



15 DEC 1987



UNITED NATIONS
ECONOMIC AND SOCIAL COUNCIL

Distr.
GENERAL
E/ESCWA/TCD/87/6
17 November 1987
ORIGINAL: ENGLISH

ECONOMIC AND SOCIAL COMMISSION FOR WESTERN ASIA

Transport and Communications Division

DEVELOPMENT AND PROSPECTS OF AIR TRANSPORT IN WESTERN ASIA

In the preparation of this document, Mr. Ghassan Ali and Mr. Majdi Sabri acted as consultants to the Economic and Social Commission for Western Asia.

Issued without formal editing.

E/ESCWA/TCD/87/6

87-1267

CONTENTS

<u>Chapter</u>	<u>Page</u>
1. <u>Introduction</u>	1
2. GENERAL BACKGROUND ON AIR TRANSPORT IN WESTERN ASIA	3
2.1 Geographical and strategic position	3
2.2 Demographic features of the region	3
2.3 Economic features and recent trends	5
2.4 Availability of other modes of transport	8
2.5 Role of air transport in the region	11
3. COMMERCIAL AIRLINES OF WESTERN ASIA	13
3.1 Introduction	13
3.2 Establishment and ownership	13
3.3 Fleets	14
3.4 Manpower	17
3.5 Type of services and degree of specialization	18
3.6 Type of networks	18
3.7 Airline traffic development	22
3.8 Regulatory framework	25
3.9 Airline associations	27
4. AIRPORTS OF WESTERN ASIA	28
4.1 Airport traffic	28
4.2 Existing facilities and infrastructure	30
4.3 Management and maintenance of airports	32
4.4 Airport finances	32
4.5 Airport development in the ESCWA region	33
5. PASSENGER TRAFFIC OF WESTERN ASIA	35
5.1 Total passenger traffic	35
5.2 Regional distribution	35
5.3 Traffic flow within ESCWA region	38
5.4 Interregional traffic flows	40
5.5 Characteristics of passenger air traffic	42
6. CARGO OPERATIONS	45
6.1 Total cargo traffic	45
6.2 Flows of cargo traffic	45
6.3 Types of commodities	52
6.4 Characteristics of cargo operations	52

CONTENTS (Continued)

	<u>Page</u>
7. ECONOMICS OF OPERATIONS	54
7.1 Recent traffic performance	54
7.2 Level of fares and rates	54
7.3 Average yield	56
7.4 The cost of operations	59
7.5 Factors influencing the cost of operation	60
7.6 Economic viability	60
8. AIR TRANSPORT REGIONAL CO-OPERATION	62
8.1 Co-operation through regional organizations	62
8.2 Co-operation among airlines	65
9. FUTURE TRENDS AND DEVELOPMENT PROSPECTS	67
9.1 Future traffic trends	67
9.2 Fleet forecast	73
9.3 Expected changes in regulatory and competitive conditions	73
10. PROPOSED THRUST AREAS FOR REGIONAL ACTION	76
10.1 Co-operation in ground facilities	76
10.2 Regional training institute	76
10.3 Airline joint operations	77
10.4 Airline mergers	78
10.5 Need for policy changes	78
11. CONCLUSIONS	80

ANNEXES

A. Western Asia airlines scheduled international services development of traffic and capacity, 1970-1985	84
B. International passenger traffic flow by region and destination	88
C. International cargo traffic flow by region and destination	92

LIST OF TABLES

2.1 Major demographic indicators for Western Asian countries, 1985	4
2.2 Major economic indicators for Western Asian countries, 1985	6
2.3 GDP growth rates in the ESCWA region	7

CONTENTS (Continued)

LIST OF TABLES

	<u>Page</u>
2.4 Selected transport development indicators for Western Asian countries (1985)	9
3.1 International scheduled airlines of Western Asian ownership and year of establishment	15
3.2 Operating jet fleet of Western Asian scheduled carriers at 31 December 1985	16
3.3 Employees of Western Asian airlines, 1980, 1985	17
3.4 Employee productivity of Western Asian and selected international airlines, 1985	19
3.5 Type of services operated by Western Asian airlines percentage share of international and scheduled capacity, 1985	20
3.6 Number of destinations served by the ESCWA region airlines	21
3.7 Western Asian scheduled international services traffic and capacity performance 1985	23
3.8 Western Asian and world (IATA) airlines scheduled international services development of traffic and capacity, 1970-1985	24
3.9 Bilateral air services agreements with and without capacity clauses, 1977	26
4.2 Development of international scheduled passenger traffic at major Western Asian airports	28
4.3 World airport development programmes by region	34
5.3 International passenger traffic flow by region	39
5.4 Average passenger distance in kilometres	43
6.1 Cargo traffic of Western Asian airports, 1985	46
6.5 International cargo traffic flow by region	51
7.1 Comparison of average economy fares per passenger/kilometre by route group and by distance, 1985	55
7.2 Comparison of average general cargo rates per tonne/kilometre for shipment of less than 45 kilograms by route group and by distance, 1985	57

CONTENTS (Continued)

LIST OF TABLES

	<u>Page</u>
7.3 Average yield achieved on IATA scheduled services, 1985	58
7.4 Unit operating cost incurred on IATA scheduled services, 1985	59
7.5 Unit cost of operations of selected Western Asian airlines, 1985 ..	60
7.6 Financial performance of selected route areas, 1985	62
9.1 International passenger traffic forecast and average growth rates 1986-1995 of ESCWA region scheduled international airlines	69
9.3 International cargo traffic forecast and average growth rates 1986-1995 of ESCWA region scheduled international airlines	71
9.5 Fleet forecast of Western Asian scheduled airlines 1986-1995	73

LIST OF FIGURES

4.1 International passenger traffic of Western Asian airports, 1985 ...	29
5.1 International passenger air traffic of Western Asian airports, 1985.	36
5.2 Western Asian city-pair passenger traffic by region	37
6.2 International cargo traffic of Western Asian airports, 1985	47
6.3 International cargo air traffic of Western Asian countries, 1985 ..	48
6.4 International cargo traffic of Western Asian airports, 1985	49
9.2 International passenger traffic forecast of ESCWA region airlines, 1986-1995	70
9.4 International cargo traffic forecast of ESCWA region airlines, 1986-1995	72
<u>Bibliography</u>	96

1. INTRODUCTION

1.1 Purpose of the Study

The purpose of this report is to study the development of the air transport sector in the ESCWA region. This includes an assessment of the present situation, identification of major problems, projection of future trends and prospects and formulation of conclusions and recommendations.

