculated as having exceeded 40,000 TEU. WAKL feeders for a host of major mainline carriers, including Australian National Line, Blue Star Line, Fos, Hoegh lines, Lloyd Triestino, Nedlloyd, Sea-Land Service and US Lines. It does not carry directly for shippers/consignees, having adopted the policy that this could conflict with the interests of the lines it services. Consequently it does not own or lease any container equipment.

Table 2.9. Feeder/short-sea services operating within the Arabian Gulf region and between the Arabian Gulf and the Indian sub-continent and East Africa

| Operator | Arabian Gulf ports served | Indian sub-continent/ | | Vessels employed | Vessel type | Vessel capacity in TEU | Service frequency | Category of operation |
|----------------------------------|---|---|---|-----------------------------|-------------|------------------------|---|-----------------------|
| | | East African ports served | Indian sub-continent/ East African ports served | | | | | |
| Al Marjan Shipping Co. | Gulf ports/ Bandar Abbas | | Flat top barges | Barges | 120 | Subject to inducement | Common carrier | |
| Al Marjan Shipping Co. | Dubai/Muscat | Karachi/Bombay | Jork barges | SC | 145 | Fortnightly | Common carrier, largely used by BBS | |
| Al Marjan Shipping Co. | Dubai/Sharjah/ Abu Dhabi | | | Barge | 66 | Thrice monthly | Common carrier, largely used by UASC | |
| Barber Dubai Shipping | Dubai/Muscat | Karachi/Bombay | Tilla | RR | 200 | Twice monthly | Common carrier | |
| Ceylon Shipping Corp. | Kuwait/Dammam/ Dubai | Colombo/Madras/ Bombay/Cochin/ Mangalore/Calcutta | Lanka Seedevi Lanka Siri | SC SC | 410 410 | Fortnightly | Dedicated carrier | |
| Compagnie Maritime d'Affretement | Muscat | Cochin/Bombay/ Karachi | Theodore Fontane | FC | 343 | Twice monthly | Dedicated to feedering for CMA | |
| Maersk Line | Dubai/Abu Dhabi/ Doha/Jubail/ Ras al Mishab | | Maersk Astro | ro-ro/ container- ner | 194 | Fortnightly | Feeder/common carrier | |
| Maersk Line | Dubai | Bombay/Karachi | Elizabeth Maersk Maersk Astro | RR RR | 900 194 | Fortnightly | Feeder/common carrier | |
| Merzario Andrea | Jebel Ali/Muscat | Karachi/Bombay plus Kandla (alternate calls) | Lakatoi Express White Star | SC SC | 456 476 | Every 6 days | Feeder for Merzario and associated services including Trident partners, and carrier | |
| Orient Express Line | Dubai | Bombay/Kandla/Karachi | Orient Express | FC | 270 | Fortnightly | Common carrier, but approximately 50 to 60 per cent slot capacity allocated to UASC | |
| Overseas Containers Ltd. | Dubai | Karachi/Colombo/Dar es Salaam/Mombasa | Gerrans Bay | FC | 345 | Monthly | Common carrier, also used to link OCL services via Dubai | |

Table 2.9. (Cont'd)

| Operator | Indian sub-continent/ East African ports served | | Vessels employed | Vessel type | Vessel capacity in TEU | Service frequency | Category of operation |
|------------------------|--|---|---------------------------------|----------------|------------------------------|----------------------|--|
| | Arabian Gulf ports served | Indian sub-continent/ East African ports served | | | | | |
| Pan Gulf | All Gulf ports | | Dumb barges | Barges | Up to 176 | Every 2 days | Dedicated feeder service according to demand |
| Qatar Navigation Co. | Dubai/Doha | | Barges | Barge | Up to 100 | Subject to demand | Common carrier |
| Qatar Navigation Co. | Bahrain/Doha | | Barge | Barge | up to 100 | Subject to demand | Common carrier mostly used by BBS and OCL |
| Sea-Land Service | Jebel Ali/Muscat | Colombo/Tuticorin Cochin | Silver Star | SC | 476 | Fortnightly | Feeder for Sea-Land Service and Merzario, and common carrier |
| US Lines | Khor Fakkan | Karachi/Dar es Salaam/Mombasa | Merkur River Global Express | SC FC | 445 354 | Weekly | Dedicated feeder service |
| US Lines | Khor Fakkan/Muscat | Karachi/Bombay | Jumna Pioneer Colaba Pioneer | FC SC | 580 582 | Weekly | Dedicated feeder service |
| US Lines | Khor Fakkan/ Bahrain/Dammam/ Kuwait | | Gulf Pioneer | FC | 586 | Weekly | Dedicated feeder service |
| West Asia Kontena Line | Fujairah/Dubai/ Dammam/Kuwait/ Bahrain | | Karakoram | SC | 840 | Weekly | Dedicated common user feeder service |
| West Asia Kontena Line | Fujairah/Muscat | Karachi | Utopia | SC | 580 | Weekly | Dedicated common user feeder service |

Source: Containerisation International.

Using the 840-TEU semi-containership "Karakoram", WAKL provides a weekly schedule which links Fujairah with Dubai, Dammam, Kuwait and Bahrain. A second semi-containership, the 580-TEU "Utopia", operates a weekly closed-circle schedule between Fujairah, Muscat (Oman) and Karachi. WAKL provides services also for the APL mainline which enable APL to offer through service, under its own bill of lading, to the Arab Gulf ports. Additionally, containers originating to/from ports within the Arab Gulf are transferred at Fujairah onto APL mainline vessels calling at Madras and Colombo, from which latter port APL relays to Bombay.

Another major feeder carrier in the ESCWA region is the US Lines, which provide a weekly service linking Khor Fakkan with Muscat (Oman) and Bahrain, Dammam and Kuwait in the Arab Gulf as well as Karachi, Dar-es-Salaam and Mombasa in the Indian sub-continent. USL operates directly its own fully dedicated fleet of feeder vessels. The 445-TEU and 354-TEU containerships "Merkur River" and "Global Express" operate a schedule between Khor Fakkan, Karachi, Dar-es-Salaam and Mombasa. The 580-TEU containerships "Jumna" and "Coloba Pioneer" maintain a schedule between Khor Fakkan, Muscat, Bombay and Karachi and the 586 TEU-full containership "Gulf Pioneer" is deployed between Khor Fakkan and Bahrain, Dammam and Kuwait in the Arab Gulf. All three schedules are weekly. All other United Arab Emirates destinations and Doha, Qatar are served by road.

Estimated annual capacity of USL is around 26,500 TEU. Also extensively engaged in the Arab Gulf/Indian sub-continent feeder trade is the Trident joint service, consisting of Sea-Land, Navale and Commerciale Havraise Peninsulaire (NCHP) and Merzario. All of the vessels deployed in the Trident mainline service from the United Kingdom/Northern Europe/Mediterranean call at Muscat, Jebel Ali, Bahrain, Dammam and Kuwait, as do the vessels employed by Merzario on its Mediterranean/Mid-East service, on which Lloyd Triestino charters slots. A six-day frequency feeder link from Jebel Ali to Muscat, Karachi and Bombay, plus Kandla with alternate calls, is maintained by Merzario with two semi-containerships, the 456-TEU "Lakatoi Express" and the 476-TEU "White Star".

Sea-Land employs the 476-TEU semi-containership "Silver Star" on a fortnightly schedule linking Jebel Ali with Muscat, Colombo, Tuticorin and Cochin. This arrangement allows Sea-Land to offer capacity between the United Kingdom/Northern Europe/Mediterranean and the Arabian Gulf ports as well as India, Pakistan and Sri Lanka, while Merzario offers a similar service, plus capacity on its separate Mediterranean service, but with Colombo excluded. Both operators offer capacity to shippers/consignees between the Arabian Gulf and Indian sub-continent, but again, with Andrea not covering Colombo. Merzario has been considering the idea of extending its feeder link from the Arabian Gulf to cover the east of India. This would be by separate feeder sailings linking Jebel Ali, Colombo, Cochin, Madras and Calcutta.

It should be noted that the trade between the Arabian Gulf and Indian sub-continent is not governed by any conference or rate agreement, so the competition on the route is very tough. Thus, the 20-ft rate from Bombay/Karachi to the Arabian Gulf ports fell from around \$US 1,100 in 1985 to the \$US 900-\$US 950 range in 1986. East-bound the rate was approximately

\$US 750. Even lower figures were quoted by NCHP. On the trade from Karachi/Bombay to Dubai/Jebel Ali the rate was only about \$US 700 and the east-bound rate is a maximum of \$US 500.

NCHP does not operate a feeder vessel of its own between Jebel Ali and the Indian sub-continent. Capacity is offered in the name of Octomar lines in both directions between UK/Europe and the Arabian Gulf-Bombay/Karachi: NCHP has a slot charter agreement with Octomar Lines, which also makes use of the Trident feeder vessels.

One of the ro-ro short-sea service carriers operating between the Arabian Gulf and Indian sub-continent is Orient Express Lines (OEL). Using a small 270-TEU full containership, the Orient Express offers a fortnightly schedule between Dubai, Bombay, Kandla and Karachi. The operator carries containers between the Gulf and Indian sub-continent directly on behalf of shippers and consignees, but it also acts as a subcontracting feeder to the United Arab Shipping Co. (UASC) which takes 50 to 60 per cent of the east and westbound capacity on each sailing. Estimated annual capacity of Orient Express Line is around 7,000 TEU. One of the barge operators in the ESCWA region is the above-mentioned Al-Marjan Shipping Co. (AMSC), which is a common service carrier largely devoted to feeding on behalf of the Barber Blue Sea mainline service. AMSC proved that barging can be economically attractive over short distances in the Gulf. It runs a three-times-a-month barge service between Dubai and Sharjah for which UASC is one of the main customers.

Another barge carrier in the ESCWA region is the Qatar National Transport Company. After abandoning its service between the Arabian Gulf and the Indian sub-continent in 1985, the operator commenced the barge service within the Arabian Gulf only.

Table 2.10 Estimated annual capacities of carriers operating short-sea/ feeder services within the ESCWA region and between the Arabian Gulf and Indian sub-continent and East Africa*

| Operator Annual capacity in TEU | |
|----------------------------------|----------------|
| Al Marjan Shipping Company | 3,480 |
| Burber Dubai Shipping | 4,800 |
| Ceylon Shipping Corp. | 10,543 |
| Compagnie Maritime d'Affretement | 8,232 |
| Maersk Lines | 26,256 |
| Merzario, Andrea | 27,960 |
| Orient Express Line | 6,943 |
| Overseas Containers Ltd. | 4,140 |
| Sea-Land Service | 12,376 |
| US Lines | 26,489 |
| West Asia Kontena Line | 36,920 |
| Total | 168,139 |

Source: Containerisation International.

* Barge capacity excluded.

One of the major QNTC activities is the operation of a fleet of flat-top barges, the capacity of which vary between 44 TEU and 100 TEU. These are utilized also for intra-Arabian Gulf feeder services, and are towed by ocean-going tugs. All of the barges can accommodate two tiers of 20-ft or 40-ft containers.

At present QNTC feeder traffic is between Dubai and Doha, by water and road, and it is running around 800 to 1000 units per month. By operating both water and road feeding systems it is able to offer the facility of moving a full container one way by road, and returning the empty by water and vice versa.

Pan Gulf is also a barge feeder service carrier in the ESCWA region. Each barge unit of Pan Gulf has a capacity ranging between 60 and 176 container units. It regularly feeders for Norasia Line, Nedlloyd Lines and Maersk Line.

One of the few carriers to base a feeder operation on the Gulf of Oman port of Muscat is the Marseille-headquartered Compagnie Maritime d'Affrètement, which calls there northbound with a 12 to 13 day frequency of mainline sailings from the United Kingdom/Northern Europe/Mediterranean. These then continue on to make direct calls at Dubai, Bahrain, Dammam, Kuwait and southbound calls at Muscat. A CMA-operated 343-TEU full containership, the "Theodore Fontane" is deployed on a twice-a-month schedule between Muscat, Cochin, Bombay and Karachi. It enables CMA to offer a comparatively fast liner service in both directions between the United Kingdom/Northern Europe and the Indian sub-continent.

One of the largest single feeder carriers in the intra-Arab Gulf-Indian sub-continent trades is the Maersk Line. Its estimated annual capacity is around 26,250 TEU. Maersk feeds as a complement to its mainline services into the Arabian Gulf from the west, east and Gulf coasts of North America, West Africa, the United Kingdom/Northern Europe and Japan/Far East. It also relays on behalf of other mainline carriers, and offers intra-Arab Gulf and Bombay-Karachi capacity to the ESCWA region and Indian sub-continent shippers and consignees. As shown in table 2.9, Maersk, by deploying the 900-TEU ro-ro "Elizabeth Maersk" between Dubai, Karachi and Bombay and the 194-TEU ro-ro "Maersk Astro" on a twice-monthly schedule between Dubai and other Gulf ports, deploys an estimated annual capacity of 26,256 TEU. With effect from the end of 1984, Maersk has used Dubai as its main relay point in the Gulf. In this way all Maersk mainline services and its cross-Indian Ocean trade interchange with each other in Dubai. Thus, all Maersk traffic consigned to any Gulf port except Dammam and Bahrain is discharged at Dubai to be on-forwarded by truck, or to connect with interline services. Maersk traffic over Dubai in 1985 was 98,000 TEU and increased significantly in 1986. The significance of Maersk's feeding operations to the ESCWA region is confirmed by the estimate that only around 10 per cent of the capacity of the "Elizabeth Maersk" on the Dubai-Karachi-Bombay trade is taken up by locally originating short-sea traffic and by feeder traffic lifted on account of other mainline carriers. The trade from Japan/Far East now makes up the largest share of Maersk's traffic within the Arabian Gulf and the Indian sub-continent.

According to the recommendation of UNCTAD, if the principal type of cargo to be carried and its stowed factor are not known, a maximum figure of 12 tons per TEU for imported general consumer goods in developing countries should be taken.

2.1.7. The United Arab Shipping Company Trade

In the past few years, ESCWA countries have increased considerably their container and break-bulk sea-borne trade as well as fleet through the remarkable development of the pan-Arab United Arab Shipping Company (UASC).

UASC is one of the largest container and break-bulk national operators. It was established in July 1976 by the Governments of some ESCWA countries, namely: the United Arab Emirates, Bahrain, Saudi Arabia, Iraq, Qatar and Kuwait. UASC has an authorized capital of \$1.8 billion and a subscribed capital of \$654 million. Each country has equity holdings of 19.3 per cent, except Bahrain which has 3.5 per cent.

As such, UASC represents the Governments of all Arab States bordering the Arabian Gulf, and consequently the company board of directors consists of two representatives of each share-holding State.

The main reason for the formation of UASC was the desire of ESCWA countries to strengthen the economic links among them and to develop their resources. Indeed, ESCWA countries were, and still are, dependent to a large extent upon the import of capital and commercial goods and until the 1960s it was foreign shipowners that carried these goods to the ESCWA region. In spite of the formation of shipping lines by Kuwait and Iraq, the dramatic growth in trade during the 1970s required a far larger degree of local participation in shipping than individual States could afford. Therefore there was a strategic reason for the creation of UASC. ESCWA countries should not rely upon foreign carriers as they can withdraw from the trade any time.

The other reason was an investment. The oil resources in the region are not endless. On the other hand, shipping is just one of the alternative sectors of economics to be developed apart from oil. It is a capital-intensive industry and therefore suits those ESCWA countries where there is a shortage of manpower. Indeed, the bulk of UASC manpower is foreign. Its officers are British and most of the sailors are from the Indian sub-continent and Sierra Leone. UASC aimed to carry 40 per cent of its member nations' trade and thus fall in line with UNCTAD's 40:40:20 code of conduct for liner conferences. As far as UASC was concerned, the best way to achieve this was to participate in the conference systems on all of its main trade routes, and at the same time substantially increase its tonnage deployment. However, among the ESCWA countries only Saudi Arabia ratified the UNCTAD Liner Code and became the second share-holding State after Iraq to adopt the Code. UASC supports the liner code and hopes that all the remaining share-holding States will sign the code in order to protect its rights and privileges as the national shipping company of the States of the region. Hence today UASC is a member of the 8900 rate agreement (US Atlantic and Gulf/Mid-East), ACMEL (Associated Continental Middle East Lines), Medmecon (Mediterranean Middle East Conference), Jappercon

(Japan/India, Pakistan, Gulf/Japan Conference), the United Kingdom/Mid-East Conference and others. It has also applied to join the Far Eastern Freight Conference (FEFC). Apart from the advantages provided by the conferences such as regular services, fixed rates and stability for shippers it is also easier within such a framework to work closely with the national lines at the other end of the trade routes.

One of the main objectives is also to represent the interests of the ESCWA countries within the conference, and to have some control of the conference policies on these trade routes. According to article XV of the agreement for its establishment, UASC is considered the national company of each of the participant States before the international maritime conferences, as regards their service lines to the Arab Gulf ports. In accordance with this article, it was decided that UASC vessels should fly the flags of all six member States. UASC is concentrating now on lifting more than 40 per cent of the Gulf trade alone. Although UASC is currently carrying only 5 per cent of the overall traffic to the Arabian Gulf, the company is taking about 40 per cent or more of the conference controlled liner trades in the region, excluding outsider traffic.

The policy of UASC is to obtain 15 conference shares of cargo using numerous and modern vessels and offering a greater frequency of service to the Arabian Gulf than any other lines, since UASC is based in the Arabian Gulf with direct access for all consignees, and has offices close to all the main markets worldwide.

Significantly, the UASC investment programme over the past few years has been geared strongly towards the acquisition of cellular tonnage and a container fleet for deployment on its main services to Europe, North America and the Far East, although it had been operating some 39 of its own "K" class multipurpose vessels capable of carrying 288 TEU each, as well as conventional tonnage. The company first moved into fully cellular shipping in 1979.

UASC maintains regular and reliable shipping services to the ESCWA countries from a wide range of ports of all major trading partners to perform its foremost task as the national shipping line of the six Arabian Gulf States. The company also maintains its position as No. 1 carrier to the Arabian Gulf in cargo carryings, sailing frequencies and port coverage. Owing to its reliable, efficient and regular shipping services, the company continued to enjoy strong support from both the governments as well as the private sectors of the share-holding States. The trades served by UASC have witnessed fierce competition throughout the past few years. A degree of stability was achieved in the Europe to the Arabian Gulf trade when the joint Container Service Consortium entered into an agreement with other four lines operating outside the Consortium. The exports from North America to the Arabian Gulf have decreased over the years. With the expanded services and the benefit of having all the AZ vessels in operation for the past few years, UASC increased its total container liftings by more than 30 per cent in 3 to 4 years. Thus, in 1984 alone, the company carried out 266 voyages, carrying a total of 6 million freight tons, which included 3 million freight tons of break-bulk cargo and 151,000 TEU.

The United Arab Shipping Company operates the following container services:

Northern Europe-Arabian Gulf

Some stability was restored in this trade starting in 1984 as a result of an agreement between the Joint Container Service and four other lines. In 1984, JCS was extended to cover the Mediterranean ports and eventually replaced the Mediterranean Joint Container Service. UASC accounts for 45 per cent of slots in the six-member Joint Container Service Conference that, as it mentioned above, operates in the Northern Europe-Arabian Gulf trade. JCS also serves Scandinavia from Hamburg/Bremenhaven and Aarhus, with sailings every nine days. Regular Gulf ports of call are Mina Qaboos in Oman, Abu Dhabi, Dubai, Bahrain, Dammam and Kuwait, with every second vessel calling at Jubail. In addition UASC calls at Jeddah and Doha are served by trucks from Dubai. The company operates four A-2 class containerships in this trade of 1,846-TEU capacity with annual carrying capacity of about 45,000 TEU each. The company's service includes one sailing every 15 days from the United Kingdom, Belgium, the Netherlands, the Federal Republic of Germany and Scandinavian countries.

Mediterranean-Red Sea/Arabian Gulf

The Mediterranean Joint Container Service with EMEC ended in 1984 and was replaced by a combined joint container service which began additional coverage of the Mediterranean to the Red Sea and the Arabian Gulf in July 1984. Calls at Valencia, Fos, Genoa and Leghorn are now made every 15 days. In 1985, UASC launched new regular container services from Valencia (Spain) to Aqaba (Jordan) with a frequency of one sailing every 16 days.

North America-Arabian Gulf/Red Sea

The United Arab Shipping Company offers the United States and Canadian exporters a full container service from the east coast Atlantic and Gulf ports to the Middle East and Bombay, India. The full container service is operated by four A-1 class vessels of 1,160-TEU capacity calling every 14 days at the ports of Houston, Savannah, Norfolk, Baltimore and New York for Jeddah, Dubai, Dammam and Kuwait. Cargo destined for Abu Dhabi, Bahrain, Bombay, Doha, Mina Qaboos and Jubail are relayed via Dubai.

Cargo originating from the United States west coast is mini-bridged to Houston. The cargo from Toronto and Montreal is accepted on through bills of lading via New York. Though bills of trading are also accepted from Boston (via New York), Philadelphia (via Baltimore), Charleston, Jacksonville and Miami (via Savannah) and New Orleans (via Houston). Refrigerated as well as other specialized/standardized containers are accepted on all vessels. All containerizeable-break-bulk cargoes are accepted at all ports of loading. The transit time from New York to Jeddah is 16 days, to Dubai 22 days, to Dammam 24 days and to Kuwait 25 days. Containers relayed through Dubai to Bahrain, Bombay and Mina Qaboos are delivered within seven days. Containers to Abu Dhabi and Doha are delivered within three days. In 1985 UASC launched direct and regular container services from the east coast of the United States to Bahrain with a frequency of two sailings a month. Furthermore, UASC now operates a fortnightly full container service from the West Mediterranean ports of Genoa, Leghorn, Marseille/Fos and Valencia to the east coast and Gulf

ports of North America. Canadian cargoes destined for Toronto and Montreal are trucked via New York; cargoes destined for the west coast of the United States are mini-bridged via Houston.

Containers from Bombay, Arabian Gulf ports and Jeddah to the US are accepted on all sailings. UASC is a member of the 8900 freight agreement maritime conference from the United Kingdom to the Arabian Gulf, excluding United States coast and Canadian originating cargoes.

Far East/Japan - Arabian Gulf/Red Sea
(Joint service with OOCL and WIN Line)

The company operates on the Far East Arabian Gulf service five 1,846-TEU container vessels with three sailings per month and covering Yokohama, Shimizu, Nagoya, Kobe, Hakata, Busan, Keelung, Kaohsiung, Hong Kong and Singapore to Mina Qaboos, Dubai, Dammam, Kuwait, Bahrain, Abu Dhabi and Jeddah. Every vessel carries about 60,000 TEU per year. Twice weekly feeder services cover cargoes from Bangkok, Manila and Jakarta. In the Arabian Gulf, cargo for Doha is trucked from Dubai. Because of the current closure of Iraqi ports, Iraqi containers are sent by road from Kuwait.

In the Far East/Arabian Gulf trade UASC is a member of the Japan/India-Pakistan-Arabian Gulf/Japan freight conference (JAPPERCON).

Feeder service to/from India

In addition to the services mentioned above, UASC has reached agreement for a connecting container feeder service between ports on the West Coast of India and Dubai, which will permit the company to accept Indian cargo for its various overseas destinations and, similarly, deliver cargo to Bombay, originating in its main load areas, including the Gulf.