The significance of this study stems from the fact that it comes at a time when various States and airlines in the region are reviewing their performance and revising their future plans in the light of the changing circumstances. It is hoped that this study will provide the States and airlines with an overall review of air transport developments and trends in the region to help them in the process of formulating their future plans and policies.

1.2 Scope of Study

This study concerns itself with the development of international air transport in the ESCWA region, which encompasses 13 States: Bahrain, Egypt, Iraq, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, the Syrian Arab Republic, the United Arab Emirates, Yemen Arab Republic and Democratic Yemen. It will discuss in sufficient detail the various aspects of the air transport industry including commercial international airlines, international airports, characteristics of passenger and cargo traffic flows, economics of operation and air transport regional co-operation. It will also review future trends and prospects with particular reference to the possibility of implementing certain projects and policy measures pertaining to the future development of air transport in the region. The study will be confined to international operations due to their predominance in the region's air transport system and to the regional nature of the study.

1.3 Study methodology

The study involves, in the initial stages, the collection of a wide data base on the development of air transport operations in the ESCWA region, together with supporting information on economic, demographic indicators and world air transport statistics. Statistical data pertaining to air transport operations were obtained either directly from the airlines or airport authorities or through the statistical digests of the International Civil Aviation Organization (ICAO), International Air Transport Association (IATA) and Arab Air Carriers Organization (AACO). Economic and demographic data were obtained from the publications of regional organizations including ESCWA and the Arab League as well as the Statistical Yearbooks of various States.

Missing information was estimated whenever possible; in some cases the complete absence of data, as in the case of airport financial data, confined the analysis of conceptual issues. Restrictions on the release of detailed information on the economics of airline operations also limited the carriers representation in the financial analysis and the amount of data used. In

addition, field trips were made to certain countries in the region in order to obtain the maximum information and to closely observe the actual problems and developments in various aspects.

1.4 Duration of Study

This study was carried out during the period February to June 1987.

2. GENERAL BACKGROUND ON AIR TRANSPORT IN WESTERN ASIA

2.1 Geographical and strategic position

The important geographical position of Western Asia at the crossroads of three continents has always given this region a special strategic significance. Since the early years of air travel, the airlines of major colonial powers used certain points in the region as convenient intermediate stops for their flights which linked their home countries with their overseas colonies for economic, military and political reasons. This activity helped to develop air transport infrastructure in the region long before the establishment of most West Asian airlines. The possibilities of developing commercial air services in the region were also improved by the religious importance of Western Asia as the place of origin of Islam, Christianity and Judaism. The numerous historical and religious sites attracted large numbers of worshippers, archaeologists and other tourists from all over the world.

The important position of Western Asia was further enhanced by the discovery of oil, which changed the concentration of economic activity in the region. Vast oil revenues had a great impact on the economic development and consequently on air traffic growth in the region. The development projects attracted hundreds of thousands of migrant workers to the region and led to a large increase in imported goods which favourably influenced the movement of passenger and cargo by air.

2.2 Demographic features of the region

The ESCWA region encompasses 13 States as enumerated in section 1.2 above. It covers an area of about 4.7 million square kilometres or 3.6 per cent of the world's total land area. The respective areas of various States vary significantly and range from less than 1,000 square kilometres as in the case of Bahrain to more than 2 million square kilometres as in the case of Saudi Arabia (table 2.1).

The population of the region amounted to almost 108 million inhabitants in 1985 or some 2.1 per cent of the world's population. As shown in table 2.1, the size of the population in most countries is relatively modest and eight States have a population of less than 4 million inhabitants each. The smallest in population is Qatar with only 301,000 inhabitants while Egypt has the largest count with more than 47 million inhabitants, accounting for almost 45 per cent of the region's population, followed by Iraq, Saudi Arabia and the Syrian Arab Republic. Average rate of growth of the region's population is 3 per cent, which is almost double the world's average.

Population density per square kilometre also varies significantly among the region's States with Bahrain as the most densely populated country followed by Lebanon. The region's average population density is 23 inhabitants per square kilometre compared to the world's average of 38 inhabitants.

Table 2.1. Major demographic indicators for Western Asian countries, 1985

STATE	AREA (000)SQKM	POPULATION (000)	DENSITY PER/SQKM	POPULATION GROWTH %
BAHRAIN	1	431	624	2.7
EGYPT	995	47191	47	2.6
IRAQ	438	15676	36	3.4
JORDAN	98	3509	36	3.7
KUWAIT	18	1786	99	3.3
LEBANON	10	2668	267	2.0
OMAN	212	1228	6	3.1
QATAR	11	301	27	2.5
S.ARABIA	2150	13222	6	3.1
SYRIA	184	10581	58	3.9
U.A.E	78	1312	17	2.3
YEMEN (N)	195	7603	39	2.7
YEMEN (S)	333	2124	6	2.9
TOTAL	4723	107632	23	3.0
WORLD	131000	4918558	38	1.6

SOURCES : (1) ARAB LEAGUE , ALTAQREER ALIKTISADI
 ALARABI ALMUWAHAD, 1985
 (ARAB ECONOMIC UNIFIED REPORT)
 (2) STATISTICAL YEARBOOKS OF VARIOUS STATES

The recent economic boom in the region has attracted foreign labour and influenced the demographic features of Western Asia. The execution of ambitious development projects in oil producing States resulted in a sizeable influx of migrant workers, mainly from other countries in the Arab world, and an increase in their ratio to the indigenous population. The size of the foreign labour force in major oil producing countries is large in comparison with the size of population. It is believed that more than 4 million Arab nationals are residing permanently, either on a long- or short-term basis, in the Gulf States and Saudi Arabia. They include almost two million Egyptians, one million Yemenis, and about 800,000 Palestinians, Jordanians, Syrians and Lebanese. In addition to Arab workers, there is a sizeable Asian work-force estimated at 1.3 million of which 800,000 workers come from the Indian sub-continent (India, Pakistan and Bangladesh), while the remaining work force includes workers from the Republic of Korea, Sri Lanka, the Philippines, Thailand, Indonesia and China. Migrant workers constitute almost half of the work-force in Saudi Arabia and Oman and more than two thirds of the work-force of the Gulf States. The movement of those workers, some with families, to and from their home countries provides a major source of air traffic in Western Asia.

2.3 Economic features and recent trend

Air transport development in Western Asia took place amidst favourable economic conditions. The region, considered as one of the richest regions in the world, enjoys a wealth of oil which brought about major changes in the pattern and pace of economic development in both oil producing and non-oil producing countries of the region. The development efforts concentrated on building up economic and social infrastructure and improved the standard of living.

The wealth is unevenly distributed among West Asian countries. As shown in table 2.2, the per capita income varies greatly among States and ranges between \$378 per annum for Yemen to as high as \$21,063 in the case of the United Arab Emirates. However, the region in general enjoys a relatively high per capita average when compared with other developing countries. In terms of international trade, the region remains a net exporter with an average export/import ratio of 1.07, down from 2.50 achieved in 1980. But as in the case of the per capita income the export/import ratio varies significantly among various countries with an obvious advantage for major oil exporting countries. The contribution of the transport and communication sector to the GDP of the ESCWA region averaged 6.5 per cent in 1985 and varied among member States.

For major economic indicators, a distinction can be made between three groups of countries in the region:

(a) Gulf Co-operation Council (GCC) member States (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates). This group of countries has the highest per capita income. Although its population forms only 15 per cent of the population of the ESCWA region, its share of the region's GDP amounted to as much as 58 per cent in 1985. States included in this group are enjoying a favourable export/import ratios ranging between 1.1 for Bahrain and 2.95 for Qatar. The importance of oil revenue is manifested by the relatively high share of the mining sector in GDP as shown in table 2.2.

Table 2.2. Major economic indicators for Western Asian countries, 1985

STATE	\$ M G.D.P. AT MARKET PRICE	\$ G.D.P. PER CAPITA	EXPORT/ IMPORT RATIO	% SHARE OF TRANSPORT INDUSTRY & COMM.	% SHARE OF AGRICULTURE	G . D . P MINING
GCC COUNTRIES						
U.A.E	27635	21063	2.10	5.0	9.9	1.4
QATAR	5468	18166	2.95	2.6	6.7	0.9
BAHRAIN	5143	11933	1.10	11.3	11.4	1.2
KUWAIT	20977	11745	1.54	3.6	8.0	0.7
S.ARABIA	100580	7607	1.16	6.8	8.3	3.1
OMAN	9782	7966	1.58	2.7	2.2	3.0
DIVRSIFIED ECONOMIES						
IRAQ	45139	2879	1.02	6.0	11.3	10.8
SYRIA	20695	1956	0.42	8.3	17.2	19.3
JORDAN	4101	1169	0.32	10.1	13.7	7.2
EGYPT	46600	987	0.37	7.8	13.7	16.6
LEBANON	1701	638	N.A	3.8	13.9	9.0
LEAST DEVELOPED						
YEMEN (S)	1145	539	0.52	9.5	7.0	9.7
YEMEN (N)	2872	378	0.07	4.4	8.6	20.1
TOTAL	291838	2711	1.07	6.5	9.7	9.1
						28.1

SOURCES : (1) ARAB LEAGUE , ALTAQREER ALIKTISADI

ALARABI ALMUWAHAD, 1985

(2) UN, ESCWA, SURVEY OF ECONOMIC AND SOCIAL DEVELOPMENTS
IN THE ESCWA REGION 1985

(b) Countries with diversified economics including Egypt, Iraq, Jordan, Lebanon and the Syrian Arab Republic: This group of States has a lower level of per capita income than the previous group but has more diversified economic structure. Industry and agriculture form a significant part of GDP while the share of the mining sector is much smaller than that of the GCC countries. Although most of the countries included in this group are producers of oil, they managed to develop a diversified output. However, they have, with the exception of Iraq, an unfavourable export/import ratio. These countries are the most populated and more developed in terms of human resources and infrastructure which enables them to export their skilled and unskilled labour to GCC countries and, to a lesser extent, to the least developed countries.

(c) The least developed countries: This group includes two States: the Yemen Arab Republic and Democratic Yemen. These two States have the lowest level of per capita income in the ESCWA region and rely heavily on foreign aid and the remittances of their migrant workers.

The three groups are closely linked through the flow of financial and human resources within the region which helps to develop the economies of various countries.

The wealth of the region came under tremendous pressure during the past four years following at first fluctuations in oil prices which eventually turned into significant drops in oil production and prices. The situation was further aggravated in 1986 by a sharp decline in oil prices, the greatest since 1973. During the period January to December 1986 the US dollar price of crude declined by almost 54 per cent and by more than 62 per cent in terms of deutsche marks and Japanese Yens.^{1/} This has adversely influenced oil revenues and consequently the GDP of oil producers in the ESCWA region. A recent survey by ESCWA^{2/} revealed that GCC countries have recorded negative growth rates in their GDP in 1986, including those who have previously recorded steady growth. As shown in table 2.3 below, the sharpest GDP decline was recorded by GCC countries but other countries were also adversely affected.

Table 2.3. GDP growth rates in the ESCWA region

Country group	<u>At current prices</u>		<u>At 1980 constant prices</u>	
	1985	1986	1985	1986
GCC countries	-7.50	-10.67	-6.36	-8.36
Diversified economies	7.68	-0.42	3.79	0.67
Least developed countries	10.18	-0.1	3.88	2.85
Total ESCWA countries	-1.50	-6.25	-3.99	-6.03

Source: Economic and Social Commission for Western Asia, Survey of Economic and Social Development in the ESCWA region, 1986.

Note: Above figures based on preliminary data and ESCWA estimates.

^{1/} Economic and Social Commission for Western Asia, Survey of Economic and Social Development in the ESCWA region, 1986.

^{2/} Ibid.

The decline in GDP was a direct result of a drop in the mining sector whose share of GDP declined from 28.1 per cent in 1985 to 22.6 per cent in 1986. The drop in the mining sector has also influenced the non-oil producers through a decline in financial aid and job opportunities for migrant workers in major oil producing countries. Apart from the decline in oil revenue, the region was also affected by the Gulf war and the persistent military and political disturbances in Lebanon. Both events have serious consequences on the economy of the region and led to a continuous depletion of human and material resources.

The air transport sector, which previously enjoyed periods of remarkable prosperity, was adversely influenced by the unfavourable economic and political conditions. The slackening of economic growth, and eventually the drop in GDP reduced the movement of various types of traffic including businessmen, migrant workers and tourists which together form the bulk of the region's air traffic movement.