Dubai was chosen as the port of trans-shipment since it gives the optimum opportunity for transfer of cargo to and from UASC main line services. The feeder service operates on a 14-day schedule. UASC also operates one sailing every 14 days from the Arabian Gulf, the Red Sea, Bombay and West Mediterranean ports to the United States east coast and Gulf of Mexico. Sailings from Arabian Gulf and Red Sea ports to all loading areas are carried out on similar schedule.

The cargo between North America and India is the first priority of this new service, but the company hopes that demand will require that early consideration be given to extending this service to other trades.

The United Arab Shipping Company also operates the following major break-bulk conventional services:

Northern Europe - Arabian Gulf

UASC provides three sailings per month in this trade from the United Kingdom and north-west Europe (Belgium, the Netherlands, France and the Federal Republic of Germany) also serving Mediterranean ports by arrangement.

The ports of loading in the trade are as follows: Antwerp, Hamburg, Liverpool, Rotterdam, Fos and others. The ports of discharge are as follows: Yanbu, Mina Qaboos, Dubai, Abu Dhabi, Bahrain, Doha, Kuwait, Jubail and Dammam. The company uses "k" class multi-purpose vessels of 23,600 DWT each with its annual cargo-carrying capacity in this trade around 660,000 freight tons. As a part of the Associated Continental Middle East Lines Conference, UASC offers regular break-bulk services to all the above-mentioned Arabian Gulf ports, calling once a month at Salalah in Oman. According to demand, Jeddah may also be added to the list. European ports visited include Liverpool, Hamburg, Bremen, Rotterdam, Antwerp and sometimes London and Marseille.

Mediterranean - Arabian Gulf/Red Sea

UASC maintains a monthly sailing in this trade from Spain, Italy, southern France and Greece. The ports of loading includes Valencia, Piraeus, Venice and others. The ports of discharging are as follows: Gizan, Shuaiba, Kuwait, Doha, Jubail, Bahrain, Dammam, Umm Said and Dubai. The company uses the same "k" class vessels and each carries in the trade around 200,000 tons of freight per year.

South America - Red Sea/Arabian Gulf

This service follows two patterns: first fortnightly sailings to the Arabian Gulf, India and Pakistan from Brazil and Argentina with container lifting capacity, and secondly, monthly sailings to the Red Sea and the Mediterranean ports, mostly from Brazil. In this trade also the "k" class multi-purpose vessels of 23,600 DWT are used, with an annual cargo capacity of around 486,000 tons of freight. The ports of loading in the trade are: Buenos Aires, Santos, Victoria, Rio de Janeiro and Rio Grande. The ports of discharging are Jeddah, Bombay, Karachi, Dubai, Bahrain, Dammam, Kuwait, Mina Qaboos.

North America - Red Sea/Arabian Gulf

Only four break-bulk voyages per year are carried out in the trade, owing to the decline of the United States exports to the ESCWA region together with increased containerisation and overtonnaging in this trade. It made the regular calls unfeasible. The "k" class vessels can carry in these voyages about 70,000 tons of freight per year. The ports of loading include Houston, New Orleans, Quebec City and St. John. The ports of discharge include Aqaba, Bahrain, Kuwait, Dammam and Dubai.

Far East - Arabian Gulf/Red Sea

UASC operates three sailings per month in this trade with three "k"-class break-bulk vessels of 23,600 DWT capacity. The main ports of loading are Yokohama, Nagoya, Kobe and, subject to inducement, Busan, Keelung, Kaohsiung, Hong Kong, Singapore, Manila and Bangkok. The ports of discharging include Aqaba, Dubai, Abu Dhabi, Shuaiba, Kuwait, Dammam and Bahrain. Every vessel carries about 560,000 tons of freight during the year.

In the Far East/Arabian Gulf trade UASC is a member of the Japan/India-Pakistan-Gulf/Japan freight conference covering Japan, the Republic of Korea and Hong Kong.

In the Far East/Red Sea trade, UASC operates independent of the conference.

As was mentioned above, the United Arab Shipping Company is an active member of all the relevant liner conferences which serve the Arabian Gulf and Red Sea ports. These conferences consist of a group of shipping companies which operate on the same trade route. They aim to offer a regular liner service at agreed freight rates.

UASC is a member of the following maritime liner conferences, some of which have already been mentioned above:

- The 8900 Rate Agreement (US Atlantic and Gulf-Arabian Gulf)
- ACMEL (Associated Continental Middle East Lines)
- UKMEL (United Kingdom/Middle East Lines)
- MEDMECON (Mediterranean-Middle East Conference)
- JAPPERCON (Japan/India, Pakistan; Gulf/Japan Conference)
- Continental-Red Sea
- United Kingdom-Red Sea
- WCIAG
- Joint Container Service (JCS) Conference (North Europe-Arabian Gulf).

Because of its membership in the conferences, UASC was able to prevent an increase in insurance rates when the Iran/Iraq war broke out. The company was able to persuade fellow members that it was not necessary to increase the war-risk rates. This saved money for the company's customers.

In the past few years there has been a considerable increase by ESCWA countries in the use of their own containers in maritime transportation of cargoes, and UASC offered a comprehensive range of container services. Thus from April 1982, container control has been centralized from a base in Dubai. At present the number of containers owned by UASC is more than 25,000 TEU. The container control has been developed as an in-house leasing company whose principal responsibility is to provide equipment for UASC world-wide trades with the objective of optimizing utilization of container equipment.

UASC also participates in cross trading services, such as from the Mediterranean ports to North America, where the company obtained excellent support on its container service and became one of the main operators on that trade.

Analysis of data showing the development of break-bulk and containerised liftings carried out by UASC during the five-year period of 1980-1984 indicated that break-bulk cargoes decreased from 3.66 mn freight tons in 1980 to 2.9 mn freight tons in 1984, equivalent to -21 per cent. In contrast, the containerised cargo grew by 187 per cent during this period. In the transportation of break-bulk cargo by UASC, there is a strong tendency towards reduction, according to data submitted.

Table 2.11 Development of container and break-bulk liftings by the United Arab Shipping Company
(Million freight tons)

| Lifting | 1980 | 1981 | 1982 | 1983 | 1984 |
|---------------------|------|------|------|------|------|
| Break bulk | 3.66 | 3.61 | 3.11 | 2.81 | 2.9 |
| Containerized cargo | 1.08 | 1.57 | 1.98 | 2.12 | 3.1 |
| Total | 4.74 | 5.18 | 5.09 | 4.93 | 6.0 |

Source: United Arab Shipping Company.

The total UASC container and break-bulk cargo trades increased by 26.6 per cent during 1980-1984 in spite of a reduction in 1981/1982 of 1.7 per cent and in 1982/1983 of 3.1 per cent. An increase in intra-Gulf trade was not enough to prevent UASC from recording \$6.8 million operating losses in 1985; however, improved efficiency had resulted in a reduction of the losses from the previous year's \$11.4 million. One reason for the losses is that overcapacity on the Arabian Gulf routes is estimated at 35 per cent. The company also cited the downturn in trade to the region as another cause for its continuing losses. Overall imports into the company's shareholder countries were down by 10 per cent in 1985. Total freight carried by UASC in 1985 was 5.3 million freight tons -11.7 per cent down from the previous year. Container traffic was down by 10 per cent, to 136,000 (TEU) in 1985. The number of containers leaving the region doubled in 1985 to 16,000 TEU, and the company recorded a 36 per cent increase to 2,249 TEU in intra-Arabian Gulf trade during the year.

2.1.8. National Shipping Company of Saudi Arabia (NSCSA)

Another major national container and break-bulk operator in the ESCWA region is the National Shipping Company of Saudi Arabia. It is a relatively new national line, which has played a prominent role in the development of the ESCWA region's shipping activities.

NSCSA was set up in 1979. It now has six large modern cargo vessels and two petrochemical tankers. NSCSA is owned 25 per cent by the Government and 75 per cent by private investors. Total assets fell to \$337 million in 1985 from \$438 million.

NSCSA now operates an integrated ro-ro/container, general cargo service, which takes in the United States, Middle East and Far East. The service started in 1981, with two ro-ro sister ships operating in the United States-Red Sea/Arabian Gulf market, each offering a capacity of 1,250 TEU. It took in the Far East in 1983 when four new 2,000 TEU ro-ro carriers were added to the fleet.

The vessels take on cargo in the United States Gulf and east coast ports, sail to the Red Sea and Arabian Gulf and then on to the Far East where

they load again and return. Built in Sweden, the new ships have 400-ton capacity ramps that allow simultaneous loading and discharging of heavy vehicles. Decks are strengthened to carry stock loads of up to 60 tons.

A special feature of the cargo handling is the hoistable car decks, located at the forward end of each vessel and capable of holding 530 cars. When not in use, the decks can be stowed to make room for other cargo such as larger vehicles and machinery.

Plans for regular liner services linking the ESCWA region with the United Kingdom and continental Europe have been delayed by the generally depressed state of world shipping markets. That depression and increased competition have affected NSCSA's financial performances in 1985. NSCSA suffered a \$14.9 million loss in 1985, compared with a \$1.4 million loss in 1984, mainly because of the decline in both trade and rates.

Revenues from shipping dropped to \$84 million from \$94.5 million. Other revenues fell to \$17 million from \$28.4 million. The volume of cargo carried fell by 6.2 per cent, to 1.3 million tons.

Services on the United States section were badly hit by a sharp drop in rates of around 30 per cent. With United States exports to the Middle East still suffering from the high value of the dollar, American cargo volumes look unlikely to improve for some time yet. Cargo to the Middle East declined rapidly in 1985. US Liner cargo dropped by about 40 per cent and that from Japan by roughly 20 per cent. There are structural reasons for the decline in demand. Some economic sectors were experiencing strong downturns before the present slump.

As concerns the United Kingdom/European service of NSCSA, it will include such European ports of call as Hamburg and/or Bremenhaven in the Federal Republic of Germany, Rotterdam in the Netherlands, Antwerp in Belgium, Le Havre in France and a United Kingdom port of Southampton or Felixstowe. Middle East ports would probably be the major Saudi centres of Yanbu and Jeddah on the Red Sea coast, and Dammam and Jubail, and perhaps Jebel Ali, in the Gulf. It appears the new service would be separate from the existing United States/Middle East/Far East operation, unless the company were to consider some kind of Mediterranean trans-shipment service. NSCSA is also looking to expand its non-liner activities. In 1984, it won the contract to manage a \$45 million, 43,000-dwt methanol carrier being built by the Republic of Korea's Daewoo shipbuilders. NSCSA will own the vessel and charter it to SABIC to transport methanol from its plants in Jubail to world markets, notably Rotterdam.

NSCSA ordered two 41,500-dwt chemical carriers from a Republic of Korea firm. One of them was delivered in 1986 and is operating in a joint venture with UASC to transport petrochemicals from Jubail's SADAF.

3. FUTURE PROSPECTS OF CONTAINER AND BREAK-BULK SEA-BORNE TRADE IN ESCWA COUNTRIES

3.1. Saudi Arabia

3.1.1. Ports

Saudi Arabia has five major ports: Yanbu, Jeddah, Dammam, Jubail and Jizan which have been operated since 1976 by the Saudi Ports Authority (SPA).

The port of Dammam is located in the Arabian Gulf and consists of 38 berths and a hazardous cargo berth, all occupying 7,770 m of pier. Five berths have ro-ro ramps. Container and multi-purpose terminals include a railhead for through shipment to Riyadh and a new 280,000 m² container freight station with 37,000 m² of covered warehousing. The King Fahd Ship Repair Yard is located at the port.

Container and break-bulk facilities of Jizan Port, which is located in the Red Sea Saudi Arabian coast, include a three-berth container terminal incorporating a ro-ro ramp, and seven break-bulk cargo berths, one with ro-ro facilities.

Jeddah Islamic Port is also located in the Red Sea area and is a major commercial port in Saudi Arabia, handling over 50 per cent of Saudi Arabia's sea-borne imports. The port comprises 45 berths, including new ro-ro facilities, and has a total quay length of over 9 km. The Jeddah container terminal includes five berths. There are also livestock terminals.

The Port of Jubail is located in the Arabian Gulf and is divided into industrial and commercial zones. The industrial harbour offers nine berths, one with a ro-ro ramp. The commercial port includes 14 break-bulk conventional berths, and a two-berth container/ro-ro terminal operated by International Port Managers Ltd.

Yanbu/King Fahd Port is also located in the Red Sea and includes the commercial port of Yanbu and the industrial King Fahd Port. The commercial port of Yanbu consists of eight break-bulk cargo berths, one of which has livestock facilities and five of which can accommodate ro-ro stern on. King Fahd Port consists of seven terminals. Some of them have facilities for handling of container and break-bulk cargoes.

All of the major ports - Jeddah, Dammam, Yanbu, Jubail and Jizan - have been operated since 1976 by SPA. The development of Saudi ports has been one of the most spectacular growth stories in the Saudi economy over recent years. This development was in line with the tendency towards containerised cargoes. Over the past five years Saudi Arabia has led the ESCWA region in merchant shipping growth. The country established a national container and break-bulk operator, the National Shipping Company of Saudi Arabia (NSCSA), which has played a prominent part in the development of the country's shipping activities.

NSCSA now operates an integrated ro-ro, ro-ro/container general cargo service, which takes in the United States, the Middle East and the Far East. The service started in 1981, with two ro-ro sister ships operating in the United States-Red Sea/Arabian Gulf service, each offering a capacity of 1,250 TEU. It took in the Far East in 1983 when four new 2,000 TEU ro-ro vessels were added to the fleet.

The vessels take on cargo in the United States Gulf and east coast ports, sail to the Red Sea and Arabian Gulf and then on to the Far East, where they load again and return. Plans for regular liner services linking the Middle East with the United Kingdom and continental Europe have been under consideration, but have been delayed by the generally depressed state of world shipping markets. This service will include such ports as Hamburg and Bremenhaven in the Federal Republic of Germany, Rotterdam in the Netherlands, Antwerp in Belgium, Le Havre in France and a United Kingdom port, presumably Southampton. The ESCWA countries ports will include the major Saudi centres of Yanbu and Jeddah on the Red Sea coast, and Dammam and Jubail in the Arabian Gulf. It appears the new service would be separate from the existing United States/Middle East/Far East operation, unless the company were to consider some kind of Mediterranean trans-shipment service.

3.1.2. Container traffic

Saudi Arabia's container traffic increased considerably, from 97,800 TEU in 1976 to 818,900 TEU in 1980 and to 1,175,500 TEU in 1984 equivalent to a 737 per cent increase during 1976-1980, and 43.5 per cent increase during 1980-1984. The major shares (66 to 67 per cent) of the total Saudi Arabia container traffic are occupied by the Saudi Red Sea ports, mostly by the port of Jeddah. Among the Red Sea ports Jeddah handled around 99 per cent of the traffic. The Saudi Arabian Gulf ports of Dammam and Jubail handled of around 30 to 33 per cent of the total Saudi Arabia container traffic. Dammam is the main Saudi Arabian Gulf port and handled about 98 to 99 per cent of Saudi Arabian container traffic to/from the Arabian Gulf.

Table 3.1. Saudi Arabia's container port traffic in 1976-1984
(Thousands of TEU)

| Port | 1976 | 1980 | 1981 | 1982 | 1983 | 1984 |
|-------------------------------|------|-------|-------|---------|---------|---------|
| Jeddah | 87.4 | 562.8 | 618.0 | 688.4 | 775.3 | 804.6 |
| Dammam | 10.4 | 251.0 | 286.5 | 344.1 | 400.2 | 363.7 |
| Jubail | | 4.3 | 7.9 | 13.1 | 8.3 | 4.6 |
| Yanbu | | 0.7 | 1.9 | 3.3 | 2.6 | 2.6 |
| Jizan | | 0.1 | 0.04 | 0.07 | 0.2 | - |
| Total to/from Red Sea | 87.4 | 563.6 | 619.9 | 691.8 | 778.1 | 807.2 |
| Total to/from Arabian Gulf | 10.4 | 255.3 | 294.4 | 357.2 | 408.5 | 368.3 |
| Total | 97.8 | 818.9 | 914.3 | 1,049.0 | 1,186.6 | 1,175.5 |

Source: Containerisation International.

As regards the sailing to both the Red Sea and Arabian Gulf coasts of Saudi Arabia, port containerships have registered an overall 53 per cent increase in sailings since 1980 and a 28 per cent increase in the 1984 level. Sailings to Red Sea ports fell slightly in 1985 but this was offset by a massive 100 per cent increase in callings at the Arabian Gulf coast. Full containership sailings have also fared reasonably well, registering only a small decline - 0.1 million TEU since 1984 to the Arabian Gulf - and a similar size increase to the Red Sea opened for operations in Jubail with a complete equipment package including four gantry cranes and nine mobile stacking gantries. Two other container berths were completed at Jizan in 1982 and two general cargo berths at Yanbu were modified into container facilities.

Table 3.2 Distribution of Saudi Arabia's container traffic by imports/exports in the main container ports of Jeddah and Dammam
(per cent)

| | 1981 | 1982 | 1983 | 1984 | 1985 |
|----------------------|-------|-------|-------|-------|-------|
| <u>Jeddah, total</u> | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| <u>of which:</u> | | | | | |
| Import | 50.9 | 50.6 | 50.9 | 50.3 | 50.5 |
| Export | 49.1 | 49.4 | 49.1 | 49.7 | 49.5 |
| <u>Dammam, total</u> | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| <u>of which:</u> | | | | | |
| Import | 49.5 | 52.1 | 52.0 | 50.1 | 47.8 |
| Export | 50.5 | 47.9 | 48.0 | 49.9 | 52.2 |

Source: Containerisation International and Saudi Arabia Ports Authority.

As mentioned above, Jeddah is the main container port of Saudi Arabia in the Red Sea and Dammam is the main container port among Arabian ports. An analysis of the data indicating the distribution of Saudi Arabia's container traffic to/from these ports showed that imports and exports through the ports are balanced between inbound and outbound and around 50:50 both in the Red Sea area and the Arabian Gulf area. Analysis also showed that practically 100 per cent of the imported TEU are loaded units, and around 98 to 100 per cent of exported TEU are empty.

Analysis of data from tables 3.2 and 3.3 for the period 1981-1985 gives a picture of the distribution of Saudi Arabia's container traffic by origin/destination. As regards the traffic imported for Saudi Arabia's Red Sea ports, it arrives mainly from Southern Europe (36-37 per cent) and Northern Europe (around 23 per cent), followed by the Far East (17 per cent) and North America (10 to 11 per cent). Traffic from South-East Asia and Australia comprises about 8 per cent and from the Middle East and Africa only 5 per cent. As to the traffic exported from the country by destination, analysis showed that it went to the areas of origin, because the exported traffic included mostly empty containers being returned after their unloading in the ESCWA region.

Table 3.3. Distribution of the container traffic exported from the Saudi Arabian Red Sea ports by destination
(per cent)

| Destination | 1981 | 1982 | 1983 | 1984 | 1985 |
|--------------------------|--------------|--------------|--------------|--------------|--------------|
| Northern Europe | 23.1 | 23.0 | 25.0 | 22.0 | 23.0 |
| Southern Europe | 35.0 | 32.2 | 30.0 | 38.0 | 37.0 |
| Middle East and Africa | 5.0 | 5.0 | 5.0 | 4.0 | 4.0 |
| North America | 11.8 | 10.9 | 13.9 | 11.0 | 9.9 |
| South-East Asia, Oceania | 10.6 | 10.9 | 17.1 | 7.0 | 8.1 |
| Far East | 14.5 | 18.0 | 9.0 | 18.0 | 17.0 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

Source: Calculated on the basis of data submitted by Saudi Arabia Ports Authority in the response to the questionnaire.

Table 3.4. Distribution of container traffic imported to the Saudi Arabian Red Sea ports by origin
(per cent)

| Area of origin | 1981 | 1982 | 1983 | 1984 | 1985 |
|------------------------|--------------|--------------|--------------|--------------|--------------|
| Northern Europe | 22.9 | 23.1 | 23.0 | 22.0 | 23.1 |
| Southern Europe | 35.0 | 32.0 | 37.1 | 38.0 | 37.1 |
| Middle East and Africa | 5.1 | 4.9 | 5.1 | 4.0 | 5.0 |
| North America | 12.1 | 11.0 | 9.9 | 11.1 | 9.9 |
| South Asia, Oceania | 8.9 | 11.0 | 7.9 | 6.9 | 7.9 |
| Far East | 16.0 | 18.0 | 17.0 | 18.0 | 17.0 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

Source: Calculated on the basis of data submitted by Saudi Arabia Ports Authority in the response to the questionnaire.

As concerns the traffic to/from Saudi Arabian Gulf ports, the main directions from which containers were imported and then returned was the Far East, which accounted for about 32 to 34 per cent of the total container traffic through Saudi Gulf ports. The second place is occupied by Northern Europe with around 24 to 28 per cent, then North America with 16 to 17 per cent and Europe with 15.0 per cent. South East Asia, Oceania and the Middle East and Africa have a share of 5 to 6 per cent.

Table 3.5. Distribution of container traffic through the Saudi Arabian Gulf ports by area

| Area | Import | | Export | |
|--------------------------|--------|-------|--------|-------|
| | 1984 | 1985 | 1984 | 1985 |
| Northern Europe | 25.0 | 23.0 | 26.6 | 29.1 |
| Southern Europe | 15.2 | 14.1 | 15.9 | 13.6 |
| Middle East and Africa | 4.3 | 7.5 | 4.1 | 5.5 |
| North America | 19.0 | 15.3 | 16.3 | 15.8 |
| South-East Asia, Oceania | 4.9 | 5.2 | 4.9 | 5.2 |
| Far East | 31.5 | 34.9 | 32.2 | 30.8 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 |

Source: Calculated on the basis of data submitted by the Saudi Arabia Ports Authority in the response to the questionnaire.

The future prospects of Saudi Arabia's container traffic were calculated by using the logarithmic regression ($y = A + B \ln x$) which was the most convenient to the curve fitted on the Saudi Arabia container traffic data available. This regression gave the following trend equations:

- (1) $y = -267.2 + 464.3 \ln x$ (for the Saudi Arabia Red Sea ports)
with the coefficient of correlation $r = 0.9957$
- (2) $y = -194.3 + 256.3 \ln x$ (for the Saudi Arabia Gulf ports)
with the coefficient of correlation $r = 0.9850$

The coefficients of correlation showed a strong relationship between the variables.

The forecasts calculated were tested through standard error of estimate using the formula:

$$S_y = \sqrt{\frac{[y_i - y_c(x_i)]^2}{n - 2}}$$

where: $[y_i - y_c(x_i)]$ - difference between empirical curve and logarithmic trend in curve in a given points.
n - number of observations fair if $S_y = 0.1y$

where: y - arithmetic mean of the total number of observations.

The test gave the following results, as seen in the table below.

Table 3.6. Forecast of Saudi Arabia's container traffic in 1990, 1995 and 2000
(Thousands of TEU)

| Area | 1990 | 1995 | 2000 |
|---------------|---------|---------|---------|
| Red Sea ports | 1,020.0 | 1,146.2 | 1,245.4 |
| Arabian Gulf | 515.8 | 585.6 | 640.3 |
| Total | 1,535.8 | 1,731.8 | 1,885.7 |

Source: ESCWA compilation.

According to the forecast calculated the total Saudi Arabia container traffic is foreseen to increase to 1.5 billion TEU in 1990, 1.7 billion TEU in 1995 and 1.9 billion TEU by the end of the century, equivalent to an increase of 60 per cent during 1985-1990, 13 per cent during 1990-1995 and 9.0 per cent during 1995-2000.

Table 3.7. Average annual rates of growth of Saudi Arabia's container traffic

(Per cent)

| Area | 1976-1980 | 1980-1984 | 1984-1990 | 1990-1995 | 1995-2000 |
|--------------------|-----------|-----------|-----------|-----------|-----------|
| Total, of which: | 70.11 | 9.45 | 6.91 | 3.05 | 2.15 |
| Red Sea Ports | 59.36 | 9.40 | 6.02 | 2.97 | 2.10 |
| Arabian Gulf Ports | 25.17 | 9.59 | 8.77 | 3.11 | 2.25 |

Source: Based on tables 3.2 and 3.6.

The container traffic through the Saudi Arabian Red Sea ports is expected to increase by 47.6 per cent during 1985-1990, by 12.4 per cent during 1990-1995 and by 8.7 per cent during 1995-2000. As regards the growth of the container traffic through Saudi Gulf ports, it is expected to increase by 91.4 per cent in 1985-1990, by 13.5 during 1990-1995 and by 9.3 per cent during 1995-2000.

Analysis of the rates of growth of Saudi Arabia's container traffic indicated a gradual decrease in growth rates after 1980. They dropped from 70.1 per cent in 1976-1980 to 6.9 per cent in 1984-1990. In the Red Sea area, rates of growth dropped from 59.4 per cent in 1976-1980 and in the Arabian Gulf from 25.2 per cent in the same period to 6.0 and 8.8 per cent accordingly in 1984-1990. Reductions are expected also in the future until the year 2000, with growth expected to be around 2 per cent during 1995-2000.

An analysis of the distribution of Saudi Arabia's container traffic by origin/destination (see tables 3.2 and 3.3) made it possible to predict future prospects for this traffic divided into the directions (see table 4.5).

Data received showed that the most significant container traffic is between the Saudi Arabia Red Sea ports and Southern Europe, where traffic is expected to reach about 367,200 TEU by 1990, 412,600 TEU by 1995 and 448,000 TEU by 2000. The second place is occupied by the container traffic to/from Northern Europe, which is foreseen to reach about 286,400 TEU by 2000. This is followed by the Far East traffic, which is expected to reach around 211,700 TEU by the end of the century. As regards the container traffic through the Saudi Arabian Gulf ports, the major share of it is occupied by the direction to/from the Far East. On this route the container traffic is expected to increase to about 70,200 TEU by 1990, 193,200 TEU by 1995 and 211,300 TEU by the end of the century. Northern Europe also occupies a significant share, which is expected to reach around 140,600 TEU by 1995.

Table 3.8. Forecast of Saudi Arabia's container traffic by region

| Region | Arabian Gulf ports | | | Red Sea ports | | |
|--------------------------|--------------------|--------------|--------------|----------------|----------------|----------------|
| | 1990 | 1995 | 2000 | 1990 | 1995 | 2000 |
| Northern Europe | 123.8 | 140.6 | 153.7 | 234.6 | 263.6 | 286.4 |
| Southern Europe | 77.4 | 87.8 | 96.0 | 367.2 | 412.6 | 448.4 |
| Middle East and Africa | 30.9 | 35.1 | 38.4 | 51.0 | 57.3 | 62.3 |
| North America | 87.7 | 99.6 | 108.9 | 112.2 | 126.1 | 137.0 |
| South-East Asia, Oceania | 25.8 | 29.3 | 32.0 | 81.6 | 91.7 | 99.6 |
| Far Asia | 170.2 | 193.2 | 211.3 | 173.4 | 194.9 | 211.7 |
| Total | 515.8 | 585.6 | 640.3 | 1,020.0 | 1,146.2 | 1,245.4 |

Source: ESCWA compilation.

3.1.3. Break-bulk sea-borne trade

Imports account for around 95 to 98 per cent of Saudi Arabia's break-bulk sea-borne trade and cover a wide scope of commodities, including different construction materials, foodstuffs, consumer goods and machinery.

In 1985 the total volume of Saudi Arabia break-bulk imports was estimated at around 22.3 million tons; in comparison, exports were only 1.5 million tons or 6.3 per cent.

As regards Saudi Arabia sea-borne exports, they include mostly (95 to 98 per cent) crude oil and petrochemical products. Exports of fertilizers will be expanded to about 1.35 million tons by 2000.

Exports of break-bulk manufactured goods are estimated to reach only 1.2 million tons by 2000 or about 2 to 3 per cent of the total Saudi Arabian break-bulk sea trade. Therefore this study examines only the break-bulk imports to Saudi Arabia ports.

Break-bulk sea-borne trade imports of Saudi Arabia increased significantly, from 5.3 million tons in 1976 to 15.4 million tons in 1980 and to 22.3 million tons in 1984. This represents a 190 per cent increase during 1976-1980, and a 45 per cent increase during 1980-1984. Accordingly, break-bulk imports to the Saudi Arabian Red Sea ports increased by 192 per cent during 1976-1980 and by 48 per cent during 1980-1984. Imports to the Saudi Arabian Gulf ports were also high during 1976-1980, with a 189 per cent increase, and a 45 per cent increase in 1980-1984.

As regards the proportion of total imports, the Red Sea ports have around 55 to 60 per cent and the Arabian Gulf ports about 40 to 45 per cent. Among the Red Sea ports Jeddah is the major port with a 95 to 96 per cent share of the total imports to the area, and among the Saudi Arabian Gulf ports Dammam is the major break-bulk port, with an 88 to 90 per cent share of the total trade imported into Saudi Arabian Gulf ports.

Imports have played a very important role for the economic and industrial development of Saudi Arabia. Saudi Arabia's five major ports of Jeddah, Dammam, Yanbu, Jizan and Jubail provided around 99 to 100 per cent of all Saudi Arabian imports by sea.

As regards commodities, the Saudi Arabian break-bulk imports include: bagged cement (1 to 2 per cent); construction material (48 to 50 per cent); foodstuffs (30 to 32 per cent); vehicles (3 to 4 per cent); consumer goods (6 to 7 per cent); and others (10 to 12 per cent).

The development of Saudi Arabia's imports is characterized by the following main features: a shift from general cargo to containers; a shift from bagged to bulk cement; a shift from bagged to bulk grains; increasing transportation of foodstuffs by reefer carriers; increasing transportation of steel, timber and vehicles by specialized general cargo ships; increasing containerisation of all cargoes. Another development is the shift from bagged cement to bulk cement. Since all Saudi ports now have bulk cement terminals with high-level productivity, it is therefore assumed that future bulk cement imports will rise by 95 to 98 per cent. The same development is expected with regard to the import of grain and flour. Jeddah and Dammam now offer bulk grain facilities which are more highly productive compared with the handling of imports of grain in bays. Therefore, future estimates predict around 30 to 40 per cent of grain import in bulk.

An analysis of Saudi Arabia's sea-borne imports to the major ports of Jeddah and Dammam from different continents showed that the major share of imports to Red Sea ports, around 27 per cent, is transported from the Mediterranean (around 32 per cent) and Northern Europe (27 per cent). This includes mostly food and foodstuffs and construction materials. These areas of origin are followed by Far East (15 per cent) mostly Japan and South-East Asia (10 per cent). While the imports from Northern Europe to Saudi Red Sea ports have tended to increase, the share of imports from North America decreased from 9.1 per cent in 1982 to 8.7 per cent in 1983 and to 7.6 in 1984. It is expected that in the future the share of North America in the Saudi Arabian imports to Red Sea ports will be at a level of 5 to 6 per cent until 1990-1995.

Table 3.9. Saudi Arabia: break-bulk* tonnage imported by major ports of Saudi Arabia
(Thousands of metric tonnes)

| Port | 1977 | 1980 | 1981 | 1982 | 1983 | 1984 |
|------------------------------------|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Jeddah | 4,735.3 | 8,994.9 | 10,201.1 | 12,916.9 | 12,251.5 | 13,015.1 |
| Dammam | 3,227.3 | 5,445.0 | 7,897.7 | 10,011.6 | 8,098.2 | 7,533.5 |
| Jubail | | 662.7 | 1,118.4 | 1,368.6 | 1,104.3 | 1,027.3 |
| Yanbu | 107.2 | 114.7 | 112.2 | 278.5 | 257.9 | 274.0 |
| Jizan | 150.6 | 187.5 | 271.0 | 588.5 | 386.9 | 411.0 |
| Total to Red Sea ports | 4,993.1 | 9,247.1 | 10,584.3 | 13,783.9 | 12,896.3 | 13,700.1 |
| Total to Arabian Gulf ports | 3,227.3 | 6,107.7 | 9,016.1 | 11,380.2 | 9,202.5 | 8,560.8 |
| Total | 8,220.4 | 15,354.8 | 19,600.4 | 25,164.1 | 22,098.8 | 22,260.9 |

Source: Saudi Arabia Ports Authority Annual Statistics.

* All non-bulk cargo cargoes excluded except bulk grain, bulk cement and livestock.

The imports from Latin America, Africa and Oceania have remained at around the same level of 3 to 4 per cent during the past several years.

Table 3.10. Distribution of Saudi Arabia's break-bulk imports by origin
(per cent)

| Area of origin | Jeddah | | | Dammam | | |
|-----------------|--------------|--------------|--------------|--------------|--------------|-------------|
| | 1982 | 1983 | 1984 | 1982 | 1983 | 1984 |
| Northern Europe | 23.1 | 24.7 | 25.6 | 23.3 | 22.6 | 26.7 |
| North America | 9.1 | 8.7 | 7.6 | 13.5 | 13.4 | 9.2 |
| Latin America | 2.6 | 4.6 | 3.1 | 2.1 | 2.3 | 2.5 |
| South-East Asia | 18.5 | 15.0 | 10.8 | 23.8 | 24.2 | 19.1 |
| Far East | 13.6 | 10.9 | 14.8 | 28.7 | 26.5 | 29.5 |
| Southern Europe | 24.7 | 30.3 | 32.1 | 6.9 | 9.7 | 10.7 |
| North Africa | 3.3 | 3.3 | 1.3 | - | - | - |
| East Africa | 1.4 | 1.0 | 1.1 | 0.1 | 0.2 | 0.2 |
| Oceania | 3.7 | 1.7 | 3.6 | 1.6 | 1.1 | 2.0 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 99.9 |

Source: Calculated on the basis of data from Saudi Arabia Ports Authority Annual Statistics and Shipping Statistics, (Institute of Shipping Economics and Logistics, Bremen).

As regards the imports to Dammam and other Saudi Arabian Gulf ports, the major share is from Japan (27 to 28 per cent). The imports are mostly construction materials and vehicles. Japan and the Far East is followed by North Europe (24 to 25 per cent) and South-East Asia (20 to 22 per cent). Imports from Latin America comprise around 3 per cent of this total.

The future prospects of Saudi Arabia's break-bulk sea-borne trades were calculated by using the logarithmic regression: $(y = A + B \ln x)$

The regression gave the following trends:

(I) $y = 2679 + 7068 \ln x$
with the coefficient of correlation $r = 0.9747$

For the Saudi Arabian Gulf ports:

(II) $y = 2154 + 5254 \ln x$
with the coefficient of correlation $r = 0.9166$

Table 3.11. Forecast of Saudi Arabia's break-bulk sea-borne imports for 1990, 1995 and 2000
(Thousands of metric tonnes)

| Area | 1990 | 1995 | 2000 |
|--------------|--------|--------|--------|
| Red Sea | 16,917 | 18,840 | 20,349 |
| Arabian Gulf | 12,414 | 13,842 | 14,965 |
| Total | 29,331 | 32,682 | 35,314 |

Source: ESCWA compilation.

The forecast showed that the total of Saudi Arabia's break-bulk imports is expected to increase to 29.3 million tons by 1990, 32.7 million tons by 1995 and 35.3 million tons by 2000, or in percentage this means an increase of 31.8 per cent during 1984-1990, 11.4 per cent during 1990-1995 and 8.1 per cent during 1995-2000.

Break-bulk imports to the Saudi Red Sea ports are expected to increase by 23.5 per cent during 1984-1990, by 11.4 per cent during 1990-1995 and by 8.0 per cent during 1995-2000.

Imports to the Saudi Arabian Gulf ports are expected to increase by 45 per cent in 1984-1990, by 11.5 per cent during 1990-1995 and 8.1 per cent during 1995-2000.

Table 3.12. Average annual rates of growth of Saudi Arabia's break-bulk imports
(Percentage)

| area | 1977-1980 | 1980-1984 | 1984-1990 | 1990-1995 | 1995-2000 |
|--------------------|-----------|-----------|-----------|-----------|-----------|
| Total, of which: | 23.15 | 9.74 | 4.70 | 2.19 | 1.56 |
| Red Sea ports | 22.80 | 10.32 | 3.57 | 2.17 | 1.55 |
| Arabian Gulf ports | 23.70 | 8.80 | 6.40 | 2.12 | 1.57 |

Source: Based on tables 3.9 and 3.11.

An analysis of average annual rates of growth of Saudi Arabia's break-bulk imports for the period 1977-2000 showed that the growth of these imports to both Arabian Gulf and Red Sea Saudi Arabia ports would be greatly reduced.

The rates of growth of the total imports also dropped from 23.15 per cent in 1977-1980 to 4.70 per cent in 1984-1990. Rates of growth are expected to decrease further to 2.19 in 1990-1995 and 1.56 in 1995-2000.

Taking into account the main areas of origin and their shares in the total of Saudi Arabia's imports, estimates were made concerning the distribution by origin of future break-bulk imports to Saudi Arabia (see table 3.12). As regards Saudi Arabia's Red Sea ports, the total exports to this area are expected to increase to 16.9 million tons by 1990, 18.8 million tons by 1995 and 20.3 million tons by the end of the century. It is expected that the major share of these imports will come from Southern and Northern Europe and account for around 4.6 million tons by 1990, 5.1 million tons by 1995 and 5.5 million tons by 2000 (Northern Europe) and 5.4 million tons, 6.0 million tons and 6.5 million tons (Southern Europe).

As regards the Saudi Arabian Gulf ports, most of the imported break-bulk cargoes are expected to arrive from the Far East and Japan, accounting for 3.5 million tons by 1990, 3.9 million tons by 1995 and 4.2 million tons by 2000. The total of break-bulk imports to the Saudi Arabian Gulf ports in the future is estimated to amount to 12.4 million tons by 1990, 13.8 million tons by 1995 and 15 million tons by the end of the century.

3.2. United Arab Emirates

3.2.1. Ports

The United Arab Emirates has the following major ports with container and break-bulk facilities: Mina Zayed in Abu Dhabi, Port Rashid and Jebel Ali in Dubai and Port Khalid in Sharjah. The country also has two ports just outside the Arabian Gulf - Khor Fakkan in Sharjah and Fujairah.

Port Mina Zayed plays a significant role in promoting the development of the national economy. It has highly advanced installations for handling

Table 3.13. Forecast of Saudi Arabia's break-bulk imports by area of origin
(Thousands of metric tonnes)

| Area of origin | To: Red Sea ports | | | To: Arabian Gulf ports | | |
|-------------------|-------------------|---------------|---------------|------------------------|-----------------|-----------------|
| | 1990 | 1995 | 2000 | 1990 | 1995 | 2000 |
| From: | | | | | | |
| Northern Europe | 4567.6 | 5086.8 | 5494.2 | 2979.4 | 3322.1 | 3591.6 |
| Southern Europe | 5413.4 | 6028.8 | 6511.7 | 1117.3 | 1245.8 | 1346.8 |
| North America | 1015.0 | 1130.4 | 1220.9 | 1489.7 | 1661.0 | 1795.8 |
| Latin America | 507.5 | 565.2 | 610.5 | 372.4 | 415.3 | 449.0 |
| North Africa | 507.5 | 565.2 | 610.5 | - | - | - |
| East Africa | 169.2 | 188.4 | 203.5 | 24.8 | 27.7 | 29.9 |
| Far East | 2537.6 | 2826.0 | 3052.4 | 3475.9 | 3875.7 | 1490.2 |
| South East Africa | 1691.7 | 1884.0 | 2034.8 | 2731.0 | 3045.2 | 3292.3 |
| Oceania | 507.5 | 565.2 | 610.5 | 223.5 | 249.2 | 269.4 |
| Total | 16,917.0 | 18,840 | 20,349 | 12,414.0 | 13,842.0 | 14,965.0 |

Source: Forecast prepared by ESCWA.

break-bulk cargoes together with a container terminal specially designed to meet the growing demand and increased volume of container traffic through the port.

Port Zayed's container terminal started to take shape only in 1981 and now has two berths equipped with two 40-ton gantry cranes and two stern ro-ro berths. The completely organized container storage and stocking area covers about 25 hectares. The port has also 20 berths for handling of bulk and break-bulk cargoes as well as repairs and maintenance workshops.

Abu Dhabi's Mina Zayed port is undergoing a number of major developments over 1978-1988, including expansion of its container facilities, introduction of computerized handling systems and construction of a new fishing harbour and free-trade zone. Under the expansion scheme, two general cargo berths adjoining the existing container facilities will be converted, providing a further 400 metres of quay with an alongside draught of 13 metres, and making the terminal accessible to third-generation container vessels. The additional quay will be served by one or possibly two third-generation container cranes. A second scheme is the installation of a Wang VH65 computer system, initially to cater for container and general cargo operations, but eventually also to take in general administration functions for the port as one of the projects planned is a free-trade zone, where local consignees and foreign companies involved in trans-shipment operations will be able to set up their own facilities.

Port Rashid in Dubai opened for business in 1972 with just four berths. Today the port comprises 36 berths offering facilities for all types of

vessels including container carriers and general cargo ships. Total quay length is 7,100 metres. It includes three ro-ro berths and a common-user container terminal. Add to this over a million available square metres of open and covered storage. The container terminal in the port is the largest in the Emirates. In 1985 it handled about 375,000 TEU.

The terminal, which is in operation 24 hours a day, seven days a week, is served by five gantry cranes and fleets of straddle carriers, tractors and trailers and fork lift trucks. It offers a total of five berths totalling 1.350 metres in length with a water depth of 13 metres and is capable of accommodating the largest of container and ro-ro vessels. One of the berths has a stern ramp facility which enables simultaneous working of lo-lo and ro-ro traffic. Around 30,000 vehicles are discharged from the ro-ro vessels every month. At the berth the on-line computer system PRISM controls all container movements on the terminals, and in the port. It is the most sophisticated in the Middle East.

Thirty of Port Rashid's 35 berths are devoted to the handling the break-bulk cargo with an additional area of 1,067 metres of quay available for smaller vessels. General cargo operations are now almost completely mechanized, thus doubling productivity over the past two years. Principal commodities handled in break-bulk form are timber and other forest products, steel construction materials and manufactured foodstuffs. All cargoes received at Port Rashid have 20 days free storage, after which storage charges are levied on an increasing scale. Port Rashid also handled over 80 per cent in volume of the United Arab Emirates total sea-borne trade. The port serves as a major trans-shipment centre for the ESCWA countries.

Port Rashid recently adopted sea-air traffic technology to their wide range of cargo operations. The port has recently seen rapid growth in the trans-shipment of containerised freight from one mode of transport to the other as part of an overall through service arranged between shippers and consignees, notably from the Far East and Indian sub-continent to Europe.

The sea-air concept includes loading cargoes into the container at the point of origin; the cargo is carried by sea to Port Rashid, then discharged and transferred to a nearby airport for onward shipment to consignees by air. Port Rashid became very efficient in processing sea-air traffic quickly. Containers are given priority discharge in the port and rapidly made available to forwarding agents handling the trans-shipment operations. Port increased its sea-air traffic by 100 per cent in 1985 and predicted the 50-100 per cent increase in 1987.

Port Rashid is prominent in the field of Arabian Gulf trans-shipment operations. About 70 per cent of the port's annual cargo tonnage of more than 6 million tons involves trans-shipment traffic. In addition to the Arabian Gulf, Dubai serves as a trans-shipment point for traffic to and from the Indian sub-continent and the Far East. Dubai was the centre of a small but growing business in sea-air traffic between India/Pakistan and Europe. Freight is shipped from a port such as Bombay to Dubai, where it is trans-shipped to connect with flights to Europe and the United States. By limiting documentary and other formalities, authorities claim it is possible

to get a consignment in a container discharged at the port and taken from there to the airport in three hours. Such sea-air traffic is normally shipped by container, part of an overall box traffic through Dubai port which is running at some 370,000-380,000 TEU a year. A recently acquired sixth container gantry crane will speed up operations. Large container ships can now be worked by up to four such cranes at the same time.

Another successful strategy has been to build up a viable and profitable trans-shipment operation at Port Rashid, making Dubai the mother port for the Arabian Gulf. Major shipping lines prefer to use Dubai for feeding containers to the Indian sub-continent and into other Arab Gulf ports, owing to Port Rashid's high efficiency.

Dubai's Port Jebel Ali is situated some 35 kms south-west of the city of Dubai and is strategically located for serving the Middle East markets. Jebel Ali is the one of the most modern ports in the ESCWA countries. It has a wide range of services and facilities. The port comprises 67 deep-water berths including container, ro-ro, tanker and liquid natural gas (LNG) terminals. An industrial zone is being completed.

The up-to-date container terminal is equipped with three third-generation 41 T Mitsubishi electric gantry cranes with telescopic spreaders. The container can accommodate more than 12,000 TEU and the container freight station provides 10,000 square metres (sq m) of covered storage. For on-ground services there are numerous container handlers and an extensive range of the latest support equipment.

The ro-ro terminal has two ramps specially designed for stern-discharging vessels and extensive equipment including three Douglas Tugmasters. An 8,000 sq m warehouse provides covered storage and 105,000 sq m of paved open storage is also available.

The break-bulk cargo terminal has more than 48,000 sq m of covered storage and over 175,000 sq m of paved open areas. The terminal also has a full complement of cargo handling equipment, including a 35 T fixed gib derrick, mobile cranes and bulk cargo grabs.

Incorporated into Jebel Ali port and the industrial zone complex, the free zone was created to enhance and facilitate trading and re-exporting in the Middle East.

Port Khalid in Sharjah commenced its activities in 1976 and is located close to the entrance of the Arabian Gulf.

Port Khalid is ideally situated for trans-shipment of cargo to all ESCWA Arabian Gulf countries as well as India and Pakistan.

The port includes 12 deep-water berths with container, ro-ro, reefer, bulk and general cargo facilities.

The two container berths are 538 metres in length with 10.5 and 11.5 m depth and equipped with two gantry cranes, yard gantries and ground support equipment.

Port Khalid's container terminal, was the first specialized container terminal to be built in the Middle East and is fully equipped to offer immediate berthing, expert mechanized dry and reefer container handling. This includes stow planning, equipment control, LCL facilities and fast and efficient vessel turnaround. The container terminal is equipped with three new "Liebherr T-115" third generation gantry cranes.