2.4 Availability of other modes of transport

The rapid economic development in the ESCWA region was accompanied by an equally rapid development in the transportation infrastructure and institutions. The expansion of the transport sector was considered as an important prerequisite for industrial development which was strongly emphasized by the development plans of various States in the region. The strategic location of the region has also helped to promote the development of various transport modes.

2.4.1. Road transport

The development of international highways has received high priority in the ESCWA region during the past decade. The pace of development in this sector is among the highest in the world reflecting the importance of road transport to the economies of the region. The present road network provides the ESCWA members with extensive links within the region and facilitates the link-up with European highway networks. According to table 2.4, the length of the region's road network in 1985 amounted to 177,207 km of which 55.1 per cent were paved. Major highways across the region are used by international traffic which grew significantly in recent years. The establishment of road traffic streams between the region and European countries has also helped to develop road haulage fleets. According to ESCWA conservative estimates, the increase in road vehicles and equipment during the past decade was up to 266 per cent.^{1/}

The dependance on road transport increased during recent years and some countries set up joint ventures in land transport. The Iraqi/Jordanian and Syrian/Jordanian land transport companies are two examples of co-operation in land transport business within the region.

^{1/} Economic and Social Commission for Western Asia, Survey of Economic and Social Development in the ESCWA Region, 1986, p. 167.

Table 2.4. Selected transport development indicators for Western Asian countries, 1985

STATE	TRAS & COMM SECTOR OF G.D.P	%	ROAD NETWORK LENGTH KM	PAVED NETWORK KM	% PAVED NETWORK KM	RAILWAY NETWORK KM	MERCHANT FLEET TONNAGE (000 DWT) *
BAHRAIN	11.3		300	300	100.0	-	48.0
EGYPT	7.8		28750	14900	51.8	4400	1094.8
IRAQ	6.0		13100	7400	56.5	1700	1645.4
JORDAN	10.1		6800	4930	72.5	600	76.1
KUWAIT	3.6		500	500	100.0	-	3444.2
LEBANON	3.8		6700	2000	29.9	400	696.1
OMAN	2.7		14848	3521	23.7	-	5.8
QATAR	2.6		600	600	100.0	-	489.7
S.ARABIA	6.8		71946	42000	58.4	561	4878.4
SYRIA	8.3		19100	15300	80.1	2100	74.3
U.A.E	5.0		2300	2300	100.0	-	1295.7
YEMEN (N)	4.4		3093	2086	67.4	-	7.4
YEMEN (S)	9.5		9170	1870	20.4	-	1.3
TOTAL	6.5		177207	97707	55.1	9761	13757.2 *

* DWT : DEADWEIGHT TONS

SOURCES : (1) ARAB LEAGUE , ALTAQREER ALIKTISADI
ALARABI ALMUWAHAD, 1985

(ARAB ECONOMIC UNIFIED REPORT)

(2) UN, ESCWA, SURVEY OF ECONOMIC AND SOCIAL DEVELOPMENTS
IN THE ESCWA REGION 1985

The region's co-operation in surface transport was also extended to include the establishment of strategically important new links between the countries of the region. Access to Egypt from the main body of the ESCWA region was made easier through co-operation between Egypt and Jordan in the operation of a direct ferry service between the ports of Aqaba and Nuweiba on both sides of the Gulf of Aqaba. The other important link is the 25 kilometre causeway linking Saudi Arabia and Bahrain at a cost of almost 1 billion dollars. The link which was opened to traffic in November 1986 has integrated Bahrain's transport network with the road networks of the ESCWA region and through international highways to other ports of the world.

2.4.2 Railways

Railway networks in the ESCWA region are relatively limited in length and cover six member countries (Egypt, Iraq, Jordan, Lebanon, Saudi Arabia and the Syrian Arab Republic). With the exception of Saudi Arabia, all networks in the region were built by foreign powers before or at the turn of the century to secure their communication lines. The development of railway networks during the past decade was not as rapid as that of other modes of transport.

This is believed to be primarily due to the high capital cost involved and the rapid development of road networks which have more appealing characteristics. As shown in table 2.4, railway network lengths vary among countries with the largest network in Egypt and the smallest in Lebanon. Total railway network lengths of the ESCWA member States amounted to 9,761 kilometres in 1985.

However, some countries in the region have developed their railway networks in recent years on an individual basis in the absence of regional co-ordination. They have also planned future projects involving new construction, track doubling and the purchase of rolling stock. For example Saudi Arabia is planning to start a series of ambitious projects which could see the construction of 3,878 km by the year 2000. They include rail connections to Makkah and Madinah and a line along the Red Sea coast from Jeddah to Tabuk which could eventually be incorporated into a revived Hijaz link to Jordan and the Syrian Arab Republic.^{1/}

2.4.3 Maritime transportation

Sea transport has always been an important mode in the ESCWA region due to its unique location on four major sea fronts; the Mediterranean, the Arab Gulf, the Red Sea and the Gulf of Aden, and the Arabian sea in the Indian Ocean. All member States have their own national sea outlets and none is land-locked. The number of ports in the region is 79 with 32 ports handling regular international traffic. These ports are used as major export/import outlets for the region and have been developed extensively during the past two decades.

^{1/} Arab Transport and Shipping 1986, p. 139.

The region's merchant fleet also grew remarkably during the past decade following the oil boom. The total tonnage of this fleet amounted in 1985 to 13,757 thousand deadweight tons (DWT) representing 2.3 per cent of the world's total fleet. As shown in table 2.4, Saudi Arabia is dominating the region's fleet capacity followed by Kuwait and the fleets of the two countries account for more than 60 per cent of the region's fleets.

The recent reduction in oil output together with the recession in world shipping adversely affected some countries in the region which had to sell or break-up a part of their fleet particularly tankers. As a result the United Arab Emirates decreased their fleet in 1985 by 24 per cent, Jordan by 18 per cent and Saudi Arabia by 3 per cent.

2.4.4 Effect on air transport

The development of other modes of transport had a limited competitive effect on air traffic growth. Despite the construction of extensive road networks, passenger air traffic continued to grow at impressive rates owing to the advantages of time saving and convenience. As for cargo traffic, air transport maintained its comparative advantage in the carriage of urgent consignments, small parcels, valuable commodities and perishable goods. There was some competition to air transport in the carriage of perishable products coming from the refrigerated transport known as "reefer containers". Combined transport of cargo by air and sea was developed in the region during the past few years and helped to enhance the status of air freight. Improvement in aircraft characteristics and capacity and the operation of all cargo aircraft improved the competitive advantage of air freight. The aircraft became more capable of accommodating different types of goods especially with the introduction of containerization and palletization.

2.5 Role of air transport in the region

Air transport has played an important role in the economic, social and cultural development of the ESCWA region. Since the early days of the economic boom of the 1970s, air transport was found to be the most appropriate mode for rapid development which requires speedy transportation of goods and expertise. The availability of air transport resulted in an increase in business activities, and technical communication became speedier and easier. It was also found that the time involved in bringing a new air transport system into operation is much less than the time needed to develop other modes of transport such as roads and railways.

Air transport also encouraged the movement of people within the region and within the same country in cases of scattered urban centres and rural areas, as in the case of Saudi Arabia, where time saving is sufficient to justify a trade-off against higher cost. Even in cases where distances are relatively short, people prefer to travel by air because of the inconveniences of travelling by surface modes in desert terrain and severe weather conditions. The time saving and convenience of air transport, induced many people to travel by air rather than not travelling at all.

The development of air services helped to achieve a timely movement of workers employed in various development projects. It also provided unlimited tourism opportunities for the region's high-income groups and encouraged

foreign tourists to visit West Asian countries that are rich in tourist attractions.

The development of regular and frequent air services induced business travel and contributed to the improvement of the general circulation of persons and goods which resulted in an increase in productive efficiency. It also facilitated the transportation of perishable goods, such as agricultural products to/from and within the region.

On the other hand, the establishment of a flag carrier enhances economic, cultural and political relations among various countries. Although national carriers in the ESCWA region, and in most other parts of the world, are considered as symbols of national prestige, they have in many cases a positive influence on their respective countries balance of payments. Some airlines in the region also contribute positively to their country's trade by accepting low-rated cargo, such as agricultural products, in order to strengthen the exporting power of their country.

3. COMMERCIAL AIRLINES OF WESTERN ASIA

3.1 Introduction

The first commercial airline in the ESCWA region was founded as Misr Airwork in May 1932 by the Misr Bank of Egypt and Airwork Limited of the United Kingdom. The bank held 85 per cent of the shares and Airwork 10 per cent while 5 per cent were held by private individuals. The airline started domestic operations in July 1933 with a route extending from Cairo to the port of Mersa Matruh via Alexandria.^{1/} The first international service was operated in 1934 to Lydda and Haifa in Palestine and services to Cyprus and Baghdad were added two years later.

In 1934, an airline was established in Palestine which operated its services to major traffic centres in the region including Cairo and Beirut. New destinations were added while some services were suspended after a short time due to insufficient traffic or shortage of flight equipment.

Shortly after the Second World War, Misrair intensified its operations within the region and started operating interregional scheduled services to Iran, Greece, Turkey and Switzerland. At the same time, new airlines were established in Lebanon, Iraq, the Syrian Arab Republic, Jordan and Saudi Arabia. The then infant airlines operated short- and medium-haul regional routes before attempting to expand to interregional routes.

In the early 1950s Lebanon rose quickly to become a major commercial centre in the region. At that time, three airlines were based in Lebanon operating complex routes extending to various Middle East destinations as well as to Paris, Brussels and West Africa. Meanwhile, the route networks of other West Asia carriers were expanded throughout the region with interregional services operated to major west European destinations such as London, Frankfurt, Rome, Paris, Athens and Geneva as well as to India and Pakistan.

The discovery of oil and the successive increase in production and prices changed the concentration of economic activity in the region and enhanced the importance of the new major traffic centres such as Bahrain, Kuwait, Dubai and Abu Dhabi. Traffic growth was accelerated by the economic prosperity brought about by the growth of oil revenues. The route systems of the region's airlines were rapidly expanded in order to satisfy the growing demand and to take care of the fast developing relations with the rest of the world.

3.2 Establishment and ownership

Apart from Egypt Air, previously known as Misrair, most of the present scheduled West Asian airlines were established shortly after the Second World War. The remaining airlines were formed between 1962 and 1974 either to take over services previously operated by privately owned airlines (Royal Jordanian

^{1/} R.G. Davis, A History of the World Airlines, Oxford University Press, London 1964, p. 61.

and Gulf Air) or to establish for the first time national air services (Yemen Airway and Alyemda). As shown in table 3.1 the latest scheduled airline to be established in the region is Emirates Airlines which took to the air on October 25, 1985 with commercial flights from Dubai to Karachi and Bombay.

Nine out of the twelve scheduled international airlines based in the region are totally owned by governments. The two Lebanese airlines are privately owned while the Government of the Yemen Arab Republic owns 51 per cent of the share of Yemen Airways and the remaining shares are owned by Saudi Arabia. Gulf Air is jointly owned by the States of Bahrain, Oman, Qatar and the United Arab Emirates.

3.3 Fleets

At the end of 1985, the twelve scheduled airlines of the ESCWA region operated a total of 221 aircraft representing 5 per cent of the world fleet. This compares favourably with 169 aircraft in 1980 forming only 4.1 per cent of the world fleet. As shown in table 3.2, fleet sizes vary considerably among different airlines ranging from only two aircraft as in the case of the newly formed Emirates Airlines to as much as 72 aircraft for Saudia, representing almost 33 per cent of the region's fleet.

Nine airlines operate a total of 102 wide-body aircraft representing 47 per cent of the total fleet. Meanwhile Boeing aircraft of various models appear to be dominating the region's fleet with a total of 143 aircraft forming 65 per cent of the fleet. The five most commonly operated aircraft types are: Boeing 737 with 39 aircraft operated by six airlines, Boeing 707 with 38 aircraft operated by eight airlines, Lockheed L1011 with 36 aircraft operated by three airlines and the Boeing 747 with 34 aircraft operated by eight airlines and finally the Airbus with 29 aircraft operated by four airlines. Saudia owns the largest fleet of Boeing 737 (19), Boeing 747 (17), Lockheed L1011 (17) and Airbus (11).

The operation of a relatively large number of wide-body aircraft indicates a positive development in operational requirement and an increase in traffic density. The wide-body equipment enabled a large number of the region's airlines to introduce a three-class service on an increasing number of routes to cater for the needs of different types of traffic and face the competition from more developed carriers.