Other new equipment in use includes two new "Valvet" yard gantry cranes, SISU TV 10 terminal tractors, tugmasters and forklifts. Other services are offered in the port such as container leasing, container sales, container inspection and repairs according to international standards.

Port Khalid has two specialized ro-ro berths to service the new generation of ro-ro vessels. The port achieved rapid discharge and total safe handling of the vehicles and trailers.

The port has a 5,000-ton cold storage capacity with 24 hour-a-day operational facilities and a high discharge rate of 1,200 tons of reefer cargo every 24 hours, which results in cost and time saving to the shipping lines and consignees.

Port Khalid developed the free trade zone to assist the local business community to expand its business throughout ESCWA countries as well as India and Pakistan.

Port Khor Fakkan is administered by the Sharjah Port Authority. The port is situated on the east coast of the United Arab Emirates in the emirate of Sharjah. Ideally located outside the Gulf and only 68 nautical miles from the Strait of Hormuz, it makes a perfect entrepot for all ESCWA Arabian Gulf countries as well as Pakistan, India, Sri Lanka and the African sub-continent.

The port is the only natural deep-water facility in the Middle East with 12.4 metres depth alongside. The port operation handles containers, ro-ro, break-bulk and bulk cargoes. The two berths, with a total length 430 metres, are equipped with 2 x 41-ton capacity Mitsubishi third generation gantry cranes and supported by 4 x 41-ton capacity Mitsubishi yard cranes. A 41 m x 60 m floating roll on-roll off pontoon with a capacity of 180 tons can handle two stern ramp ro-ro vessels simultaneously.

The storage space, consisting of over 100,000 sq m, can handle in excess of 4,500 TEU at any one time. The terminal has the capability of turning round over 150,000 TEU per annum. A modern multi-lane highway network links Khor Fakkan with all other Emirates, including Sharjah, Dubai and Abu Dhabi, which are regularly serviced by road trailers operating out of the port.

The major benefits to ship owners/operators are:

- By calling at a "mother port" outside the Gulf, the vessel avoids war risk insurance premium.

- By feeding, a line avoids the mother vessel's marine and port charges in the Gulf, which will be substantially cheaper for the feeder vessel.

- By using a "mother port" and feedering, a line can actually gain in excess of one (possibly two) extra voyages per year plus the associated revenue gained from those voyages.

- A line can maintain a fast service record for its main line carrier, which is extremely relevant in today's Middle East market.

Port Fujairah, situated outside the Strait of Hormuz but still within a short sailing distance of the Gulf markets, India, Pakistan and Oman, has the potential to become the "main line" port for the area, with feeder vessels servicing the surrounding market. The strategic geographical position of the port on the east coast of the United Arab Emirates provides an ideal point for shipping lines to centralize their Mid-East/sub-continent markets.

Port Fujairah has developed economically and commercially over the past few years. Industries in the Emirates have become established and are actively exporting finished products, utilizing many of the raw materials which are readily available in the mineral-rich mountains.

To complement the development of Fujairah and its industries, a port complex, designed and equipped according to the most modern standards, was established in 1981.

In August 1983, two I.H.I 45-ton-capacity container gantry cranes, a Magrini and a Galileo, as well as four rubber-tyred gantries, were commissioned and accepted; complementing these is a modern, fully equipped container and cargo-handling facility.

An area surrounding this facility was fully secured and designated a free trade zone. The location of the port lends itself naturally to the development of warehousing and distributing organizations, repackaging facilities, assembly and fabrication plants and the worldwide distribution of the resulting products. The free trade area allows the import of raw materials and unfinished products and the production, packaging and re-export of the finished articles without payment of taxes. A land-leasing programme has been established to assist investors in the crucial and costly first stage of development.

With the escalation of the Gulf war, virtually all of the lines operating in the Arabian Gulf investigated contingency plans for alternative ports of call. Fujairah was, of course, the obvious choice, having excellent highways to all Gulf inland points - Oman, Qatar, Saudi Arabia, Kuwait and Iraq.

It was not only war risks that promoted these plans, as many lines had begun utilizing the "super container carriers", or had established feeder services to various Gulf and sub-continent ports. Therefore, in 1983, a carrier, American President Lines, started to call in the port of Fujairah. Immediately following this, a common feeder service, West Asia Knotenna Line, began calling there.

In February 1984 the port handled the first of the American President Lines vessels. This was immediately followed by the feeder service vessels.

At the end of the first quarter of 1984, 8,162 TEU had been handled through the port. Throughput for the first half of the year reached 26,414. The third quarter it increased by a further 6 per cent and the port authorities are confidently predicting figures of over 100,000 TEU by the end of 1984 and 133,385 TEU in 1985.

Added to increased handling efficiency (the port is already averaging 25 container moves per hour and this figure will probably be surpassed) are the support services the port offers its users. A container freight station handles the devanning and vaning of containers and cargoes which are consolidated and repacked for different destinations. Sea-air freight is also becoming common and the port foresees this as a tremendous growth area. Full refrigerated container facilities are offered with 163 container plugs in the port. An experienced and qualified maintenance staff ensures, on behalf of the lines, that reefer containers are in full working order and cleaned and "pre-tripped" for immediate use.

However, it is not only container handling that Fujairah port is becoming known for. Break-bulk cargoes have also increased, with many companies looking at Fujairah as an ideal trans-shipment and storage point for project cargoes or relocating of construction equipment.

With this promising start Fujairah has attracted the attention of many of the major lines. As these lines introduce new larger vessels to their operation they look to reducing port calls and vessels' steaming times. To achieve this the concept of feeder vessels services becomes a necessity. Again, the location of Fujairah port coupled with an already established feeder service, makes it the ideal point for a "mother port".

A substantial increase in container traffic and livestock cargo was reported in 1986. Tonnage handled by the port increased by 24 per cent, to 1.6 million tons in the first nine months of 1986, compared with the same period in 1985. As a result of the traffic expansion, work as completed in 1986 on 595 metres of deep water quay offering a draught of 12.5 metres, 180 metres with a draught of 11 metres and 280 metres with a draught of 7 metres. Like most other ports in the United Arab Emirates, Fujairah is developing a free zone area, offering plots of a minimum 3,000 square metres.

Based on this encouraging growth pattern and the indications from shipping lines, the port of Fujairah is predicting a very busy and profitable future as one of the foremost ports of the Middle East.

3.2.2. Container traffic

Container traffic in the United Arab Emirates increased considerably, from 9,900 TEU in 1976 to 315,500 TEU in 1980 and to 732,900 TEU in 1985, representing a 3,087 per cent increase during 1976-1980 and a 132.3 per cent in 1980-1985.

Table 3.14. UAE container traffic by major ports in 1976 and 1980-1985

(Thousands of TEU)

| Port | 1976 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 |
|------------|------|-------|-------|-------|-------|-------|--------|
| Mina Zayed | | 12.3 | 22.7 | 30.3 | 30.7 | 30.0 | 30.0* |
| Rashid | 4.5 | 208.9 | 237.0 | 221.4 | 296.8 | 294.6 | 371.7* |
| Jebel Ali | | 63.8 | 108.2 | 102.3 | 124.6 | 152.0 | 152.8 |
| Khalid | 5.4 | 30.5 | 37.8 | 57.4 | 49.9 | 34.3 | 45.0* |
| Fujairah | | | | | 0.6 | 87.1 | 133.4 |
| Total | 9.9 | 315.5 | 415.7 | 411.4 | 502.7 | 598.0 | 732.9 |

Source: Containerisation International.

* Estimation.

All ports in the United Arab Emirates showed the significant growth in container traffic since 1976. In Abu Dhabi's Mina Zayed port container traffic increased by 143 per cent between 1980 and 1985. The port grew twofold after 1981, when the new container terminal came into operation. Previously containers were discharged by self-sustaining vessels.

Dubai's Port Rashid also increased its throughput considerably in 1980, when the port's new container terminal came into operation. Between 1980 and 1985 the traffic through the port increased by 80 per cent and shows promise of increasing in the future. Dubai's Jebel Ali port had a 140 per cent increase during the period 1980-1985. Although 1985 was a poor year generally for shipping throughout the Arabian Gulf, Jebel Ali port served vessels from all over the world.

Sharjah's Port Khalid had a substantial growth of 465 per cent during 1976-1980 and 47.5 per cent in 1980-1985.

The small ports of Fujairah and Khor Fakkan also grew significantly in the past few years. With the Iran/Iraq war international shipping lines have displayed renewed interest in using their facilities. Between 1980-1985 the traffic through the ports increased by 80 per cent and shows promise of increasing in the future. In addition Dubai's Jebel Ali port showports outside the Gulf itself.

In this connection Fujairah acts as a major trans-shipment/feeder port for the United States west coast/Far East/Middle East service and others. Trans-shipment now accounts for over 90 per cent of all container movements, increasing the movement of cargo into the Indian and Pakistan hinterlands and relay operations into the Arabian Gulf. Only during the years of 1984 and 1985 was a substantial increase in container traffic and livestock cargo has been reported by the port. Container traffic rose by 53 per cent in 1984/1985. The number of container vessels which called in the port rose to 152 in 1985, compared with 102 vessels in the previous year.

Sharjah's Khor Fakkan is not represented in table 3.14 due to the absence of data. Capacity of the port now is about 250,000 TEU annually. However, after US Lines withdrew its services from the port the only other customer, Ceylon Shipping Corporation, now brings in an estimated 15,000 TEU a year.

As regards the shares of the various ports in the total UAE container traffic, Dubai's port of Rashid accounted for about 50 per cent of the total traffic followed by Dubai's Port Jebel Ali with around 20 per cent. The share of the port of Fujairah increased substantially to around 18 per cent in the years 1984-1985, owing to its position as a main trans-shipment centre for container traffic going to/from the Arabian Gulf.

The distribution of UAE container traffic is shown in table 3.15. The data indicated that the traffic is practically balanced, i.e., the inward/outward flows are divided about 50:50.

The future prospects of container traffic in the United Arab Emirates were calculated by using the linear regression equation: $(y = A + Bx)$. As the result of the analysis the following trend was calculated: $y = -1,225 + 73.4x$ with the coefficient of correlation: $r = 0.9911$ which showed a very strong correlation.

The trend forecast data of the volume of container traffic in 1990, 1995, 2000 were obtained by substituting the appropriate values of "x" in the above mentioned equation.

Table 3.15. Distribution of UAE container traffic by imports/exports
(per cent)

| Port | 1980 | 1981 | 1982 | 1983 | 1984 |
|-------------------|------|------|------|------|------|
| Port Zayed, total | | | | | |
| Import | 53.8 | 51.9 | 50.4 | 50.9 | 50.4 |
| Export | 46.2 | 48.1 | 49.6 | 49.1 | 49.6 |
| Port Rashid | | | | | |
| Import | 51.2 | 49.4 | 50.6 | 50.1 | 50.9 |
| Export | 48.8 | 50.6 | 49.4 | 49.9 | 49.1 |
| Jebel Ali | | | | | |
| Import | n.a. | 49.9 | 49.2 | 50.2 | 49.4 |
| Export | n.a. | 50.1 | 50.8 | 49.8 | 50.6 |
| Port Rashid | | | | | |
| Import | 52.5 | 51.4 | 54.8 | 50.9 | 51.0 |
| Export | 47.5 | 48.6 | 45.2 | 49.1 | 49.0 |
| Fujairah | | | | | |
| Import | - | - | - | 19.0 | 47.1 |
| Export | - | - | - | 81.0 | 52.9 |

Source: Calculated on the basis of data from Containerisation International.

Note: As regards loading/discharging, imports comprise around 95 to 98 per cent of loaded units; on the other hand, exports estimate the same volume of empty containers.

Table 3.16. Forecast of UAE container traffic in 1990, 1995 and 2000

| Region | 1990 | 1995 | 2000 |
|--------------------------|---------|---------|---------|
| Northern Europe | 252.4 | 340.5 | 428.6 |
| Southern Europe | 157.8 | 212.8 | 467.9 |
| Middle East and Africa | 63.1 | 85.1 | 107.1 |
| North America | 178.8 | 241.2 | 303.6 |
| South-East Asia, Oceania | 52.6 | 70.9 | 89.3 |
| Far East, Japan | 347.1 | 468.2 | 589.3 |
| Total | 1,051.8 | 1,418.7 | 1,785.7 |

Source: ESCWA compilation.

The test on standard error of estimate gave the following result: 38.7 35.4 (S_y 0.1y) which meant that the forecast obtained is adequate.

Distribution of the traffic by the various regions of origin/destination was defined, taking into account the main routes and the capacity of the international and national lines serving the ports of the United Arab Emirates.

According to the forecast, the UAE container traffic is expected to increase to 1.5 million TEU by 1990, to 1.7 million TEU by 1995 and to 1.9 million TEU by 2000 or by 109.6 per cent during 1985-1990, by 12.8 per cent in 1990-1995 and by 8.9 per cent in 1995-2000.

Table 3.17. Average annual rates of growth of UAE container traffic
(per cent)

| 1976-1980 | 1980-1985 | 1985-1990 | 1990-1995 | 1995-2000 |
|-----------|-----------|-----------|-----------|-----------|
| 141.80 | 16.6 | 7.50 | 6.17 | 4.70 |

Source: Based on tables 3.14 and 3.16.

However, despite on the substantial growth of the UAE container traffic both in past years and in the future, data from table 3.16 show that UAE container traffic appears to be gradually decreasing up to the end of the century. The rates of growth are expected to drop from a high level of 142 per cent in 1976-1980 to about 5 per cent in 1995-2000.

3.2.3. Break-bulk sea-borne trade

In this report, only imports of the UAE break-bulk sea-borne trade are considered because the majority of the country's exports (90-95 per cent) are composed of crude oil.

On the other hand, as the calculations take into account only 10 per cent of each country's imports and exports in accordance with the United Nations Code of Conduct for Liner Conferences, the total of UAE break-bulk exports will make up no more than 50,000-90,000 tons per year and will be transported by the national fleets on back routes after national imports have been transported.

UAE's break-bulk imports include mostly commodities such as foodstuffs (15-20 per cent), manufactured goods (25 per cent) and machinery and transport equipment (5-10 per cent). Imports increased from 3.9 million tons in 1975 to 5.7 million tons in 1980 and then decreased to 5.6 million tons in 1985. This represents a 43.3 per cent increase during 1975/1980 but on the other hand imports decreased by -2.0 per cent during 1980/1985 because of the world recession and the conversion of some break-bulk cargoes into containerised cargoes.

As regards the areas of origin of imports, Western Europe, the Far East and South-East Asia were the origin of around 50 per cent of all imports. A large volume of break-bulk cargoes (around 25-35 per cent) is also imported from Middle East countries, particularly Bahrain. Imports from this country include mostly lubricants and related materials.

Table 3.18. UAE break-bulk sea-borne imports in 1975 and 1980-1985
(Thousands of metric tonnes)

| 1975 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 |
|---------|---------|---------|---------|---------|---------|---------|
| 3,965.3 | 5,682.3 | 5,762.2 | 4,987.2 | 5,134.9 | 5,300.0 | 5,569.3 |

Source: Calculated on the basis of data from the Statistics of Foreign Trade from United Arab Emirates, "Dubai Annual Trade Review" and "Annual Statistical Report of Abu Dhabi Seaport Authority".

As concerns the UAE break-bulk imports by area of origin, it is expected that in the future the imports from Western Europe will increase to around 20 per cent, and from Eastern Europe to about 5 per cent due to the establishment of diplomatic and trade relations between the UAE and the Soviet Union. Imports from South-East Asia, the Far East and Australia will remain at the level of 14-15 per cent, 17-20 per cent and 10 per cent respectively. The imports from the Middle East countries will remain at a high level of around 25 per cent despite gradual reduction.

The future prospects of the UAE break-bulk sea-borne imports were calculated by using the logarithmic regression which gave the following trend:

$$y = 4710.6 + 345.8 \ln x$$

The forecast showed that the total of UAE break-bulk imports is expected to increase to 5.7 million tons by 1990, 5.8 million tons by 1995 and to 5.85 million tons by the end of the century. In percentage terms it is expected to increase by only 2.2 per cent in 1985-1990, by 1.6 per cent during 1990/1995 and by 1.2 per cent during 1995-2000. The growth is expected to be insignificant because more and more break-bulk commodities will be converted into containerised cargoes.

Table 3.19. Distribution of UAE break-bulk sea-borne imports by area of origin in 1982-1985
(per cent)

| Area of origin | 1982 | 1983 | 1984 | 1985 |
|-----------------|------|------|-------|-------|
| Western Europe | 19.2 | 18.3 | 19.4 | 18.6 |
| Eastern Europe | 0.2 | 0.1 | 0.2 | 0.5 |
| North America | 4.3 | 4.5 | 4.4 | 3.8 |
| Latin America | 1.5 | 1.0 | 2.0 | 1.7 |
| Africa | 1.0 | 0.5 | 1.2 | 0.7 |
| Middle East | 26.7 | 32.0 | 30.6 | 36.3 |
| South East Asia | 14.9 | 15.0 | 15.2 | 15.3 |
| Far East | 21.5 | 20.0 | 18.1 | 13.8 |
| Oceania | 10.7 | 8.6 | 9.2 | 9.9 |
| Total | | | 100.0 | 100.0 |

Source: Calculated on the basis of data from the UAE Foreign Trade Statistics, Dubai Annual Trade Review.

Table 3.20. Forecast of UAE break-bulk sea-borne imports by area of origin in 1990, 1995 and 2000
(Thousands of metric tonnes)

| Area of origin | 1990 | 1995 | 2000 |
|-----------------|---------|---------|---------|
| Western Europe | 1,138.0 | 1,156.0 | 1,170.0 |
| Eastern Europe | 284.5 | 289.0 | 292.5 |
| North America | 227.6 | 231.2 | 234.0 |
| Latin America | 142.3 | 114.5 | 146.3 |
| Africa | 85.4 | 86.7 | 87.8 |
| Middle East | 1,422.4 | 1,445.0 | 1,462.4 |
| South East Asia | 853.5 | 867.0 | 877.5 |
| Far East | 967.3 | 982.6 | 994.4 |
| Oceania | 569.0 | 578.0 | 585.0 |
| Total | 5,690.0 | 5780.0 | 5,850.0 |

Source: ESCWA compilation.

An analysis of average annual rates of growth of the UAE's sea-borne imports (table 3.21) showed that the rates dropped sharply from 7.5 per cent in 1975/1980 to 0.4 per cent in 1980/1985. As regards the future they are also expected to be at a very low level of around 0.2-0.4 per cent, with a trend towards gradual reduction.

Table 3.21. Average annual rates of growth of UAE break-bulk sea-borne imports
(per cent)

| 1975-1980 | 1980-1985 | 1985-1990 | 1990-1995 | 1995-2000 |
|-----------|-----------|-----------|-----------|-----------|
| 7.46 | -0.4 | 0.4 | 0.35 | 0.24 |

Source: Based on tables 3.18 and 3.20.

3.3 Kuwait

3.3.1 Ports

The major ports in Kuwait which have facilities for container and break-bulk cargo handling operations are Shuaiba and Shuwaikh.

The port of Shuaiba was designed as Kuwait's primary industrial harbour. The port has a container terminal and 16 break-bulk cargo berths. The container terminal in Shuaiba port includes four berths totalling 880 m with a depth of 14 m and is equipped with four 41-T Marubeni-Sumitomo container gantry cranes and 18 straddle carriers. Total area of the terminal is about 31 hectares, which includes storage for 3,500 TEU and includes space for ro-ro cargo. The container freight station in the terminal comprises three hectares with a covered area of 7,500 m².

A computer system with NCR 7950 hardware is installed in the terminal. The system carries out control for the container movements, invoicing, cargo handling planning, economic analysis, collecting statistics, etc. A floating link span serving ro-ro vessels is capable of accepting loads up to 120 tons.

The port of Shuwaikh comprises 14 berths with a depth of 10 m, four berths of 8.5 m and three berths of 7 m.

A container terminal in the port of Shuwaikh has two container berths equipped with two gantry cranes of 36 tons capacity each. The terminal covers an area of 27 hectares with storage facilities for 12,600 TEU. Total area of the container freight station in the terminal is 5 hectares.

3.3.2 Container traffic

Container traffic through Kuwaiti ports increased significantly from 59,400 TEU in 1977 to 170,800 TEU in 1980 and to 257,900 TEU in 1984, representing an increase of 187.5 per cent during 1977-1980, and 51 per cent in 1980-1984. The reduction of growth is explained by the fact that in

1981/1982 the container traffic movement dropped by -8 per cent as a result of the world economic recession in general and the overcapacity of the container fleets calling in Arabian Gulf ports in particular.

Table 3.22. Kuwait's container traffic by major ports in 1977 and 1980-1984
(Thousands of TEU)

| Port | 1977 | 1980 | 1981 | 1982 | 1983 | 1984 |
|----------|------|-------|-------|-------|-------|-------|
| Shuaiba | | | | 43.2 | 145.0 | 129.7 |
| Shuwaikh | 59.4 | 170.8 | 223.2 | 227.9 | 104.6 | 128.2 |
| Total | 59.4 | 170.8 | 223.2 | 271.1 | 249.6 | 257.9 |

Source: Containerisation International Year book.

As regards the container traffic by port, both Shuaiba and Shuwaikh now handle around half of the traffic each, despite the fact that the container terminal in Shuaiba was only opened in 1982.

Like Saudi Arabia and the UAE, container traffic through Kuwaiti ports is balanced, around 50 per cent for imports and 50 per cent for exports (table 3.23).

Table 3.23. Distribution of Kuwait's container traffic by imports/exports
(per cent)

| Port | 1980 | 1981 | 1982 | 1983 | 1984 |
|----------|------|------|------|------|------|
| Shuaiba | | | | | |
| Imports | | | 47.6 | 50.2 | 49.7 |
| Exports | | | 52.4 | 49.8 | 50.3 |
| Shuwaikh | | | | | |
| Imports | 50.9 | 49.4 | 51.5 | 50.1 | 50.3 |
| Exports | 49.1 | 50.6 | 48.5 | 49.9 | 49.7 |

Source: Calculated on the basis of data from Containerisation International.

Imports include about 95-98 per cent of the loaded units and exports about the same quantity of empty containers, which are taken as a rule to their area of origin by the container fleets on their routes.

Concerning the area of origin/destination, the main part (40-45 per cent) of the Kuwaiti container traffic is generated by Northern and Southern Europe. North America and the Far East take around 20-25 per cent each and South-East Asia around 10 per cent.

The future prospects of the Kuwaiti container traffic were calculated by using the logarithmic regression which gave the following trend:

$$y = -64.9 + 153.5 \ln x$$

with the coefficient of correlation: $r = 0.9669$

According to the trend calculated, Kuwaiti container traffic is expected to increase to 350,700 TEU by 1990, 395,000 TEU by 1995 and to 429,000 TEU by 2000, accounting for a 40 per cent increase in 1984-1990, 12.6 per cent in 1990-1995 and 8.7 per cent in 1995-2000.

Table 3.24. Forecast of Kuwait's container traffic in 1990, 1995 and 2000
(Thousands of TEU)

| Area of origin | 1990 | 1995 | 2000 |
|-----------------|-------|-------|-------|
| Western Europe | 143.8 | 161.8 | 175.9 |
| North America | 87.6 | 98.7 | 107.3 |
| Far East | 84.2 | 94.8 | 103.0 |
| South East-Asia | 35.1 | 39.5 | 42.9 |
| Total | 350.7 | 394.8 | 429.1 |

Source: ESCWA compilation.