The composition of the region's fleet as described above indicates that the West Asian airlines have succeeded in their efforts to modernize their fleets. This effort seems to be a continuous process as the airlines have now to look for suitable replacement of the relatively older equipment such as Boeing 707, Boeing 720 and DC-8 aircraft which, effective January 1988, will no longer be cleared to fly over Europe because of enforcing new noise regulations. This will force the airlines to phase out these types of aircraft or alternatively install a "hush kit" for the engines at an estimated cost of \$2.5 million per aircraft. It is believed that the airlines will choose to phase out a large proportion of these older types because of the high cost of operation and maintenance.

Table 3.1. International scheduled airlines of Western Asian ownership and year of establishment

STATE	AIRLINE NAME	YEAR OF ESTABLISHMENT	GOVERNMENT OWNERSHIP %
EGYPT	EGYPT AIR	1932	100
GULF STATES	GULF AIR *	1950/1974	100
IRAQ	IRAQ AIRWAYS	1945	100
JORDAN	ROYAL JORDANIAN (ALIA)	1963	100
KUWAIT	KUWAIT AIRWAYS	1954	100
LEBANON	MIDDLE EAST AIRLINES		
	AIRLIBAN (MEA)	1945	-
	TRANS-MEDITERRANEAS AIRLINES (TMA)	1953	-
S.ARABIA	SAUDI ARABIAN AIRLINES	1945	100
SYRIA	SYRIAN ARAB AIRLINES	1946	100
U.A.E./DUBAI	EMIRATES AIRLINES	1985	100
YEMEN (N)	YEMEN AIRLINES	1962	51
YEMEN (S)	DEMOCRATIC YEMEN AIRLINES (ALYEMDA)	1971	100

* GULF AIR WAS FORMED IN MARCH 1950 .EQUAL SHAREHOLDER SINCE APRIL 1974 ARE THE STATES OF BAHRAIN,OMAN,QATAR,AND U.A.E.

Table 3.2. Operating jet fleet of Western Asian scheduled carriers at 31 December 1985

AIRLINE	WIDE - BODY				NARROW - BODY							TOTAL		
	747	767	L10-11	AIR BUS	727	720	707	737	DC-8	CAR	F28	TU	YAK	
SAUDIA	17		17	11			5	19	1		2			72
EGYPT AIR	2	3		8			6	6	1					26
GULF AIR	1		11					8						20
KUWAIT AIRWAYS	4			8	4		3							19
M.E.A	3					7	8							18
ROYAL JORDANIAN	2		8		4		3							17
IRAQI AIRWAYS	3				7		3	3						16
SYRIAN ARAB	2				3					2		5	2	14
T N A							8							8
YEMEN AIRWAYS					4			1						5
ALYERDA							2	2						4
EMIRATES														2
TOTAL	34	3	36	29	22	7	38	39	2	2	2	5	2	221

SOURCES: (1) IATA, WORLD AIR TRANSPORT STATISTICS, 1985.

(2) ARCO, COMPARATIVE OPERATIONS OF THE ARAB AIR CARRIERS 1984 & 1985.

A recent study conducted by the Arab Air Carriers Organization (AACO) indicates that during the period 1987-1995, some 51 jet aircraft are expected to be added to the fleets of Arab carriers with the exception of Egypt air and Air Algerie.^{1/} The ESCWA region airlines requirements amounts to 37 aircraft representing 72 per cent of the total fleet requirement of Arab carriers.

3.4 Manpower

In 1985, the scheduled international airlines of the region employed a total of 70,483 persons representing 7.5 per cent of the total employment of IATA member airlines. As shown in table 3.3 below the number of employees increased by 19 per cent during the period 1980-1985 in comparison with an increase of only 3.5 per cent in the total personnel of IATA members.

Table 3.3. Employees of Western Asian airlines, 1980, 1985

Airline	Total Personnel		+ Per cent - change 1985/1980
	1985	1980	
Saudia	25,546	18,775	+36.1
Egypt Air	11,599	9,682	+19.8
Kuwait Airways	6,240	5,920	+5.4
Iraqi Airways	5,055	5,316	-5.0
Gulf Air	4,924	3,786	+30.0
MEA	4,841	5,553	-12.8
Royal Jordanian	4,581	3,893	+17.7
Syrian Arab Airlines	3,335	2,841	+17.4
Yemen Airways	1,843	610	+202
TMA	1,381	1,887	-26.8
Alyemda	1,138	985	+15.5
Region total	70,483	59,248	+19.0
IATA total	939,000	907,156	+3.5

Source: International Air Transport Association, World Air Transport, 1980, 1985.

The above table also indicates that while the number of employees of most carriers increased at varying degrees during the period in question, three airlines reduced their total personnel. One of them, Iraqi Airways cut its employment by 5 per cent while the other two carriers, MEA and TMA, reduced their manpower by about 13 per cent and 27 per cent respectively due to unstable political conditions and their adverse effect on the traffic movement and size of operation.

^{1/} Arab Air Carriers Organization, Arab Commercial Airline Strategy, 1987-1995, (in Arabic), pp. 30-31.

The productivity of the labour force of West Asian airlines could be determined by establishing a relationship between the labour force as an input factor and the level of total output produced. Table 3.4 lists labour productivity figures expressed in terms of available tonne/kilometre per employee. The list is not confined to the airlines of the ESCWA region but also includes for comparative reasons selected international scheduled airlines of similar size and broadly similar operating conditions.

The table indicates great variations in productivity figures achieved by various carriers. Some West Asian airlines rank highly, with Gulf Air and Royal Jordanian topping the list. Cyprus Airways comes third followed by Kuwait Airways and Philippine Airlines.

3.5 Type of services and degree of specialization

The scheduled international airlines based in the ESCWA region comprise of eleven carriers operating mixed passenger and cargo services and one all-cargo operator (TMA). Three carriers operate limited all-cargo flights alongside their mixed services. As shown in table 3.5, scheduled services dominate the operation of the region's carriers, with 95 per cent or more of their capacity produced on scheduled flights. The only exception is Egypt Air with almost 9 per cent of its capacity produced on unscheduled services.

Domestic services are limited in the region and are confined to seven airlines; Saudia, Egypt Air, Alyemda, Iraqi Airways, Syrian Air, Royal Jordanian and Yemen Airways. Only the services of the first three airlines are of some significance while the capacity produced on domestic routes of the remaining carriers constitutes less than 3 per cent of their deployed capacity. International services dominate the operations of all airlines. Four airlines operate international services only, while the percentage share of international capacity of the remaining airlines ranges from 72 per cent in the case of Saudia to 99.5 per cent in the case of Royal Jordanian (see table 3.5). Specialized services are sometimes operated by subsidiary air transport companies owned by some of the region's airlines. For example, Royal Jordanian owns 64 per cent of the shares of Arab Wings, an executive jet charter company which was founded in 1975 to meet the needs of booming economic activity and to facilitate the travel of businessmen and government officials. Royal Jordanian and Iraqi Airways jointly own Arab Air Cargo which is an all-cargo charter company operating unscheduled services between Amman, Baghdad and various points in Europe and the Middle East.