Table 3.25. Average annual rates of growth of Kuwait's container traffic
(per cent)

| 1977-1980 | 1980-1984 | 1984-1990 | 1990-1995 | 1995-2000 |
|-----------|-----------|-----------|-----------|-----------|
| 42.2 | 10.85 | 5.25 | 2.4 | 1.7 |

Source: Based on tables 3.23 and 3.24.

An analysis of average annual rates of growth of Kuwaiti container traffic showed (table 3.24) that the rates are dropping every 4-5 years, practically by half resulting in rates of growth of around 2.5 per cent in 1990-1995 and less than 2 per cent between 1995 and 2000.

3.3.3 Break-bulk sea-borne trade

Since Kuwaiti break-bulk sea-borne exports only make up about 10 per cent of the total national break-bulk sea-borne trade, they are not

considered in this report. It is expected that these exports will be transported by national fleets on their back routes after carrying the national imports.

Table 3.26. Kuwait's break-bulk sea-borne imports
in 1975 and 1980-1985
(Thousands of TEU)

| 1975 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985* |
|-------|-------|------|-------|------|------|-------|
| 1,306 | 2,822 | | 3,428 | | | 4,338 |

Source: Calculated on the basis of data from the Statistical Abstract of the Region of the Economic and Social Commission for Western Asia 1975-1984 (Baghdad, 1986).

* Estimation.

Equivalent to 115 per cent during 1975-1980, and 26 per cent during 1980-1985, growth was much less in the period 1980-1985 because it was affected by the recession in world shipping which took place in 1983-1985. As concerns the distribution of imports by area of origin (as shown in table 3.26), the main part comes from Western Europe, with around 38 to 39 per cent, and the Far East, with 35-36 per cent and increasing. Imports from North America, mostly from the United States, make up about 12 to 15 per cent and are expected to decrease to about 10 per cent in the period of 1990-2000.

Other areas like Oceania and Latin America make up about 2 to 3 per cent and they are expected to remain at the same level in the future.

The future prospects for Kuwaiti break-bulk sea-borne exports were calculated by using the linear regression which gave the following trend:

$$y = -209 + 303x$$

with the coefficient of correlation: $r = 0.9769$

Testing on the standard error of forecast gave a positive result.

According to the trend calculated, Kuwaiti break-bulk imports are expected to increase to 5.85 mn tons by 1990, 7.37 mn tons by 1995 and 8.9 mn tons by 2000 (table 3.27), equivalent to 35 per cent in 1985-1990, 26 per cent in 1990-1995 and 20.6 per cent during 1995-2000.

Analysis of average annual rates of growth of Kuwait's break-bulk sea-borne imports (table 3.28) showed that the rates are tending to decrease and they are expected to drop from 17 per cent during 1975-1980 to around 4 per cent by the end of the century.

Table 3.27. Distribution of Kuwait's sea-borne break-bulk imports by area of origin
(per cent)

| Area of origin | 1980 | 1981 | 1982 | 1983 |
|-----------------|-------|-------|-------|-------|
| Western Europe | 36.0 | 38.4 | 39.2 | 38.9 |
| Eastern Europe | 2.2 | 2.1 | 1.6 | 1.7 |
| North America | 15.6 | 15.0 | 13.8 | 12.1 |
| Latin America | 1.0 | 1.2 | 1.1 | 0.9 |
| Middle East | 3.6 | 3.3 | 3.4 | 4.5 |
| Far East | 35.4 | 34.2 | 35.3 | 36.6 |
| South-East Asia | 3.7 | 3.3 | 2.7 | 2.8 |
| Oceania | 2.5 | 2.5 | 2.9 | 2.5 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 |

Source: Calculated on the basis of data from the Statistical Abstract of the Region of the Economic and Social Commission for Western Asia.

Table 3.28. Forecast of Kuwait's break-bulk sea-borne trade by area of origin in 1990, 1995 and 2000
(Thousands of metric tonnes)

| Area of origin | 1990 | 1995 | 2000 |
|-----------------|---------|---------|---------|
| Western Europe | 2,341.2 | 2,947.6 | 3,554.0 |
| Eastern Europe | 117.1 | 147.4 | 177.7 |
| North America | 585.3 | 736.9 | 888.5 |
| Latin America | 87.8 | 110.5 | 113.3 |
| Middle East | 234.1 | 294.8 | 355.4 |
| Far East | 2,224.1 | 2,800.2 | 3,376.3 |
| South-East Asia | 117.1 | 147.4 | 177.7 |
| Oceania | 146.3 | 184.2 | 222.1 |
| Total | 5,853.0 | 7,369.0 | 8,885.0 |

Source: ESCWA compilation.

Table 3.29. Average annual rates of growth of Kuwait's break-bulk sea-borne imports
(per cent)

| 1975-1980 | 1980-1985 | 1985-1990 | 1990-1995 | 1995-2000 |
|-----------|-----------|-----------|-----------|-----------|
| 16.65 | 8.97 | 6.19 | 4.72 | 3.81 |

Source: Based on tables 3.26 and 3.28.

3.4 Bahrain

3.4.1 Ports

The main port in Bahrain is Mina Sulman. The port comprises 14 deep-water break-bulk cargo berths, and two for containers and one for ro/ro vessels. The container terminal completed in 1979 enabled Mina Sulman to become one of the main trans-shipment centres in the Arabian Gulf. The containers now account for nearly 60-70 per cent of the port traffic. The container terminal, totalling 600 m, depth 11 m, is equipped with two Mitsui-Paceco container joint cranes of 30.5 tons capacity and two Reggiane-Paceco container gantry cranes of 35 tons capacity and a ro-ro ramp.

Terminal facilities include a total area of 30 hectares and storage for 6,500 TEU. The container freight station adjacent to the terminal has a total area of 4 hectares, of which covered area comprises 1.7 hectares.

Future plans include the construction of an additional break-bulk containers berth, to be operational in the 1990s. The new Bahrain-Saudi Arabia 25 km causeway which was opened at the end of 1986 boosted trans-shipment traffic, mostly containers, in 1985.

3.4.2. Container traffic

Container traffic through the port of Mina Sulman increased from 39,000 TEU in 1978 to 60,200 TEU in 1980 and to around 117,000 TEU in 1985, accounting for a 54 per cent increase in 1978-1980 and a 94.4 per cent increase in 1980-1985.

Table 3.30. Bahrain's container traffic in 1978 and 1980-1985
(Thousands of TEU)

| 1978 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 |
|------|------|------|------|------|-------|-------|
| 39.0 | 60.2 | 97.0 | 78.9 | 94.8 | 111.8 | 117.0 |

Source: Containerisation International Year Book.

Unlike the other ESCWA countries' Arabian Gulf ports, the container traffic in Mina Sulman involved mainly imports (52-55 per cent in comparison with 45-47 per cent in exports) because a part of it consists of trans-shipment traffic which doesn't return through Mina Sulman.

As regards the national container traffic, it is practically balanced, i.e., the quantity of containers importing to the country is equivalent to the containers exporting from the country. However, in the past few years the trans-shipment traffic has gradually decreased (table 3.31). Imports include about 85-90 per cent of loaded containers and the exports about the same quantity of empty containers, which are carried from the ESCWA region on the return routes after lifting the imported units into the country.

Table 3.31. Distribution of Bahrain's container traffic by imports/exports (per cent)

| | 1980 | 1981 | 1982 | 1983 | 1984 |
|---------|------|------|------|------|------|
| Imports | 54.4 | 54.6 | 55.6 | 52.8 | 52.5 |
| Exports | 45.6 | 45.4 | 44.4 | 47.2 | 47.5 |

Source: Calculated on the basis of data from Containerisation International Year book.

As regards the distribution of Bahrain's container traffic by area of origin/destination, 35 per cent of it consists of the traffic from/to Northern and Southern Europe, 30-32 per cent from/to North America, 24-25 per cent from/to the Far East and around 10 per cent from/to South-East Asia around 10 per cent.

Table 3.32. Forecast of Bahrain's container traffic in 1990, 1995 and 2000 (Thousands of TEU)

| Destination | 1990 | 1995 | 2000 |
|--------------------------|-------|-------|-------|
| Northern-Southern Europe | 48.1 | 54.0 | 58.5 |
| North America | 43.0 | 48.3 | 52.3 |
| Far East | 33.1 | 37.2 | 40.3 |
| South-East Asia | 13.2 | 14.7 | 16.0 |
| Total | 137.4 | 154.2 | 167.1 |

Source: ESCWA compilation.

The future prospects of the Bahraini container traffic were calculated by using a logarithmic regression which gave the following trend:

$$y = -8.0 + 55.0 \ln x$$

with the coefficient of correlation: $r = 0.9424$

The test of the standard error of forecast gave a positive result.

According to the trend calculated, the container traffic through Mina Sulman port is expected to increase to 137,400 TEU by 1990, 154,200 TEU by 1995 and to 167,100 TEU by 2000, equivalent to a 17 per cent increase in 1985-1990, a 12 per cent during 1990-1995 and an 8.4 per cent increase in 1995-2000.

Table 3.33. Average annual rates of growth of Bahrain's container traffic
(per cent)

| 1978-1980 | 1980-1985 | 1985-1990 | 1990-1995 | 1995-2000 |
|-----------|-----------|-----------|-----------|-----------|
| 24.25 | 14.21 | 3.27 | 2.34 | 1.62 |

Source: Based on tables 3.30 and 3.32.

An analysis of average annual rates of growth of Bahrain's container traffic showed that the rates, like in other ESCWA Arabian Gulf countries, show a marked tendency to decrease, starting from the 1980s and up to the end of the century (table 3.33).

3.4.3 Break-bulk sea-borne trade

3.4.3.1 Imports

Sea-borne break-bulk imports to Bahrain include different commodities, first of all foodstuffs then machinery, transport equipment and clothing. Development trends of these imports have not been stable during the past few years. After dropping by -18 per cent in 1974/1975 they increased by 136 per cent in 1975/1976, then started again to decrease gradually to 91,000 tons by 1980, accounting for a -57 per cent decrease during 1976-1980.

Table 3.34. Bahrain's break-bulk sea-borne imports in 1974,
1980-1983 and 1985
(Thousands of TEU)

| 1974 | 1980 | 1981 | 1982 | 1983 | 1985* |
|-------|------|-------|-------|-------|-------|
| 109.8 | 91.1 | 104.6 | 182.6 | 193.3 | 156.9 |

Source: Calculated on the basis of data from the Statistical Abstract of the Region of the Economic and Social Commission for Western Asia, Baghdad, 1985.

* Estimation.

After 1980, imports increased from 91,100 tons to 193,300 tons then dropped again to 156,900 tons, equivalent to a 112 per cent increase in 1980-1983 and a -19 per cent decrease in 1983-1985.

Regarding the distribution of imports by the area of origin (see table 3.34), the bulk of the imports (around 43-44 per cent) are generated from Western Europe. The data also show that the share of Western Europe will increase a little bit in the future. Other main areas of origin of Bahrain's break-bulk sea-borne trade are the Far East, with about 27 per cent, and North America, with about 15 per cent of the total break-bulk imports.

Table 3.35. Distribution of Bahrain's break-bulk imports by area of origin
(per cent)

| Area of origin | 1980 | 1981 | 1982 | 1983 | 1984 |
|-----------------|-------|-------|-------|-------|-------|
| Western Europe | 36.5 | 34.9 | 37.6 | 44.4 | 43.2 |
| North America | 18.7 | 23.4 | 20.3 | 12.3 | 14.0 |
| Latin America | 1.2 | 0.5 | 0.5 | 0.5 | 0.9 |
| Middle East | 2.8 | 2.8 | 3.7 | 3.5 | 4.1 |
| Far East | 26.5 | 24.3 | 26.2 | 29.6 | 27.3 |
| South-East Asia | 4.7 | 4.4 | 2.9 | 2.6 | 3.1 |
| Oceania | 9.0 | 9.2 | 8.2 | 6.5 | 7.0 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

Source: Calculated on the basis of data from the Statistical Abstract of the Region of the Economic and Social Commission for Western Asia, Baghdad, 1986.

The future prospects of Bahrain's break-bulk imports were calculated by using the logarithmic regression which gave the following trend:

$$y = 102.9 + 21 \ln x$$

According to the trend calculated Bahrain's break-bulk sea-borne imports are expected to increase significantly, to 163,700 tons by 1990, 169,000 tons by 1995 and to 173,000 tons by 2000, accounting for a 4.3 per cent increase during 1985-1990, a 3.2 per cent increase in 1990-1995 and a 2.4 per cent increase in 1995-2000.

Table 3.36. Forecast of Bahrain's break-bulk sea-borne imports
in 1990, 1995 and 2000
(Thousands of tons)

| Area of origin | 1990 | 1995 | 2000 |
|-----------------|-------|-------|-------|
| Western Europe | 73.7 | 76.0 | 77.8 |
| North America | 27.6 | 25.3 | 26.0 |
| Latin America | 1.6 | 1.7 | 1.7 |
| Middle East | 6.5 | 6.8 | 6.9 |
| Far East | 44.2 | 45.6 | 46.7 |
| South-East Asia | 4.9 | 5.1 | 5.2 |
| Oceania | 8.2 | 8.4 | 8.7 |
| Total | 163.7 | 168.9 | 173.0 |

Source: ESCWA compilation.

Table 3.37. Average annual rates of growth of Bahrain's break-bulk sea-borne imports
(per cent)

| 1974-1980 | 1980-1985 | 1985-1990 | 1990-1995 | 1995-2000 |
|-----------|-----------|-----------|-----------|-----------|
| -3.04 | 11.47 | 0.85 | 0.64 | 0.47 |

Source: Based on tables 3.34 and 3.36.

Analysis of average annual rates of growth of Bahrain's break-bulk sea-borne imports showed that during the period of 1974-1980 the trades were dropping annually at the average rate of -3 per cent. In the period of 1980-1985 the rates jumped to 11.5 per cent and then dropped sharply again to less than 1.0 per cent.

3.4.3.2 Exports

The major part of sea-borne break-bulk exports from Bahrain include mostly the non-ferrous metals, particularly aluminium which covers around 90 to 95 per cent of the total of Bahrain's break-bulk exports.

During the period from 1974 until 1985 it was unstable development of Bahrain's sea-borne exports (table 3.38).

Table 3.38. Bahrain's sea-borne break-bulk export in 1974, 1980-1983 and 1985
(Thousands of tons)

| 1974 | 1978 | 1980 | 1981 | 1982 | 1983 | 1985* |
|-------|-------|-------|-------|-------|-------|-------|
| 112.1 | 203.8 | 100.7 | 121.9 | 302.9 | 225.4 | 216.7 |

Source: Calculated on the basis of data from the Statistical Abstract of the Region of the Economic and Social Commission for Western Asia.

* Estimation.

The exports increased from 112,100 tons in 1974 to 203,800 tons in 1978, equivalent to an 82 per cent increase, then dropped to 100,700 tons in 1980 or by -57.0 per cent. After 1980, exports again increased, by around 200 per cent during two years, and then started again to decrease gradually after 1982.

Table 3.39. Distribution of Bahrain's exports by destination
(per cent)

| Destination | 1982 | 1983 | 1984 |
|-----------------|-------|-------|-------|
| Western Europe | 9.2 | 8.4 | 4.4 |
| North America | 1.6 | 1.3 | 8.7 |
| Far East | 42.0 | 50.9 | 34.9 |
| South-East Asia | 2.8 | 3.6 | 10.1 |
| Middle East | 42.6 | 35.4 | 41.7 |
| Africa | 0.7 | 0.2 | 0.1 |
| Oceania | 1.1 | 0.2 | 0.1 |
| Total | 100.0 | 100.0 | 100.0 |

Source: Calculated on the basis of data from the Statistical Abstract of the Region of the Economic and Social Commission for Western Asia.

Concerning the distribution of Bahrain's break-bulk exports by destination (see table 3.38), most of these exports are transported to the Far East (35-50 per cent) and to the ESCWA countries (35-42 per cent). The exports to Western Europe have gradually decreased and are not expected to be more than 5 per cent in the future.

As regards the exports to North America and South-East Asia they are expected to be at around 3 per cent and 7 per cent respectively.

Future prospects of Bahrain's break-bulk exports were defined by using the logarithmic regression which gave the following trend:

$$y = 64.9 + 59.2 \ln x$$

with coefficient of correlation: $r = 0.5114$.

Table 3.40. Forecast of Bahrain's break-bulk exports in 1990, 1995 and 2000
(Thousands of tons)

| Destination | 1990 | 1995 | 2000 |
|-----------------|-------|-------|-------|
| Western Europe | 11.8 | 12.5 | 13.1 |
| North America | 7.1 | 7.5 | 7.9 |
| Far East | 103.8 | 110.2 | 115.3 |
| Middle East | 96.8 | 102.7 | 107.5 |
| South-East Asia | 16.5 | 17.5 | 18.3 |
| Total | 236.0 | 250.4 | 262.1 |

Source: ESCWA compilation.

According to the trend calculated Bahrain's break-bulk sea-borne exports are expected to increase to 236,000 tons by 1990, 250,400 tons by 1995 and to 262,100 tons by the end of the century, accounting for a 8.9 per cent increase in 1985-1990, a 6.1 per cent increase in 1990-1995 and a 4.7 per cent increase in 1995-2000.

Table 3.41. Average annual rates of growth of Bahrain's break-bulk sea-borne exports
(per cent)

| 1974-1980 | 1980-1985 | 1985-1990 | 1990-1995 | 1995-2000 |
|-----------|-----------|-----------|-----------|-----------|
| -0.97 | 16.56 | 1.72 | 1.20 | 0.92 |

Source: Based on tables 3.38 and 3.40.

As regards the average annual growth of the exports, the data from table 3.41 show that after a decrease of the annual rates to about -1.0 per cent in 1974-1980 they increased significantly in 1980-1985, then dropped to about 2 per cent in 1985/1990 and show a tendency to decrease in the future.

3.5 Oman

3.5.1 Ports

The main port, which has container and break-bulk facilities, is Mina Qaboos. In the port there are nine deep-water and four shallow berths of which five form the container terminal equipped with two 35-ton capacity gantry cranes. Particular attention is being paid to the improvement of container facilities as containerised cargo now accounts for about 40 per cent of tonnage handled at the port.

The total length of the container terminal is 366 metres and depth 9.2 metres. The total area is 4.7 hectares and storage 2,200 TEU (laden 1,600 TEU and empty 600 TEU). The container freight station (CFS) is adjacent to the terminal. The computer system with hardware "HP-3000" and software "IMTAC" is installed at the terminal. It operates such functions as control of the movement of the container, and preparing statistics. Future plans envisage an expansion project, including a 600 container berth and 15 hectare terminal.

Another port with container and break-bulk facilities is Mina Raysut-Salalah. The port includes four deep-water berths of which three berths totalling 522 m in length are designed for container handling and equipped with a 35-ton gantry crane and are capable of accommodating vessels up to 15,000 TEU. There is a container freight station on the terminal. The container terminal commenced operations at the end of 1982.

3.5.2 Container traffic

Container traffic through Oman's ports increased significantly by 302 per cent during 1978-1980 and by 413.5 per cent during 1980-1985. This can be explained by the location of the ports outside a war zone in the Arabian Gulf.

Many shippers have accepted Oman as a trans-shipment point to the region. Mina Qaboos is the main container port in Oman and covers around 98-99 per cent of the total container traffic.

As regards the distribution of Oman's container traffic by imports/exports, (see table 3.43), the traffic is practically balanced with only an insignificant excess of imports because some trans-shipment becomes available for the local market. The future prospects for container traffic through Oman's ports were calculated by using the linear regression which gave the following trend:

$$y = -29.7 + 13.3 x$$

with the coefficient of correlation: $r = 0.9649$

According to the trend calculated, the container traffic through Oman's ports is expected to increase to about 157,000 TEU by 1990, to 224,700 TEU by 1995 and to 290,400 TEU by the end of the century, equivalent to a 65 per cent increase during 1985-1990, a 42.5 per cent increase in 1990-1995 and a 30 per cent increase in 1995-2000. The geographical distribution shows that the bulk of the traffic (40-42 per cent) goes from/to Western Europe, around 28-30 per cent generated from North America, about 20 per cent from the Far East and rest from the South-East Asia.

An analysis of average annual rates of growth of Oman's container traffic (table 3.45) shows that the rates have a stable tendency towards reduction and will drop from around 10 per cent in 1978-1980 to 5-6 per cent by the end of the century.

Table 3.42. Development of container traffic through Oman's ports in 1978 and 1980-1985
(per cent)

| Port | 1978 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 |
|-------------|------|------|------|------|------|------|------|
| Mina Qaboos | 4.6 | 18.5 | 28.9 | 44.1 | 65.9 | 90.2 | 93.5 |
| Mina Raysut | | | | | 1.1 | 1.3 | 1.5 |
| Total | 4.6 | 18.5 | 28.9 | 44.1 | 57.0 | 91.5 | 95.0 |

Source: Containerisation International Year book, 1981-1986.

Table 4.43. Distribution of Oman's container traffic by imports/exports
(per cent)

| | 1981 | 1982 | 1983 | 1984 |
|---------|------|------|------|------|
| Imports | 51.9 | 50.8 | 51.5 | 50.8 |
| Exports | 48.1 | 49.2 | 48.5 | 49.2 |

Source: Calculated on the basis of data from the Containerisation International Year Book, 1985 and 1986.

Table 3.44. Forecast of Oman's container traffic in 1990, 1995 and 2000
(Thousand of TEU)

| Area | 1990 | 1995 | 2000 |
|------------------------------|-------|-------|-------|
| Northern and Southern Europe | 65.6 | 93.5 | 121.4 |
| North America | 43.6 | 62.2 | 80.7 |
| Far East | 31.9 | 45.4 | 59.0 |
| South-East Asia | 15.9 | 22.6 | 29.3 |
| Total | 157.0 | 223.7 | 290.4 |

Source: ESCWA compilation.

Table 3.45. Average annual rates of growth of Oman's container traffic
(per cent)

| 1978-1980 | 1980-1985 | 1985-1990 | 1990-1995 | 1995-2000 |
|-----------|-----------|-----------|-----------|-----------|
| 100.6 | 38.72 | 10.56 | 7.35 | 5.35 |

Source: Based on tables 3.42 and 3.44.

3.5.3. Break-bulk sea-borne trade

Oman's break-bulk sea-borne trade includes different commodities like building and construction materials, provision, foodstuffs, cement in bags, manufactured and other general cargoes. Imports comprises around 90-95 per cent and exports 5-10 per cent of the total break-bulk sea-borne trade or around only 70-80 thousand per year, that is why it is not considered in the report. Its can be transported by national fleets on its back routes after transportation of national imports.

Table 3.46. Development of Oman's break-bulk sea-borne imports
(Thousands of tons)

| 1975 | 1980 | 1981 | 1982 | 1983 | 1984 |
|-------|-------|-------|-------|-------|-------|
| 543.2 | 633.0 | 869.8 | 895.2 | 786.0 | 787.8 |

Source: Calculated on the basis of data from issues of the Statistical Year Book, Sultanate of Oman, Development Council, Technical Secretariat, Directorate General of National Statistics.

Oman's break-bulk imports increased from 543,400 tons in 1975 to 633,000 tons in 1980 or by 16.5 per cent. However, during this period a reduction in the trade took place in 1979, when it dropped by -21 per cent; it then increased up to 1982 to 895,000 tons. After 1982 the trade again dropped by -12 per cent to around 786,000 tons and remained at this level for two years. As regards the area of origin, the bulk of Oman's break-bulk imports is generated from Western Europe (about 40 per cent), from the Far East (25-26 per cent) and from other ESCWA countries (18-20 per cent).

Future prospects of Oman's break-bulk imports were calculated by using the logarithmic regression which gave the trend:

$$y = 528.7 + 28.7 \ln x$$

with coefficient of correlation: $r = 0.7237$.

According to the trend calculated, Oman's break-bulk sea-borne imports are expected to decrease to 658,000 tons by 1990 in comparison with 788,000 tons in 1984 or by -16 per cent. Then they are expected to increase slightly to 660,000 tons by 1990 and to 661,000 tons by 2000, accounting for only a 0.2 per cent increase in 1990-1995 and 1995-2000.

The reduction of growth of Oman's break-bulk sea-borne trade in future can be explained by the expansion of containerisation in the country and a conversion of part of the break-bulk cargoes into containerised cargoes.

Table 3.47. Forecast of Oman's break-bulk sea-borne imports
in 1990, 1995 and 2000
(Thousands of tons)

| Area of origin | 1990 | 1995 | 2000 |
|-----------------|-------|-------|-------|
| Western Europe | 263.2 | 263.8 | 264.3 |
| Eastern Europe | 13.2 | 13.2 | 13.2 |
| North America | 52.6 | 52.8 | 52.9 |
| Latin America | 6.6 | 6.6 | 6.6 |
| Middle East | 118.4 | 118.7 | 118.9 |
| Far East | 164.4 | 164.8 | 165.3 |
| South-East Asia | 26.3 | 26.4 | 26.4 |
| Oceania | 13.2 | 13.2 | 13.2 |
| Total | 657.9 | 659.5 | 660.8 |

Source: ESCWA compilation.

Table 3.48. Average annual rates of growth of Oman's break-bulk sea-borne imports

| 1975-1980 | 1980-1984 | 1984-1990 | 1990-1995 | 1995-2000 |
|-----------|-----------|-----------|-----------|-----------|
| 3.10 | 4.47 | -2.95 | 0.05 | 0.04 |

Source: Based on tables 3.46 and 3.47.

An analysis of average annual rates of growth (table 3.48) showed that the rates increased from 3.10 per cent in 1975-1980 to 4.5 per cent in 1980-1984 and then would drop to -3 per cent in 1984-1990. After they are expected to increase only slightly and remain at a very low level up to the end of the century.

3.6 Egypt

3.6.1 Ports

There are four major ports in Egypt which handle the container and break-bulk sea-borne traffic imported/exported to/from the country. They are as follows: Alexandria, Port Said, Damietta and El-Dikheila.

The port of Alexandria covers around 75 per cent of the national maritime traffic. Annual throughput comprises about 31 million tons. Container facilities at the port can handle up to 80,000 TEU a year.

The port has a total of 32 berths. Six conventional berths are suitable for container handling. The container terminal consists of one container berth 540 m long and 14 metres deep and is served by two 32-ton Liebherr container gantry cranes. There is also one ro-ro berth with a length of 160 m and depth of 14 m. Total area of the terminal is 15.3 hectares with storage for 4,000 TEU. The container freight station on the terminal has a covered area of 6,000 m².

Port Said consists of 10 berths for conventional vessels with a total of nearly 1,250 m of quay and with an annual throughput of some 6 million tons.

Expansion projects at Port Said include a 350 m container terminal which is expected to be delivered by 1988.

A tender also has been issued for a 250-metre multi-purpose berth. There is a container/ro-ro berth with a length of 210 m and maximum draught of 8.2 m. Container gantry cranes are not available at the berth. Total area of the berth is 5.5 hectares. Future plans include a two-berth lo-lo/ro-ro container quay with a length of 600 m and depth 13.7 m now under construction. It will be equipped with two container gantry cranes. The quay will comprise 350 m of container and 250 m of multi-purpose berthage. A container marshalling yard of 14 hectares, with a container freight station, is also planned.

Port Damietta is a new major port in the Nile Delta and is still under construction. The first stage of its development includes two container quays. The entrance channel has a draught of 15 m and the port will be able to receive vessels of up to 80,000 dwt.

The port of El-Dikheila is situated 6 kms west of Alexandria and is also a new port which is under construction. Its development includes general cargo and container facilities with quays of 600 m each and capacity for 16 million tons of cargo a year.

3.6.2 Container traffic

Container traffic through Egypt's ports of Alexandria and Port Said increased significantly, from 11,800 TEU in 1978 to 69,100 TEU in 1980 and 188,000 TEU in 1985, accounting for a 485.6 per cent increase during 1978-1980 and a 271.6 per cent increase in 1980-1985. The port of Alexandria covers around 75 to 80 per cent of the total traffic coming to/from the country.

Table 3.49. Egypt's container traffic in 1978 and 1980-1985
(Thousands of TEU)

| Port | 1978 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985* |
|------------|------|------|-------|-------|-------|-------|-------|
| Alexandria | 11.8 | 69.1 | 101.6 | 106.0 | 137.2 | 139.7 | 150.0 |
| Port Said | | | 37.2 | 36.9 | 41.3 | 45.8 | 37.7 |
| Total | 11.8 | 69.1 | 138.8 | 142.9 | 178.5 | 185.5 | 187.7 |

Source: Containerisation International Year Book, 1981-1986.

* Estimation.

As regards the distribution of the traffic by imports/exports it actually is balanced, as shown in table 3.50.

The imports include mostly the loaded containers and the exports empty and loaded units. More than half (50-55 per cent) of the total traffic goes from/to Southern Europe, 25 per cent from Northern Europe, 4 to 5 per cent from North America and the rest from the Far-East and South-East Asia.

The future prospects of container traffic through Alexandria and Port Said were calculated by using the logarithmic regression which gave the following trend:

$$y = -90.0 + 131 \ln x$$

with the coefficient of correlation: $r = 0.9794$.

Table 3.50. Distribution of Egypt's container traffic by imports/exports (per cent)

| Port | 1982 | 1983 | 1984 | 1985 |
|-------------------|------|------|------|------|
| <u>Alexandria</u> | | | | |
| Imports | 53.6 | 55.4 | 52.7 | 52.7 |
| Exports | 46.4 | 44.6 | 47.3 | 47.3 |
| <u>Port Said</u> | | | | |
| Imports | 49.9 | 53.3 | 49.7 | 45.1 |
| Exports | 50.1 | 46.7 | 50.3 | 54.9 |

Source: Calculated on the basis of data from the Containerisation International Year Book, 1983-1986.

According to the trend calculated, container traffic through Alexandria and Port Said is expected to increase to 225,800 TEU by 1990, 295,800 TEU by 1995 and 326,500 TEU by 2000.

Table 3.51. Forecast of container traffic through the ports of Damietta, Dikheila and Suez/Safaga in 1990, 1995 and 2000
(Thousands of TEU)

| Port | 1990 | 1995* | 2000 |
|--------------|--------------|--------------|--------------|
| Damietta | 90.0 | 210 | 330.0 |
| Dikheila | 80.0 | 95 | 110.0 |
| Suez/Safaga | 5.2 | 5.2 | 5.2 |
| Total | 175.2 | 310.2 | 445.2 |

Source: "Inland Transport of Containers in Egypt". A report by DHV, Consulting Engineers, Holland and Pacer Consultants, Cairo.

* ESCWA estimates.

According to the data in the above table, the container traffic will increase in the future also through the new ports of Damietta and Dikheila, to 175,000 TEU by 1990 and 445,200 TEU by 2000.

The prospects for Egypt's container traffic, with its distribution by areas of origin/destination, are shown in table 3.51.

Table 3.52. Forecast of Egypt's container traffic in 1990, 1995 and 2000
(Thousands of TEU)

| | 1990 | 1995 | 2000 |
|-----------------|--------------|--------------|--------------|
| Northern Europe | 107.7 | 151.5 | 192.9 |
| Southern Europe | 241.4 | 339.3 | 432.1 |
| North America | 47.4 | 66.7 | 84.9 |
| Far East | 12.9 | 18.2 | 23.2 |
| South-East Asia | 21.6 | 30.3 | 38.6 |
| Total | 431.0 | 606.0 | 771.7 |

It is expected to increase to 431,000 TEU by 1990, 606,000 TEU by 1995 and 772,000 TEU by 2000, equivalent to 130 per cent increase during 1985-1990, 40.6 per cent increase in 1990-1995 and 27.3 per cent increase in 1995-2000.

Table 3.53. Average annual rates of growth of Egypt's container traffic
(per cent)

| 1978-1980 | 1980-1985 | 1985-1990 | 1990-1995 | 1995-2000 |
|-----------|-----------|-----------|-----------|-----------|
| 142.0 | 22.12 | 18.07 | 7.05 | 4.95 |

Source: Based on tables 3.49 and 3.52.

An analysis of average annual rates of growth of Egypt's container traffic shows (see table 3.53) a stable decreasing trend. Rates are expected to drop from 22 per cent in 1980-1985 to about 5 per cent in the period 1995-2000.

3.6.3. Break-bulk sea-borne trade

Break-bulk sea-borne trade through Egypt's ports increased significantly, from 965,000 tons in 1975 to 4.9 million tons in 1981, a 414 per cent increase, then dropped to 4.6 million tons in 1982, a decrease of -6 per cent.

Table 3.54. Egypt's break-bulk sea-borne trade by imports/exports in 1975 and 1978-1982
(Thousands of TEU)

| | 1975 | 1978 | 1979 | 1980 | 1981 | 1982 |
|---------|------|-------|------|-------|-------|-------|
| Imports | 489 | 735 | 381 | 2,490 | 4,161 | 3,730 |
| Exports | 476 | 375 | 244 | 754 | 798 | 935 |
| Total | 965 | 1,110 | 625 | 3,244 | 4,959 | 4,665 |

Source: Calculated on the basis of data from "Arab Republic of Egypt. Port Said port expansion and rehabilitation project", (The World Bank, 1985).

According to the calculations on the basis of the World Bank data projections, the break-bulk sea-borne trade through Egypt's ports is estimated to increase to 10.2 million tons by 1990 and to 14.7 million tons by 2000.

The distribution of the future prospects of Egypt's sea-borne trade by area of origin/destination is shown in table 3.55.

An analysis of average annual rates of growth of Egypt's break-bulk sea-borne trade shows a decreasing trend and rates are expected to drop from 10.2 per cent in the period 1982-1990 to 3.3 per cent in 1995-2000.

Table 3.55. Future prospects of Egypt's break-bulk sea-borne trade by area of origin in 1990, 1995 and 2000
(Million tons)

| Area of origin/destination | Imports | | | Exports | | |
|----------------------------|---------|-------|------|---------|-------|------|
| | 1990 | 1995* | 2000 | 1990 | 1995* | 2000 |
| Western Europe | 4.2 | 5.1 | 5.9 | 1.1 | 1.4 | 1.6 |
| Eastern Europe | 0.8 | 0.9 | 1.1 | 0.4 | 0.5 | 0.6 |
| North America | 1.5 | 1.9 | 2.2 | 0.1 | 0.2 | 0.2 |
| Latin America | 0.2 | 0.3 | 0.4 | | | |
| Middle East | 0.1 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 |
| Far East | 0.7 | 0.8 | 1.0 | 0.7 | 0.8 | 1.0 |
| Oceania | 0.2 | 0.2 | 0.2 | - | - | - |
| Total | 7.7 | 9.4 | 11.0 | 2.5 | 3.1 | 3.7 |

Source: Calculated on the basis of World Bank estimates.

* ESCWA estimates.

Table 3.56. Average annual rates of growth of Egypt's break-bulk sea-borne trade
(per cent)

| 1975-1982 | 1982-1990 | 1990-1995 | 1995-2000 |
|-----------|-----------|-----------|-----------|
| 25.24 | 10.18 | 4.15 | 3.80 |

Source: Based on tables 3.54 and 3.55.

3.7. Syrian Arab Republic

3.7.1 Ports

The major ports with the facilities to handle the break-bulk and container fleets are Lattakia and Tartous.

Port of Lattakia consists of 11 deep-water berths. The container and ro-ro facilities include a 60,000 m² container stacking area and two floating cranes of up to 130 tons capacity. There are three general cargo berths suitable for ro-ro/container vessels, with 12 cranes available in the port for container handling. The container terminal has a total area of 12 hectares with storage for 3,200 TEU. A container freight station is available on the terminal with a total area of 9 hectares. The port is linked by rail to the main line running to the north of Syria. Future plans include surfacing of a 6.5 hectare yard area which will have a capacity of 2,500 TEU and construction of two quays specially designed for container handling with a total length of 450 m, depth 13.3 m, to be equipped with three container gantry cranes.

The port of Tartous has a total of 22 berths for general cargo vessels, with 30,000 m² of covered storage and a floating crane of up to 125 tons capacity.

3.7.2. Container traffic

Container traffic in the Syrian Arab Republic moves mostly through the port of Lattakia and it increased from 45,100 TEU in 1979 to 72,900 TEU in 1981, equivalent to a 62 per cent increase, then dropped to 46,800 TEU in 1983 or by -35.8 per cent owing to the recession in the world sea-borne trade at that time. After 1983 there was a recovery in Syria's container traffic, which increased to 50,800 tons in 1984 and to about 95,000 tons in 1985, equivalent to an 8.5 per cent increase in 1983/1984 and an 87 per cent increase in 1984/1985.

Table 3.57. Syrian Arab Republic's container traffic in 1979-1985
(Thousands of TEU)

| 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985* |
|------|------|------|------|------|------|-------|
| 45.1 | 62.0 | 72.9 | 48.8 | 46.8 | 50.8 | 95.0 |

Source: Containerisation International Year Book, 1981-1986.

* Estimation.

As regards the area of origin/destination, the bulk of the Syrian Arab Republic's container traffic is generated from Southern and Eastern European countries which cover about 60-62 per cent of the total container traffic. Northern Europe covers around 35-36 per cent of the traffic and the Far East about 3-5 per cent.

Table 3.58. Distribution of the Syrian Arab Republic's container traffic by imports/exports
(per cent)

| | 1982 | 1983 | 1984 | 1985 |
|---------|------|------|------|------|
| Imports | 48.6 | 49.6 | 51.0 | 52.6 |
| Exports | 51.4 | 50.4 | 49.0 | 47.4 |

Source: Calculated on the basis of data from the Containerisation International Year Book, 1985-1986.

Like other ESCWA countries Syria's container traffic is actually balanced, that is, the imported traffic in TEU is equivalent to the exported traffic (see table 3.58). Imports include mostly loaded containers and exports empty units.

The future prospects for Syria's container traffic were calculated on the basis of a linear regression which gave the following trend:

$$y = 42.1 + 3.6x$$

with the coefficient of regression: $r = 0.4275$

According to the trend calculated, Syria's container traffic is expected to decrease to 89,100 TEU by 1990, in comparison with 95,000 TEU in 1985, but then to increase to 107,200 TEU by 1995 and to 125,300 TEU by 2000, accounting for a -6.2 per cent decrease in 1985-1990, then a 20.3 per cent increase in 1990-1995 and a 16.9 per cent increase in 1995-2000.

Table 3.59. Forecast of Syrian Arab Republic's container traffic in 1990, 1995 and 2000
(Thousands of TEU)

| Area of origin/destination | 1990 | 1995 | 2000 |
|----------------------------|------|-------|-------|
| Northern Europe | 32.1 | 38.6 | 45.1 |
| Southern Europe | 54.3 | 65.4 | 76.4 |
| Far East | 2.7 | 3.2 | 3.8 |
| Total | 89.1 | 107.2 | 125.3 |

Source: ESCWA compilation.

Table 3.60. Average annual rates of growth of Syrian Arab Republic's container traffic
(per cent)

| 1980-1985 | 1985-1990 | 1990-1995 | 1995-2000 |
|-----------|-----------|-----------|-----------|
| 8.92 | -1.27 | 3.76 | 3.15 |

Source: Based on tables 3.57 and 3.59.

An analysis of average annual rates of growth of Syria's container traffic shows that, after dropping from 9 per cent in 1980-1985 to -1.3 per cent in 1985-1990, the rates are expected to increase to about 3-4 per cent and remain at that level up to the end of the century.

3.7.3. Syrian Arab Republic's break-bulk sea-borne trade

Imports

Syria's break-bulk sea-borne imports include such commodities as foodstuffs, machines, fibres and textiles. Imports increased from 1.16 million tons in 1975 to 2.3 million tons in 1980 but then dropped to 1.6 million tons by 1984, accounting for a 100 per cent increase during 1975-1980 and then a -31 per cent reduction in 1980-1984.

As regards the geographical distribution of imports, they are generated mostly from Western sources (25-29 per cent), Eastern Europe (15 per cent) and the Far East (30-35 per cent); around 10-12 per cent are from ESCWA countries.

The future prospects of Syria's break-bulk imports were calculated on the basis of a logarithmic regression, which gave the following trend:

$$y = 1077.8 + 330.8 \ln x$$

with the coefficient of correlation: $r = 0.3856$

According to the trend calculated, Syria's break-bulk imports are expected to increase to 2.0 million tons by 1990, 2.1 million tons by 1995 and to 2.17 million tons by 2000, equivalent to a 26 per cent increase in 1984-1990, a 4.2 per cent increase in 1990-1995 and a 3.2 per cent increase in 1995-2000 (table 3.63).

Table 3.61. Syrian Arab Republic's break-bulk sea-borne imports in 1975 and 1980-1984
(Thousands of tons)

| Port | 1975 | 1980 | 1981 | 1982 | 1983 | 1984 |
|----------|-------|-------|-------|-------|-------|-------|
| Lattakia | 622 | 978 | 1,196 | 665 | 706 | 754 |
| Tartous | 539 | 1,347 | 1,251 | 798 | 557 | 845 |
| Total | 1,161 | 2,325 | 2,447 | 1,463 | 1,263 | 1,599 |

Source: Calculated on the basis of data from the Statistical Abstract (Syrian Arab Republic), 1976-1985".

Table 3.62. Syrian Arab Republic's break-bulk sea-borne exports in 1975 and 1980-1984
(Thousands of tons)

| Port | 1975 | 1980 | 1981 | 1982 | 1983 | 1984 |
|----------|------|------|------|------|------|------|
| Lattakia | 124 | 141 | 311 | 167 | 197 | 247 |
| Tartous | 313 | 313 | 224 | 165 | 90 | 104 |
| Total | 437 | 454 | 535 | 332 | 287 | 351 |

Source: Calculated on the basis of data from the Statistical Abstract (Syrian Arab Republic) 1976-1985.

Syria's break-bulk exports include such major commodities as cotton, foodstuffs, machinery and equipment.

Exports increased only slightly from 437,000 tons in 1975 to 454,000 tons in 1980 and after 1981 dropped to 351,000 tons in 1984, equivalent to a 3.9 per cent increase in 1975-1980 and a -22.7 per cent decrease in 1980-1984.

With regard to the geographical distribution of exports, data from the ESCWA Statistical Abstract showed that the major destinations of Syria's break-bulk exports are Eastern Europe (44-46 per cent) and Western (40 per cent) Europe; other areas like the Middle East, Africa and the Far East accounted for about 5-6 per cent.

The future prospects of Syria's break-bulk exports were received by using the Exponential regression, which gave the following trend:

$$y = 730.5e^{-0.066x}$$

with the coefficient of correlation: $r = 0.5819$

Table 3.63. Forecast of Syrian Arab Republic's break-bulk sea-borne trade in 1990, 1995 and 2000
(Thousands of TEU)

| Area of origin/ destination | Imports | | | Exports | | |
|--------------------------------|---------|-------|-------|---------|-------|-------|
| | 1990 | 1995 | 2000 | 1990 | 1995 | 2000 |
| Western Europe | 584.4 | 609.0 | 628.7 | 94.8 | 68.2 | 49.0 |
| Eastern Europe | 302.3 | 315.0 | 325.2 | 104.4 | 75.0 | 53.9 |
| North America | 120.8 | 126.0 | 130.1 | - | - | - |
| Latin America | 60.5 | 63.0 | 65.0 | - | - | - |
| Middle East | 241.7 | 252.0 | 260.2 | 24.2 | 10.2 | 7.3 |
| Far East | 705.3 | 735.0 | 758.8 | 12.0 | 8.6 | 6.2 |
| Africa | - | - | - | 11.8 | 8.4 | 6.0 |
| Total | 2,015 | 2,100 | 2,168 | 237.2 | 170.4 | 122.4 |

Source: ESCWA compilation.

According to the trend calculated, Syria's break-bulk sea-borne exports are expected to decrease gradually to 237,200 tons by 1990, 170,400 tons by 1995 and 122,400 tons by the end of the century. Such a reduction is explained by the conversion of some break-bulk commodities into containerised cargoes in the future.

3.8. Jordan

3.8.1. Ports

The port of Aqaba has five general cargo berths and a container terminal. The container terminal includes two container berths, one 260 m in length, one 280 m in length, which are equipped with two 40-ton Liebherr container gantry cranes. There is also one ro-ro berth 40 m in length and with a depth of 15 m. The total area of the container terminal is 25 hectares. There is a container freight station on the terminal with a covered area of 1,500 m².

3.8.2. Container traffic

Jordan's container traffic increased from 23,000 TEU in 1978 to 41,800 TEU in 1980 and to around 108,000 TEU in 1985, accounting for an 82 per cent increase in 1978-1980 and a 159 per cent increase in 1980-1985.

Table 3.64. Jordan's container traffic in 1978 and 1980-1985
(Thousands of TEU)

| 1978 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 |
|------|------|------|-------|------|-------|-------|
| 23.0 | 41.8 | 76.8 | 103.7 | 86.5 | 102.5 | 108.2 |

Source: Containerisation International Year Book, 1981-1986.

The traffic is balanced practically that is the inbound volume is about equivalent to outbound volume (see table 3.65). Imports include mostly loaded containers and exports empty units, that is they return to the area of origin after their discharging in the country.

Table 3.65. Distribution of Jordan's container traffic by imports/exports
(per cent)

| | 1982 | 1983 | 1984 | 1985 |
|---------|------|------|------|------|
| Imports | 52.3 | 50.2 | 50.9 | 49.5 |
| Exports | 47.4 | 49.8 | 49.1 | 50.5 |

Source: Calculated on the basis of data from the Containerisation International Year Book, 1985-1986.

The future prospects of Jordan's container traffic were calculated on the basis of a logarithmic regression which gave the following trend:

$$y = -25 + 59.8 \ln x$$

with the coefficient of correlation: $r = 0.9350$

According to the trend calculated Jordan's container traffic is expected to increase to 132,800 TEU by 1990, 151,100 TEU by 1995 and to 165,100 TEU by 2000. These figures are equivalent to a 23 per cent increase in 1985-1990, a 13.8 per cent increase in 1990-1995 and a 9.3 per cent increase in 1995-2000.