3.6 Type of networks

The shape of the route network usually indicates the pattern of services operated by individual airlines. In some cases routes radiate from the airline's base to various destinations forming an enclosed circle, while other routes elongate in one or two directions or radiate from more than one centre.

The route networks of West Asian airlines could be best identified with reference to the geographical distribution of destinations served by each airline. Table 3.6 indicates that the services of West Asian airlines are extended to various regions of the world. The ESCWA and west Europe regions

Table 3.4. Employee productivity of Western Asian and selected international airlines, 1985

AIRLINE	TOTAL + PERSONNEL	ATKs # (000)	ATKs/EMPL. (000)
GULF AIR*	4924	1092873	221.9
ROYAL JORDANIAN*	4581	932351	203.5
CYPRUS AIRWAYS	1460	266529	182.6
KUWAIT *	6240	1120590	179.6
PHILIPPIEN	9622	1666425	173.2
SAUDIA*	25546	4169394	163.2
ROYAL AIR MAROC	4103	586770	143.0
OLYMPIC	12102	1596413	131.9
AIR MALTA	1140	143500	125.9
ETHIOPIAN A/L	3285	347464	105.8
AIR INDIA	17582	1852299	105.4
EGYPT AIR*	11599	1059023	91.3
IRAQI*	5055	441000	87.2
THY TURKISH	7243	626161	86.5
P.I.A	19436	1626928	83.7
KENYA AIRWAYS	2753	225212	81.8
AIR ALGERIE	7060	550854	78.0
YEMEN AIRWAYS*	1843	135562	73.6
ALYEMDA*	1138	75482	66.3
LOT	6246	414133	66.3
MALEV	4066	243967	60.0
SYRIAN*	3335	193877	58.1
M.E.A *	4841	274112	56.6
LIBYAN	4880	276304	56.6

+ AT 31/12/1985

AVAILABLE TONNE KILOMETRES

* AIRLINES BASED IN ESCWA REGION

SOURCE : IATA , AIR TRANSPORT WORLD 1985

Table 3.5. Type of services operated by Western Asian airlines
percentage share of international and
scheduled capacity*, 1985

AIRLINE		SCHEDULED IATKs (%)	INTERNATIONAL CAPACITY(%)	ALL CARGO CAPACITY(%)
ALYEMDA		96.0	85.0	-
EGYPT AIR		91.1	93.2	-
EMIRATES		100.0	100.0	-
GULF AIR		100.0	100.0	-
IRAQI AIRWAYS +		97.0	97.5	-
KUWAIT AIRWAYS		99.6	100.0	6.1
M.E.A		99.0	100.0	-
ROYAL JORDANIAN		98.5	99.5	5.0
SAUDIA		95.5	72.0	12.2
SYRIAN AIR		96.5	99.1	-
YEMEN AIRWAYS		99.4	98.4	-
=====				
WORLD (IATA)		96.6	64.0	-
=====				

* CAPACITY EXPRESSED INTERMS OF AVAILABLE TONNE -KILOMETRES

+ ESTIMATED

Table 3.6. Number of destinations served by the ESCWA region airlines

AIRLINE	ESCWA	WEST EUROPE	EAST EUROPE	NORTH AFRICA	AFRICA	FAR EAST	ASIA	AMERICA	TOTAL
KUWAIT AIRWAYS	17	12	3	4	1	4	5	1	47
EGYPT AIR	13	18		2	7	3	2	1	46
ROYAL JORDANIAN	13	13	3	3		3	1	3	39
SAUDIA	12	9		3	4	5	4	1	38
M.E.A	12	15	4	1	4				36
IRAQI AIRWAYS	4	13	7	2	1	1	5	1	34
SYRIAN ARAB	10	9	6	4			3		32
GULF AIR	13	6		1	1	3	5		29
YEMEN AIRWAYS	12	8	1		4		2		27
ALYEMDA	9	1	1		3				14

SOURCE : ABC WORLD AIRWAYS GUIDE DECEMBER 1986

stand out from the rest as the most important in terms of numbers of destinations served followed by the Asian region. The geographical distribution of destinations served also indicates great variations in stages flown within each route network. Airlines seem to be operating a set of short- and medium-haul routes linking their home bases with various destinations within the region, and another set of intercontinental routes of longer stage lengths.

Such route structure requires aircraft of different ranges to cater for variations in stage lengths, and thus may prevent the airlines from achieving the economics of fleet standardization. But this structure on the other hand fulfills the airlines national obligations and gives them the chance to develop feeder services between their regional and intercontinental networks.

According to table 3.6 the most extensive international route network in terms of destinations served appears to be that of Kuwait Airways followed by Egypt Air. Alyemda serves only 14 destinations of which nine are in the ESCWA region.

3.7 Airline traffic development

The scheduled international airlines based in the ESCWA region carried in 1985 more than 12.3 million passengers and 407,416 tonnes of cargo. Their share of world international traffic amounted to 6.5 per cent of total passengers and up to 7.1 per cent of cargo traffic.

Table 3.7 comprises of major indicators of international traffic and capacity of the ESCWA airlines which are ranked in descending order according to total capacity (expressed in terms of available tonne/kilometres) produced by each carrier. The table shows that traffic and capacity are unevenly distributed among the region's airlines. It indicates that Saudia is the largest airline in terms of capacity, accounting for almost one third of available tonne/kilometres produced by all airlines. Next in relative size of capacity is Kuwait Airways, followed by Gulf Air, Royal Jordanian and Egypt Air. The above five airlines produce as much as 80 per cent of total capacity, 84 per cent of passengers carried, 71 per cent of total freight and 80 per cent of total revenue tonne/kilometres. The smallest airline is Alyemda which produced less than 1 per cent of the total capacity and carried 117,755 passengers and 1,521 tonnes of cargo in 1985.

The capacity and traffic of the airlines based in the ESCWA region have grown remarkably during the past fifteen years at rates well above the industry average. In 1970 capacity (ATKs) produced by the region's airlines represented only 2.5 per cent of the world's total against 6.1 per cent in 1985. The number of passengers and freight tonnes carried by the airlines of the ESCWA region formed respectively 3.4 per cent and 3.7 per cent of the 1970 world totals in contrast to 6.5 per cent and 7.1 per cent in 1985.