As concerns the geographical distribution of the traffic, it is generated mostly from Northern Europe (35-36 per cent), Southern Europe (23-25 per cent), the Far East (20 per cent) and North America (14-15 per cent). The rest of the traffic (around 5-6 per cent) is from South-East Asia and Oceania.

Table 3.66. Forecast of Jordan's container traffic in 1990, 1995 and 2000
(Thousands of TEU)

| Area of origin/destination | 1990 | 1995 | 2000 |
|----------------------------|--------------|--------------|--------------|
| Northern Europe | 47.8 | 54.3 | 59.4 |
| Southern Europe | 30.5 | 34.8 | 38.0 |
| North America | 19.9 | 22.7 | 24.8 |
| Far East | 26.6 | 30.2 | 33.0 |
| South-East Asia | 8.0 | 9.1 | 9.9 |
| Total | 132.8 | 151.1 | 165.1 |

Source: ESCWA compilation.

Table 3.67. Average annual rates of growth of Jordan's container traffic
(per cent)

| 1978-1980 | 1980-1985 | 1985-1990 | 1990-1995 | 1995-2000 |
|-----------|-----------|-----------|-----------|-----------|
| 34.80 | 18.52 | 4.17 | 2.62 | 1.77 |

Source: Based on tables 3.65 and 3.66.

An analysis of average annual rates of growth of Jordan's container traffic shows that, despite the growth of the traffic in TEU, the rates are decreasing steadily and are expected to drop from 35 per cent in 1975-1980 to about 2 per cent by the end of the century.

3.8.3. Break-bulk sea-borne trade

The exports from Jordan consist of bulk cargoes, mainly phosphates, so they were not considered in this report. With regard to break-bulk imports, they include different general cargoes like foodstuffs, coffee, tea, machinery and equipment. The imports increased considerably, from 358,000 tons in 1975 to 1.3 million tons in 1980 and to 3.5 million tons by 1982, equivalent to a 259 per cent increase during 1975-1980, and a 177 per cent increase in 1980-1982. After 1982 the trade dropped to 2.3 million tons in 1983 and then to 825,000 tons in 1985, accounting for a -35 per cent decrease in 1982/1983 and a -72 per cent decrease in 1984/1985.

Table 3.68. Jordan's break-bulk sea-borne imports
(Thousands of TEU)

| 1975 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 |
|------|-------|-------|-------|-------|-------|------|
| 358 | 1,285 | 2,700 | 3,558 | 2,294 | 2,923 | 825 |

Source: Calculated on the basis of data submitted by the Aqaba Port Corporation.

As regards the geographical distribution of Jordan's break-bulk imports it generated mostly from Northern Europe (35-36 per cent), Southern Europe (22-23 per cent), North America (15 per cent) and the Far East (20 per cent). The rest of the trade moves from South-East Asia and Oceania.

The future prospects of Jordan's break-bulk sea-borne trade were calculated on the basis of a logarithmic regression which gave the following trend:

$$y = -97.6 + 1089 \ln x$$

with the coefficient of correlation: $r = 0.5303$

According to the trend calculated the Jordan break-bulk sea-borne trade is expected to increase to 2.1 million tons by 1990, 2.4 million tons by 1995 and 2.6 million tons by 2000, equivalent to a 156 per cent increase in 1985-1990, a 13.3 per cent increase in 1990-1995 and a 9.3 per cent increase in 1995-2000.

Table 3.69. Forecast of Jordan's break-bulk sea-borne imports
(Thousands of TEU)

| Area of origin | 1990 | 1995 | 2000 |
|-----------------|-------|-------|-------|
| Northern Europe | 527.5 | 597.8 | 653.5 |
| Southern Europe | 633.0 | 717.3 | 784.2 |
| North America | 317.5 | 359.7 | 393.2 |
| Latin America | 315.5 | 357.6 | 391.0 |
| Africa | 63.3 | 71.7 | 78.4 |
| South-East Asia | 42.2 | 47.8 | 52.3 |
| Far East | 211.0 | 239.1 | 261.4 |
| Total | 2,110 | 2,391 | 2,614 |

Source: ESCWA compilation.

Table 3.70. Average annual rates of growth of Jordan's break-bulk sea-borne imports
(per cent)

| 1975-1980 | 1980-1985 | 1985-1990 | 1990-1995 | 1995-2000 |
|-----------|-----------|-----------|-----------|-----------|
| 29.11 | -8.47 | 2.66 | 2.48 | 1.80 |

Source: Based on tables 3.68 and 3.69.

An analysis of average annual rates of growth of Jordan's break-bulk sea-borne imports reveals a decreasing trend; in the next decade rates are expected to be at a level of around 2 per cent.

4. DEVELOPMENT OF CONTAINER AND BREAK-BULK FLEETS OF SELECTED ESCWA COUNTRIES

4.1. Methodology

In the previous chapters, data pertaining to the development and future prospects for container and break-bulk sea-borne trade in selected ESCWA countries were analysed and estimated. Having established a forecast of this trade, the next step is to consider how demand for that trade will be met.

Fleet demand is based not only on cargo volume and destinations but also on the technical characteristics of the fleets used.

The dwt tonnage for break-bulk fleets and container capacity for container ships required to transport a given quantity of cargoes per year over a specific route can be measured on the basis of the following formula:

$$D = \frac{Q_y}{Q_t} \times D_t$$

where:

- D fleet demand for transporting a given quantity of cargo (containers) in a year, in dwt (TEU);
- D_t deadweight (TEU capacity) of one vessel used to transport a given quantity of cargoes (containers);
- Q_y a given quantity of cargo (containers) required for transportation in a year, tons (TEU);
- Q_t Annual cargo (container) capacity of the ships used on the specific routes, tons (TEU).

The quantity of cargoes (containers) which can be carried by one vessel on a specific route, in a year can be measured on the basis of the following formula:

$$Q_t = \frac{350}{t_v} \times c$$

where:

- c cargo carrying capacity, metric tons(TEU)
- 350 working days during a year
- t_v total round-trip voyage time, days.

The forecasts of container and break-bulk fleet demand for ESCWA container traffic and break-bulk sea-borne trade in 1990, 1995 and 2000 were both defined on the basis of corresponding traffic and sea trade foreseen for selected ESCWA countries in the same period (see chapter 3).

Container and break-bulk fleet demand was defined for only 40 per cent of the national sea-borne trade in the future, taking into account the equitable distribution of cargoes (40:40 per cent) for maritime transportation between partners in sea-borne trade. According to the United Nations Code of Conduct for Liner Conferences 20 per cent of the total cargoes remained for cross-trade.

The fleet demand was defined according to the above-mentioned methodology and using the available operating data of the national fleets.

The ESCWA countries' container traffic and break-bulk sea-borne trade as well as the fleet demand to meet this trade are shown in tables 4.3 and 4.14. The forecast of the national container traffic and break-bulk sea-borne trade represents the demand for container and break-bulk fleet deadweight tonnage needed.

On the basis of information on fleet demand received and taking into account the fleet available, the maritime and appropriate planning authorities of each ESCWA country concerned will be able to formulate their new ship delivery programmes for the container and break-bulk fleet by 1990, 1995 and 2000.

Table 4.1. Standard container fleet operation data on the trade to/from the ESCWA region

| Characteristics | Container services | | |
|---|---------------------------------|---|---|
| | Europe-Red Sea/ Arabian Gulf | Far East/Asia- Red Sea/Arabian Gulf | North America- Red Sea/Arabian Gulf |
| 1. Round voyage length (miles) | 14,000 | 13,500 | 18,200 |
| 2. Sailing time per round-trip voyage including delays due to storms, etc. (days) | 34 | 32 | 46 |
| 3. Time for passing Suez Canal in round-trip voyage (days) | 4 | 2 (no canal) | 6 |
| 4. Number of ports served per round-trip voyage | 10 | 12 | 10 |
| 5. Total port time in round-trip voyage, (days) | 14 | 14 | 14 |
| 6. Total round-trip voyage time (days) | 52 | 48 | 66 |
| 7. Type of ships | A-2 | A-2 | A-1 |
| 8. Dead weight (tons) | 35,615 | 35,615 | 20,353 |
| 9. Cargo carrying capacity (TEU) | 1,846 | 1,846 | 1,162 |
| 10. Cargo carried per round-trip voyage (TEU) | 1,600 | 2,000 | 1,770 |
| 11. Average service speed (knots) | 18 | 18 | 17 |
| 12. Operating days per year | 350 | 350 | 350 |

Source: United Arab Shipping Company responses to the ESCWA questionnaire.

Table 4.2. Standard break-bulk fleet operation data on the trade to/from the ESCWA region

| Characteristics | Break-bulk service | | | | |
|--|--|--|---|---|--------------------------------------|
| | North Europe Arabian Gulf/ Red Sea | South Europe Arabian Gulf/ Red Sea | North America Arabian Gulf/ Red Sea | Latin America Arabian Gulf/ Red Sea | Far East Arabian Gulf/ Red Sea |
| 1. Average round voyage length (miles) | 14,500 | 11,000 | 18,500 | 19,000 | 14,000 |
| 2. Sailing time per round voyage incl. other delays (storm, etc.) (days) | 43 | 36 | 58 | 60 | 42 |
| 3. Time for passing Suez Canal in round voyage (days) | 5 | 5 | 6 | 6 | 3 |
| 4. Number of ports served per round voyage | 18 | 14 | 10 | 13 | 11 |
| 5. Port time in round voyage (days) | 35 | 32 | 31 | 55 | 32 |
| 6. Total round voyage time (days) | 83 | 73 | 95 | 121 | 77 |
| 7. Type of ships | K | K | K | K | K |
| 8. Dead weight (tons) | 23,600 | 23,600 | 23,600 | 23,600 | 23,600 |
| 9. Cargo carried per round voyage | 20,000 frt.tons | 18,000 frt.tons | 17,500 frt.tons | 20,250 frt.tons | 23,300 frt.tons |
| 10. Average service speed (knots) | 14 | 14 | 14 | 14 | 14 |
| 11. Operating days per year | 350 | 350 | 350 | 350 | 350 |

Source: United Arab Shipping Company response to the ESCWA questionnaire.

Table 4.3. Forecast of ESCWA countries' container traffic
(40 per cent) in 1990
(Thousands of TEU)

| ESCWA countries | Area of origin/destination | | | ESCWA countries Total |
|----------------------|----------------------------|---------------|---------------|--------------------------|
| | Europe | North America | Far East/Asia | |
| Bahrain | 19.2 | 17.2 | 18.6 | 55.0 |
| Egypt | 139.6 | 19.0 | 13.8 | 172.4 |
| Jordan | 31.3 | 8.0 | 13.8 | 53.1 |
| Kuwait | 57.5 | 35.0 | 47.4 | 139.9 |
| Oman | 26.2 | 17.4 | 19.2 | 62.8 |
| Saudi Arabia | 321.2 | 43.0 | 170.2 | 534.4 |
| Syrian Arab Republic | 34.5 | - | 1.1 | 35.6 |
| United Arab Emirates | 164.1 | 71.5 | 185.1 | 420.7 |
| Total | 793.6 | 211.1 | 469.2 | 1,473.9 |

Source: ESCWA compilation.

Table 4.4. Forecast of container fleet demand for transportation of ESCWA
countries' container traffic (40 per cent) in 1990
(Thousands of DWT)

| ESCWA countries | Area of origin/destination | | | ESCWA countries Total |
|----------------------|----------------------------|---------------|----------------|--------------------------|
| | Europe | North America | Far East/Asia | |
| Bahrain | 63.5 | 37.3 | 45.4 | 146.2 |
| Egypt | 461.7 | 41.2 | 33.7 | 536.6 |
| Jordan | 103.5 | 17.3 | 33.7 | 154.5 |
| Kuwait | 190.2 | 75.9 | 116.5 | 382.6 |
| Oman | 86.6 | 37.7 | 46.9 | 171.2 |
| Saudi Arabia | 1,062.3 | 93.2 | 415.7 | 1,571.2 |
| Syrian Arab Republic | 114.1 | - | 2.7 | 116.8 |
| United Arab Emirates | 542.7 | 155.0 | 452.1 | 1,149.8 |
| Total | 2,624.6 | 457.6 | 1,146.7 | 4,228.9 |

Source: ESCWA compilation.

Table 4.5. Forecast of ESCWA countries container traffic (40 per cent) in 1995
(Thousands of TEU)

| ESCWA countries | Area of origin/destination | | | ESCWA countries Total |
|----------------------|----------------------------|---------------|---------------|-----------------------|
| | Europe | North America | Far East/Asia | |
| Bahrain | 21.6 | 19.3 | 20.8 | 61.7 |
| Egypt | 196.3 | 26.7 | 19.4 | 242.4 |
| Jordan | 35.6 | 9.1 | 15.7 | 60.4 |
| Kuwait | 64.7 | 39.5 | 53.7 | 382.6 |
| Oman | 37.4 | 24.9 | 27.2 | 89.5 |
| Saudi Arabia | 361.8 | 48.4 | 192.2 | 602.4 |
| Syrian Arab Republic | 41.6 | - | 1.3 | 42.9 |
| United Arab Emirates | 221.3 | 96.5 | 249.7 | 567.5 |
| Total | 980.3 | 264.4 | 580.0 | 1,824.7 |

Source: ESCWA compilation.

Table 4.6. Forecast of container fleet demand for transportation of ESCWA countries' container traffic (40 per cent) in 1995
(Thousands of DWT)

| ESCWA countries | Area of origin/destination | | | ESCWA countries Total |
|----------------------|----------------------------|---------------|----------------|-----------------------|
| | Europe | North America | Far East/Asia | |
| Bahrain | 71.4 | 41.9 | 50.8 | 164.1 |
| Egypt | 649.2 | 57.9 | 47.4 | 754.5 |
| Jordan | 117.7 | 19.7 | 38.3 | 175.7 |
| Kuwait | 214.0 | 85.7 | 131.1 | 430.8 |
| Oman | 123.7 | 54.0 | 66.4 | 244.1 |
| Saudi Arabia | 1,196.5 | 105.0 | 469.4 | 1,770.9 |
| Syrian Arab Republic | 137.6 | - | 3.2 | 140.8 |
| United Arab Emirates | 731.9 | 209.3 | 609.8 | 1,551.0 |
| Total | 3,242.0 | 573.5 | 1,416.4 | 5,231.9 |

Source: ESCWA compilation.

Table 4.7. Forecast of ESCWA countries' container traffic
(40 per cent) in 2000
(Thousands of TEU)

| ESCWA countries | Area of origin/destination | | | ESCWA countries Total |
|----------------------|----------------------------|---------------|---------------|--------------------------|
| | Europe | North America | Far East/Asia | |
| Bahrain | 23.4 | 20.9 | 22.5 | 66.8 |
| Egypt | 250.0 | 34.0 | 24.7 | 308.7 |
| Jordan | 39.0 | 9.8 | 17.2 | 66.0 |
| Kuwait | 70.4 | 42.8 | 58.4 | 171.6 |
| Oman | 48.6 | 32.3 | 35.3 | 116.2 |
| Saudi Arabia | 393.8 | 52.6 | 209.5 | 655.9 |
| Syrian Arab Republic | 48.6 | - | 1.5 | 50.1 |
| United Arab Emirates | 358.6 | 121.4 | 314.3 | 794.3 |
| Total | 1,232.4 | 313.8 | 683.4 | 2,229.6 |

Source: ESCWA compilation.

Table 4.8. Forecast of container fleet demand for transportation of ESCWA
countries' container traffic (40 per cent) in 2000
(Thousands of DWT)

| ESCWA countries | Area of origin/destination | | | ESCWA countries Total |
|----------------------|----------------------------|---------------|----------------|--------------------------|
| | Europe | North America | Far East/Asia | |
| Bahrain | 77.4 | 45.3 | 55.0 | 177.0 |
| Egypt | 826.8 | 73.7 | 60.3 | 960.8 |
| Jordan | 129.0 | 21.3 | 42.0 | 192.3 |
| Kuwait | 232.8 | 92.8 | 142.6 | 468.2 |
| Oman | 160.7 | 70.0 | 86.2 | 316.9 |
| Saudi Arabia | 1,302.3 | 114.1 | 511.6 | 1,928.0 |
| Syrian Arab Republic | 160.7 | - | 3.7 | 164.4 |
| United Arab Emirates | 1,185.9 | 263.2 | 767.6 | 2,216.7 |
| Total | 4,075.6 | 680.4 | 1,669.0 | 6,424.3 |

Source: ESCWA compilation.

Table 4.9. Forecast of ESCWA countries' break-bulk sea-borne trade
(40 per cent) in 1990
(Thousands of tons)

| ESCWA countries | Area of origin/destination | | | | | ESCWA countries Total |
|----------------------|----------------------------|--------------------|------------------|------------------|----------------|--------------------------|
| | Northern Europe | Southern Europe | North America | Latin America | Far East | |
| Bahrain | 34.2 | - | 12.7 | 0.6 | 112.4 | 159.9 |
| Egypt | 2,100.0 | 500.0 | 600.0 | 100.0 | 800.0 | 4,100.0 |
| Jordan | 211.0 | 253.2 | 127.0 | 126.2 | 126.6 | 844.0 |
| Kuwait | 936.5 | 46.8 | 234.1 | 35.1 | 1,088.6 | 2,341.2 |
| Oman | 105.3 | 5.3 | 21.1 | 2.6 | 128.9 | 263.2 |
| Saudi Arabia | 1,898.4 | 1,665.5 | 672.8 | 223.5 | 2,989.4 | 7,449.6 |
| Syrian Arab Republic | 271.7 | 162.7 | 48.3 | 24.2 | 394.0 | 900.9 |
| United Arab Emirates | 455.2 | 113.8 | 91.0 | 56.9 | 1,559.0 | 2,276.0 |
| Total | 6,012.3 | 2,747.3 | 1,807.0 | 603.6 | 7,198.9 | 18,334.8 |

Source: ESCWA compilation.

Table 4.10. Forecast of break-bulk fleet demand for transportation
of ESCWA countries break-bulk trade
(40 per cent) in 1990
(Thousands of DWT)

| ESCWA countries | Area of origin/destination | | | | | ESCWA countries Total |
|----------------------|----------------------------|--------------------|------------------|------------------|----------------|-----------------------------|
| | Northern Europe | Southern Europe | North America | Latin America | Far East | |
| Bahrain | 16.8 | - | 8.2 | 0.4 | 44.1 | 69.5 |
| Egypt | 1,034.7 | 240.6 | 386.5 | 70.9 | 313.7 | 2,046.4 |
| Jordan | 104.0 | 121.8 | 81.8 | 89.5 | 49.6 | 446.7 |
| Kuwait | 461.4 | 22.5 | 150.8 | 24.9 | 426.9 | 1,086.5 |
| Oman | 52.4 | 2.5 | 13.6 | 1.8 | 50.5 | 120.8 |
| Saudi Arabia | 935.3 | 801.4 | 433.4 | 158.6 | 1,172.3 | 3,501.0 |
| Syrian Arab Republic | 133.9 | 78.3 | 31.1 | 17.2 | 154.5 | 415.0 |
| United Arab Emirates | 224.3 | 54.8 | 58.6 | 40.4 | 611.4 | 989.5 |
| Total | 2,962.8 | 1,321.9 | 1,164.0 | 403.7 | 2,823.0 | 8,675.4 |

Source: ESCWA compilation.

Table 4.11. Forecast of ESCWA countries' break-bulk sea-borne trade
(40 per cent) in 1995
(Thousands of tons)

| ESCWA countries | Area of origin/destination | | | | | ESCWA countries Total |
|----------------------|----------------------------|--------------------|------------------|------------------|----------------|--------------------------|
| | Northern Europe | Southern Europe | North America | Latin America | Far East | |
| Bahrain | 35.4 | - | 13.1 | 0.7 | 118.5 | 167.7 |
| Egypt | 2,600.0 | 600.0 | 800.0 | 100.0 | 900.0 | 5,000.0 |
| Jordan | 239.2 | 286.9 | 143.9 | 143.0 | 143.4 | 956.4 |
| Kuwait | 1,179.0 | 59.0 | 294.8 | 44.2 | 1,370.6 | 2,947.6 |
| Oman | 105.5 | 5.3 | 21.2 | 2.6 | 129.2 | 263.8 |
| Saudi Arabia | 1,999.4 | 1,789.4 | 698.4 | 234.8 | 3,106.4 | 7,828.4 |
| Syrian Arab Republic | 270.9 | 156.0 | 50.4 | 25.2 | 405.7 | 908.2 |
| United Arab Emirates | 462.4 | 115.6 | 92.5 | 57.8 | 1,583.7 | 2,312.0 |
| Total | 6,891.8 | 3,012.2 | 2,567.9 | 608.3 | 1,583.7 | 20,384.1 |

Source: ESCWA compilation.

Table 4.12. Forecast of break-bulk fleet demand for transportation
of ESCWA countries' break-bulk trade
(40 per cent) in 1995
(Thousands of DWT)

| ESCWA countries | Area of origin/destination | | | | | ESCWA countries Total |
|----------------------|----------------------------|--------------------|------------------|------------------|----------------|--------------------------|
| | Northern Europe | Southern Europe | North America | Latin America | Far East | |
| Bahrain | 17.4 | - | 8.4 | 0.5 | 46.5 | 72.8 |
| Egypt | 1,281.0 | 288.7 | 515.3 | 70.9 | 352.9 | 2,508.8 |
| Jordan | 117.8 | 138.0 | 92.7 | 101.5 | 56.2 | 506.2 |
| Kuwait | 580.8 | 28.4 | 189.9 | 31.4 | 537.5 | 1,368.0 |
| Oman | 52.5 | 2.6 | 13.7 | 1.8 | 50.7 | 121.3 |
| Saudi Arabia | 985.0 | 861.0 | 449.9 | 166.6 | 1,218.2 | 3,680.7 |
| Syrian Arab Republic | 133.5 | 75.1 | 32.5 | 17.9 | 159.1 | 418.1 |
| United Arab Emirates | 227.8 | 55.6 | 59.6 | 41.0 | 621.0 | 1,005.0 |
| Total | 3,395.0 | 1,449.4 | 1,362.0 | 431.6 | 3,042.1 | 9,680.9 |

Source: ESCWA compilation.

Table 4.13. Forecast of ESCWA countries' break-bulk sea-borne trade
(40 per cent) in 2000
(Thousands of tons)

| ESCWA countries | Area of origin/destination | | | | | ESCWA countries Total |
|----------------------|----------------------------|-----------------|---------------|---------------|----------|-----------------------|
| | Northern Europe | Southern Europe | North America | Latin America | Far East | |
| Bahrain | 36.4 | - | 13.6 | 0.7 | 123.3 | 174.0 |
| Egypt | 3,000.0 | 600.0 | 1,000.0 | 200.0 | 1,100.0 | 5,900.0 |
| Jordan | 261.4 | 313.7 | 157.3 | 156.4 | 156.8 | 1,045.6 |
| Kuwait | 1,421.6 | 71.7 | 355.4 | 53.3 | 1,652.6 | 3,554.0 |
| Oman | 105.7 | 5.3 | 21.2 | 2.6 | 129.2 | 264.3 |
| Saudi Arabia | 2,075.4 | 1,882.8 | 717.6 | 243.4 | 3,194.8 | 8,114.0 |
| Syrian Arab Republic | 271.1 | 151.6 | 52.0 | 26.0 | 415.4 | 916.2 |
| United Arab Emirates | 468.0 | 117.0 | 93.6 | 58.5 | 1,602.8 | 2,340.0 |
| Total | 7,639.6 | 3,141.5 | 2,410.7 | 740.9 | 8,532.0 | 22,308.1 |

Source: ESCWA compilation.

Table 4.14. Forecast of break-bulk fleet demand for transportation
of ESCWA countries' break-bulk trade
(40 per cent) in 2000
(Thousands of DWT)

| ESCWA countries | Area of origin/destination | | | | | ESCWA countries Total |
|----------------------|----------------------------|-----------------|---------------|---------------|----------|-----------------------|
| | Northern Europe | Southern Europe | North America | Latin America | Far East | |
| Bahrain | 17.9 | - | 8.8 | 0.5 | 48.4 | 75.6 |
| Egypt | 1,478.0 | 288.7 | 644.1 | 141.9 | 431.4 | 2,984.1 |
| Jordan | 128.8 | 150.9 | 101.3 | 111.0 | 61.5 | 553.5 |
| Kuwait | 700.4 | 34.2 | 228.9 | 37.8 | 648.1 | 1,649.4 |
| Oman | 52.6 | 2.6 | 13.7 | 1.8 | 50.8 | 121.5 |
| Saudi Arabia | 1,022.5 | 905.9 | 462.2 | 172.7 | 1,252.8 | 3,816.1 |
| Syrian Arab Republic | 133.6 | 72.9 | 33.5 | 18.4 | 162.9 | 421.3 |
| United Arab Emirates | 230.6 | 56.3 | 60.3 | 41.5 | 628.5 | 1,017.2 |
| Total | 3,764.4 | 1,511.5 | 1,552.8 | 525.6 | 3,284.4 | 10,638.7 |

Source: ESCWA compilation.

5. CONCLUSIONS AND RECOMMENDATIONS

5.1. Conclusions

As a result of the analysis undertaken in this study, the following conclusions can be drawn.

5.1.1. The present study analyses the development of container and break-bulk fleets in the light of the development of the world container and break-bulk sea-borne trade. Developments in world container ports and world container traffic are also taken into consideration as additional indicators relevant to container fleets' development.

5.1.2. Analyses undertaken within the framework of the study suggest that global dry cargo sea-borne trade decreased, starting in 1981 when an average growth rate of only 0.28 per cent over the period 1980-1985 was recorded, in comparison with 5.32 per cent in 1975-1980. According to forecasts made in the study, the world dry cargo sea-borne trade would increase from 3.6 billion tons in 1980 to 3.9 billion tons by 1990, to 4 billion tons in 1995 and to 4.1 billion tons by the year 2000. These figures indicate a 6.3 per cent growth during 1984-1990 and 4 per cent and 3.2 per cent increases during the periods 1990-1995 and 1995-2000 respectively.

5.1.3. As regards world container ports and traffic development, the past few years witnessed a world-wide boom and rapid and continuous acceleration has been experienced since 1975. According to ESCWA forecasts, world container traffic is expected to increase by 25 per cent in 1985-1990, by 24 per cent in 1990-1995 and by 19 per cent in 1995-2000. The trend thus represents a tendency towards a gradual reduction till the year 2000.

5.1.4. Container traffic in developing countries has been under strong pressures, mainly due to new technologies in container handling and in other port operations. Despite this fact, average annual rates of growth in container traffic in developing countries have been steady since 1980 and, commensurate with this growth, developing countries have embarked on large investment projects to develop their container port facilities.

5.1.5. The growth of global break-bulk sea-borne trade experienced in 1970-1980 was followed by a reduction during 1980-1985, owing to the world economic recession which affected break-bulk traffic more than the other sea-borne trade modes. Consequently, during 1980-1985, the percentage of break-bulk cargo in relation to the total amount of dry cargo also declined. This change in sea transport patterns is also a result of a shift towards containerisation and conversion of break-bulk cargoes into containerised cargoes.

5.1.6. Results of analyses covering selected ESCWA member countries (Bahrain, Egypt, Jordan, Kuwait, Oman, Saudi Arabia, the Syrian Arab Republic and the United Arab Emirates) indicate that the containerisation process in sea-borne trade continues to expand in Western Asia. In-depth analysis carried out in the present study highlights the main characteristics of sea-borne trade between the various world regions and the ESCWA region. One of the major conclusion which can be drawn is that there was a general decline in the

container trade to the ESCWA region. However, container feeder services in Western Asia, particularly in the Gulf, including short-sea services, expanded satisfactorily in the last decade.

5.1.7. Increases in ESCWA countries' container and break-bulk sea-borne trade as well as expansion of fleet development were largely the result of successful operations carried out by the United Arab Shipping Company, established in 1976 by the Governments of Bahrain, Iraq, Kuwait, Qatar, Saudi Arabia and the United Arab Emirates. Container services of UASC, covering the Northern Europe-Mediterranean-North America-Far East-Japan and Red Sea/Gulf routes, have been in a state of full expansion since 1980. In spite of this route development, there was a decrease in the development of break-bulk and containerised liftings carried out by UASC during the five-year period of 1980-1984. A strong tendency during the past few years towards a reduction in the transport of break-bulk cargo by UASC is also perceptible.

5.1.8. Concerning the future prospects of the ESCWA countries' container and break-bulk trade, the study contains conclusions covering Saudi Arabia, the United Arab Emirates, Kuwait, Bahrain, Oman, Egypt, the Syrian Arab Republic and Jordan. These conclusions include the details of port container traffic and forecasts of break-bulk sea-borne trade.

5.1.9. According to the forecasts conducted in the study, the total Saudi Arabia container traffic is expected to increase to 1.5 billion TEU in 1990, 1.7 billion TEU in 1995 and 1.9 billion TEU by the end of the century. This is equivalent to a 60 per cent increase during 1985-1990, a 13 per cent increase during 1990-1995 and a 9.0 per cent increase during 1995-2000.

5.1.10. The container traffic through the Saudi Arabian Red Sea ports is expected to increase by 47.6 per cent during 1985-1990, by 12.4 per cent during 1990-1995 and by 8.7 per cent during 1995-2000. As regards the growth of the container traffic through Saudi Gulf ports, it is expected to increase by 91.4 per cent in 1985-1990, by 13.5 per cent during 1990-1995 and by 9.3 per cent during 1995-2000.

5.1.11. Analysis of the rates of growth of Saudi Arabia's container traffic indicated a gradual decrease in growth rates after 1980. They dropped from 70.1 per cent in 1976-1980 to 6.9 per cent in 1984-1990. In the Red Sea area, the rate of growth was 59.4 per cent in 1976-1980. In the Arabian Gulf the rate was 25.2 per cent in 1976-1980; it was expected to decrease to 8.8 per cent in 1984-1990. A reduction of around 2 per cent is expected during 1995-2000.

5.1.12. Data compiled show that the most significant container traffic is between the Saudi Arabian Red Sea ports and Southern Europe, where it is expected to reach about 367,200 TEU by 1990, 412,600 TEU by 1995 and 448,000 TEU by 2000. The second place is occupied by the container traffic to/from Northern Europe, which is expected to reach about 286,400 TEU by 2000. Northern Europe is followed by the Far East, where container traffic is expected to reach around 211,700 TEU by the end of the century. As regards the container traffic through the Saudi Arabian Gulf ports, the major share of it is taken by the direction to/from the Far East. On this route, the

container traffic is expected to increase to about 970,200 TEU by 1990, 193,200 TEU by 1995 and 211,300 TEU by the end of the century. Northern Europe also has a significant share of this traffic and it is expected to reach about 140,600 TEU by 1995.

5.1.13. The forecast also shows that the total of Saudi Arabian break-bulk imports is expected to increase to 18.6 million tons by 1990, 19.6 million tons by 1995 and to 20.3 million by 2000, or in percentage terms it will increase by 40.4 per cent during 1985-1990, by 5.1 per cent during 1990-1995 and by 3.6 per cent during 1995-2000. Break-bulk imports to the Saudi Red Sea ports are expected to increase by 51.2 per cent during 1985-1990, by 9.0 per cent during 1990-1995 and by 6.2 per cent during 1995-2000. The imports to the Saudi Arabian Gulf ports are expected to increase by 31.3 per cent in 1985-1990, by 1.2 per cent during 1990-1995 and 0.9 per cent during 1995-2000.

5.1.14. An analysis of average annual rates of growth of Saudi Arabia's break-bulk imports for the period from 1980 until 2000 indicates a decreasing trend in imports to both Arabian Gulf and Red Sea Saudi Arabia ports. Import growth will drop from 8.6 per cent in 1985-1990 to around 1 per cent in the case of Red Sea ports and to around 0.2 per cent in the case of Arabian Gulf ports from 5.6 per cent in 1995-2000.

5.1.15. Taking into account the main areas of origin and their shares in the total Saudi Arabian imports, estimates were made concerning the distribution by areas of origin of the future prospects of Saudi Arabian break-bulk imports. As regards the Saudi Arabian Red Sea ports, the total imports to this area are expected to increase to 9.2 million tons by 1990, 10.0 million tons by 1995 and 10.7 million tons by the end of the century. The major share of imports are expected to be from Southern and Northern Europe; Northern Europe will account for around 2.5 million tons by 1990, 2.7 million tons by 1995 and 2.9 million tons by 2000 and Southern Europe will account for 3.0 million tons, 3.2 million tons and 3.4 million tons during these periods.

5.1.16. Regarding the Saudi Arabian Gulf ports, the major shares of imported break-bulk cargoes are expected from the Far East and Japan, which will account for 2.6 million tons by 1990 and 2.7 million tons by 2000. The total break-bulk imports to the Saudi Arabian Gulf ports in the future are estimated to 9.4 million tons by 1990, 9.5 million tons by 1995 and 9.6 million tons by the end of the century.

5.1.17. On the basis of encouraging and continuing growth patterns as well as indications from shipping lines, it can be predicted that all major ports with container and break-bulk facilities in the United Arab Emirates will experience a growth in container traffic during the coming years. This traffic could increase from 1,051,800 TEU in 1990 to 1,418,700 TEU in 1995 and to 1,985,700 TEU in the year 2000.

5.1.18. As concerns the United Arab Emirates break-bulk imports by area of origin, it is expected that in the future the imports from Western Europe will increase by around 20 per cent, and from Eastern Europe by about 5 per cent owing to the establishment of diplomatic and trade relations between the Emirates and the Soviet Union. Imports for South-East Asia, the Far East and

Australia will remain at the level of 14-15 per cent, 17-20 per cent and 10 per cent respectively. The growth of imports from Middle Eastern countries will remain at a high level of around 25 per cent despite a gradual reduction.

5.1.19. The forecast shows that the total of the United Arab Emirates' break-bulk imports is expected to increase to 5.7 million tons by 1990, 5.8 million tons by 1995 and to 5.85 million tons by the end of the century. In percentage terms, the total is expected to increase by only 2.2 per cent in 1985-1990, by 1.6 per cent during 1990-1995 and by 1.2 per cent during 1995-2000. The growth is expected to be insignificant because more and more break-bulk commodities will most probably be converted into containerised cargoes.

5.1.20. According to the trend forecasted, Kuwaiti break-bulk imports are expected to increase to 5.85 mn tons by 1990, 7.37 mn tons by 1995 and 8.9 mn tons by 2000 (See table 3.27), equivalent to a 35 per cent increase in 1985-1990, a 26 per cent increase in 1990-1995 and a 20.6 per cent increase during 1995-2000.

5.1.21. An analysis of average annual rates of growth of Kuwaiti container traffic shows that the rate is dropping every four to five years, practically by half, resulting in around a 2.5 per cent growth rate in 1990-1995 and less than a 2 per cent growth rate between 1995 and 2000.

5.1.22. An analysis of average annual rates of growth of Kuwaiti break-bulk sea-borne imports shows a declining trend, with rates expected to drop by 17 per cent during 1975-1980 to around 4 per cent by the end of the century.

5.1.23. For Bahrain, container traffic through Mina Sulman port is expected to increase to 137,400 TEU by 1990, 154,200 TEU by 1995 and to 167,100 TEU by the year 2000, equivalent to a 17 per cent increase during 1985-1990, a 12 per cent increase during 1990-1995 and an 8.4 per cent increase in 1995-2000.

5.1.24. An analysis of average annual rates of growth of Bahraini container traffic showed that, as in other ESCWA Arabian Gulf countries, rates show a strong declining trend, starting in the 1980s and up to the end of the century.

5.1.25. According to the trend forecasted, Bahraini break-bulk sea-borne imports are expected to increase only slightly to 163,700 tons by 1990, 169,000 tons by 1995 and to 173,000 tons by the year 2000, accounting for a 4.3 per cent increase during 1985-1990, a 3.2 per cent increase in 1990-1995 and a 2.4 per cent increase during 1995-2000.

5.1.26. According to the trend calculated, Bahrain's break-bulk sea-borne exports are expected to increase to 236,000 tons by 1990, 250,400 tons by 1995 and to 262,100 tons by the end of the century, accounting for an 8.9 per cent increase during 1985-1990, a 6.1 per cent increase in 1990-1995 and a 4.7 per cent increase during 1995-2000.

5.1.27. Forecasts made suggest that in Oman, the container traffic through ports will increase to about 157,000 TEU by 1990, to 224,700 TEU by 1995 and to 290,400 TEU by the end of the century, equivalent to a 65 per cent increase during 1985-1990, a 42.5 per cent increase in 1990-1995 and a 30 per cent increase during 1995-2000.

5.1.28. Future prospects of Oman's break-bulk imports indicate a decrease to 658,000 tons by 1990 in comparison with 788,000 tons in 1984 or a decrease of 16 per cent. Imports are expected to increase slightly thereafter, to 661,000 tons by 2000, accounting for only a 0.2 per cent increase in 1990-1995 and 1995-2000. The reduction of growth of Oman's break-bulk sea-borne trade in future could be explained by the expansion of containerisation in the country and the conversion of a part of the break-bulk cargoes into containerised cargoes.

5.1.29. Concerning average annual rates of growth for Oman's break-bulk sea-borne trade, available data suggest that they would increase very slightly and would remain at a very low level till the end of this century.

5.1.30. For Egypt, the future prospects indicated in the study lead to the conclusion that container traffic will increase to 431,000 TEU by 1990, 606,000 TEU by 1995 and 772,000 TEU, by the year 2000, equivalent to a 130 per cent increase during 1985-1990, a 40.6 per cent increase in 1990-1995 and a 27.3 per cent increase in 1995-2000. However, an analysis of average annual rates of growth of Egypt's container traffic shows a decreasing trend, with rates dropping from 22 per cent in 1980-1985 to about 5 per cent in 1995-2000.

5.1.31. According to the future prospects calculated on the basis of the World Bank data projections, break-bulk sea-borne trade through Egypt's ports is estimated to increase to 10.2 million tons by 1990 and to 14.7 million tons by 2000. An analysis of average annual rates of growth of Egypt's break-bulk sea-borne trade a decreasing trend, with rates dropping from 10.2 per cent in 1982-1990 to 3.3 per cent in 1995-2000.

5.1.32. On the basis of the calculations for the Syrian Arab Republic, container traffic is expected to decrease to 89,100 TEU by 1990, in comparison with 95,000 TEU in 1985, but then to increase to 107,200 TEU by 1995 and to 125,300 TEU by 2000, accounting for a 6.2 per cent decrease in 1985-1990, then a 20.3 per cent increase in 1990-1995 and a 16.9 per cent increase in 1995-2000. An analysis of average annual rates of growth of Syria's container traffic shows that after a drop from 9 per cent in 1980-1985 to -1.3 per cent in 1985-1990, the rates are expected to increase yearly at about 3-4 per cent and remain at that level up to the end of the century.

5.1.33. According to the forecasts made, the Syrian Arab Republic's break-bulk imports are expected to increase to 2.0 million tons by 1990, 2.1 million tons by 1995 and to 2.17 million tons by 2000, equivalent to a 26 per cent increase during 1984-1990, a 4.2 per cent increase in 1990-1995 and a 3.2 per cent increase during 1995-2000. On the other hand, Syria's break-bulk sea-borne exports are expected to decrease gradually to 237,200 tons by 1990, 170,400 tons by 1995 and to 122,400 tons by the end of the century. Such a reduction can be explained by the conversion of some break-bulk commodities into containerised cargoes in the future.

5.1.34. Jordan's container traffic is expected to increase to 132,800 TEU by 1990, 151,100 TEU by 1995 and to 165,100 TEU by the year 2000. These account for a 23 per cent increase during 1985-1990, a 13.8 per cent increase in 1990-1995 and a 9.3 per cent increase during 1995-2000. An analysis of average

annual rates of growth of Jordan's container traffic shows that despite the growth of the traffic in TEU, these rates show a decreasing trend and they are expected to drop from 35 per cent yearly in 1975-1980 to about 2 per cent yearly by the end of the century.

5.1.35. Estimates of trends pertaining to Jordan's break-bulk sea-borne traffic show an increase to 2.1 million tons by 1990 to 2.4 million tons by 1995 and to 2.6 million tons by the year 2000, equivalent to a 156 per cent increase in 1985-1990, a 13.3 per cent increase in 1990-1995 and a 9.3 per cent increase in 1995-2000. An analysis of average annual rates of growth of these break-bulk sea-borne imports shows a decreasing trend; in the next decade rates would increase by about 2 per cent yearly.

5.1.36. Forecasts have also been made regarding the ability of container and break-bulk fleets to meet the projected demands of the container and break-bulk sea-borne trade. Future fleet demand in selected ESCWA countries is estimated on the basis of the development and future prospects of container and break-bulk sea-borne imports and exports of these countries. It is also based on the cargo volume and cargo origin and destinations. Technical characteristics of the fleets used are taken into consideration as well. The forecast of container and break-bulk fleet demand for the transportation of ESCWA container traffic covers the period until the year 2000.

5.1.37. Container and break-bulk fleet demand was defined for only 40 per cent of the national sea-borne trade in the future, taking into account the equitable distribution of cargoes (40:40 per cent) for maritime transportation between partners in sea-borne trade, according to the United Nations Code of Conduct for Linear Conferences. Twenty per cent of the total cargoes remained for cross-trade.

5.1.38. On the basis of forecasts presented in the study, maritime and planning authorities in ESCWA member countries would be able to formulate their new ship delivery programmes for container and break-bulk fleets during the 1990-1995 and 1995-2000 periods respectively.

5.2. Recommendations

The recommendations formulated hereafter are similar if not the same as the recommendations regarding the development of bulk fleets in Western Asia, contained in the technical publication entitled "The possibilities of expanding the bulk fleets in Western Asia".⁽¹⁾

(1) E/ESCWA/TCT/85/13, April 1986, pages 158-161.

This is mainly due to the fact that the break bulk and container fleets development represents close similarities with the development of the bulk fleets. Furthermore, data and information used and analyses undertaken during the preparation of the present report lead to the same policy measures and actions which could be implemented by member countries in the field of bulk or break-bulk fleets. The following recommendations proposed for consideration and appropriate implementation by the various authorities concerned with container and break-bulk fleets development in Western Asia, have already been formulated and are covered within the framework of proposals for fleets developments in the ESCWA region and they only include some specific aspects of break-bulk and container transport.

5.2.1. ESCWA countries should review and evaluate their relative position in the development of a national bulk fleet in line with the following:

(a) The programme of Action on the Establishment of a New International Economic Order adopted by the General Assembly in its resolution 3202 (S-VI) during its sixth special session in 1974 in which the Assembly called for efforts to be made to promote an increasing and equitable participation of developing countries in the world shipping tonnage;

(b) UNCTAD resolution 120(V) "Participation of developing countries in world shipping and the development of their merchant marines", adopted by UNCTAD in 1979, in which it recommended "that the transport of regular bulk ... cargo between a pair of exporting and importing countries should have equitable participation by the national lines of the respective trading countries" and that "bulk ... cargoes should be the subject of bilateral agreements between the trading partner countries providing for the equitable participation in the trades by the national lines of these trading partner countries";

(c) UNCTAD resolution 144(VI), "UNCTAD activities in the field of shipping", adopted by UNCTAD in 1983, in which UNCTAD called for the adoption of national and international measures to bring about and facilitate structural change in the world shipping industry in order to remove protectionist policies and monopolistic practices and to eliminate the controls exercised by transnational corporations, particularly over bulk and refrigerated cargoes".

5.2.2. Based upon the above international approaches and taking into account the estimated national container and break-bulk sea-borne trade in the ESCWA region in the next decade (1990-2000), it is recommended that ESCWA countries formulate their own policies and prepare their programme for expanding the national container fleets in order to transport at least 40 per cent of the national trade in the future.

5.2.3. For minimizing the dependency on the transnational shipowners, a mechanism should be established by which trading partners could negotiate the most favourable trade conditions allowing the ESCWA countries to carry by their national vessels substantial and increasing share of cargoes from and to the ESCWA region.

5.2.4. The existing imbalance between demand and supply in world shipping should be taken into account by ESCWA countries while implementing their respective expansion programmes for the national container fleets. In this context, acquiring new tonnage, wherever possible, from surplus shipping countries could be envisaged.

5.2.5. As already proposed for the bulk fleets, ESCWA countries should investigate the possibilities for formation of a regional multinational shipping enterprise on container shipping in order to unify fleet operations and development programmes as well as to draw up a common shipping policy for container transportation.

5.2.6. ESCWA countries should establish a regional ship-broking centre in Western Asia. Such a centre could be established in Kuwait where quite a large number of international and regional Arab shipping and trade organizations as well as companies involved in bulk and particularly oil transportation are situated. The regional ship-broking centre would be linked with world ship-broking centres in order to have up-to-date bulk trade and fleet information all over the world and to maintain contacts between shipowners and shippers.

5.2.7. ESCWA countries should consider the possibilities for establishment of joint ventures with shipping companies of developed countries. Such joint ventures would also facilitate the transfer of technology and experience in container and break-bulk fleet operations and management.

5.2.8. For the development of the break-bulk and container fleets, ESCWA countries, as already emphasized in previous ESCWA reports on maritime transport, could follow the following policy recommendations at the regional and national levels.

5.2.9. ESCWA countries sea-trade and fleet development should be based on a pan-Arab maritime policy, which must include joint investment policy, manpower resources allocation, regional ship-building and ship-repair programmes, regional maritime information, training and exchange of personnel, setting up national maritime legislation, co-ordination of seaports activities and ships acquisition programme.

5.2.10. In order to put into practice a joint maritime policy, ESCWA countries should establish the appropriate regional shipping institutions such as a Shipper's Council, a Shipbuilding Association, maritime manpower planning and training committees, a Marine Insurance Society, a Ship Classification Society and a Committee on Shipping Registration. The Arab Federation of Shipping as well as the Federation of Arab Seaports already operating in the region should be further developed.

5.2.11. In addition to regional or subregional efforts, measures must also be taken on the national level among countries facing container shipping problems in the areas that require immediate action in some ESCWA countries. One such area is the improvement and expansion of port facilities in order to cope with the expanding volume of trade. In this connection, the acquiring of investment and training of port personnel for the expansion and modernization of port facilities should be envisaged.

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