Table 3.8 compares the development of traffic and capacity of the airlines in the ESCWA region with the world's (IATA) airlines during the period 1970-1985. The table indicates that during the period 1970-1975 traffic (RTKs) and capacity (ATKs) grew at an average growth rate of 22.9 per cent and 21.6 per cent per annum compared with the world's average of 11.9 per cent and

Table 3.7. Western Asian airlines scheduled international services
traffic and capacity performance 1985

	PASSENGER R.P.Ks	A.S.Ks	PAX	FREIGHT	IR.T.Ks	PERFORMED	(000)	A.T.Ks	WEIGHT
	CARRIED	(000)	L.F %	TONNES	PASSENGER	CARGO	TOTAL	(000)	L.F %
SAUDIA	3116386	10031879	16887918	59.4	114218	902869	417786	1320655	2813011
KUWAIT AIRWAYS	1442153	3802656	6917120	55.0	43712	342239	168613	510852	1116332
GULF AIR	2869893	4980139	8716614	57.1	52042	448213	137135	585348	1092873
ROYAL JORDANIAN	1220147	3537073	6120328	57.8	40588	318337	153365	471702	913621
EGYPT AIR	1736504	4002316	7216273	55.5	39035	360208	100153	460361	899611
T.M.A				75000		360000	360000	600000	60.0
IRAQI AIRWAYS *	569196	1369556	2685403	51.0	16180	123260	66370	189630	417100
M.E.AIRLINE	501268	929587	2001444	46.4	15573	83663	36384	120047	262901
SYRIAN ARAB	442344	929074	1620332	57.3	4492	83617	15687	99304	185427
YEMEN AIRWAYS	317823	559878	1098461	51.0	5055	50389	9812	60201	132667
ALYEMDA	117755	240477	450735	53.4	1521	21643	9631	31274	64397
TOTAL	112333469	30382635	53714628	56.6	407416	2734437	1474936	4209373	8497940

* ESTIMATED DATA

R.P.Ks : REVENUE PASSENGER-KILOMETRES.

A.S.Ks : AVAILABLE SEAT-KILOMETRES.

PAX L.F: PASSENGER LOAD FACTOR.

SOURCE : APPENDIX "A"

R.T.Ks : REVENUE TONNE KILOMETRES.

A.T.Ks : AVAILABLE TONNE-KILOMETRES.

WEIGHT L.F: WEIGHT LOAD FACTOR.

Table 3.8. Western Asian and world (IATA) airlines scheduled international services development of traffic and capacity, 1970-1985

	PASSENGER R.P.Ks CARRIED (000)	A.S.Ks (MILL)	PAX L.F %	FREIGHT TONNES (000)	IR.T.Ks PASSENGER	PERFORMED (MILL) CARGO	A.T.Ks TOTAL (MILL)	WEIGHT L.F %
TOTAL ESCWA								
1970	2174	3299	46.5	60	297	187	484	1035
1975	4813	8036	52.2	159	723	633	1356	2751
1980	9358	18960	54.7	283	1706	1050	2756	5792
1985	12333	30383	56.6	407	2734	1475	4209	8498
TOTAL WORLD								
1970	62941	145783	52.1	1635	13254	7592	20846	41117
1975	105556	263518	55.6	2718	23891	12618	36509	70078
1980	125505	374095	60.9	3723	34074	18245	52319	91238
1985	188715	594000	64.8	5760	54790	30750	85540	140300
ANNUAL AVERAGE GROWTH RATES								
TOTAL ESCWA								
1970 - 1975*	17.2	19.5	16.7	21.6	19.5	27.6	22.9	21.6
1975 - 1980	14.2	18.7	17.7	12.2	18.7	10.7	15.2	16.1
1980 - 1985	5.7	9.9	9.1	7.6	9.9	7.0	8.8	8.0
1975 - 1985	9.9	14.2	13.3	9.9	14.2	8.8	12.0	11.9
1985 / 1970**	467.4	820.9	656.9	581.1	820.9	689.0	769.9	720.8
TOTAL WORLD								
1970 - 1975*	10.9	12.6	11.1	10.7	12.5	10.7	11.9	11.3
1975 - 1980	3.5	7.3	5.3	6.5	7.4	7.7	7.5	5.4
1980 - 1985	8.5	9.7	8.3	9.1	10.0	11.0	10.3	9.0
1975 - 1985	6.0	8.5	6.8	7.8	8.7	9.3	8.9	7.2
1985 / 1970**	199.8	307.5	227.5	252.3	313.4	305.0	310.3	241.2

* The first four rows represent the Annual Average Growth Rate for the relative period

** The last row represents the Total Percentage Growth over the whole period of '70 to '85

SOURCES :

(1) APPENDIX "A"

(2) IATA, WORLD AIR TRANSPORT STATISTICS 1970 - 1985

11.3 per cent respectively. Double-digit average growth rates continued during the period of 1975-1980 in contrast to much lower growth rates achieved by the industry as a whole. During the period 1980-1985, the average growth rates of the region's airlines were some 2 to 3 points below the world average rates reflecting the harsh effects of the economic recession experienced in recent years in the ESCWA region.

The magnitude of traffic and capacity growth varied considerably among the region's carriers. Annex A contains detailed information of the development of traffic and capacity of individual airlines in the ESCWA region during the period 1970-1985 and average growth rates achieved. It indicates that the most impressive growth rates achieved in terms of total traffic and capacity were those of Saudia followed by Royal Jordanian. The capacity of the former increased by more than 30-fold and traffic by 50-fold while the capacity and traffic of the latter increased by almost 20-fold and 25-fold respectively. Other airlines with exceptionally impressive growth records include Gulf Air, Iraqi Airways, Yemen Airways, Alyemda and Kuwait Airways. Both MEA and TMA suffered major setbacks during the period 1975-1985 because of the harmful effects of the Lebanese Civil War.

The scheduled airlines of the region, with the exception of TMA are multi-product airlines carrying both passengers and freight. Revenue tonne/kilometres (RTKs) performed by the region's carriers amounted to 4,209 billion in 1985 of which cargo accounted for 35 per cent. Even when TMA traffic is excluded, the share of cargo traffic remains significant at 29 per cent of the total.

The comparative analysis of the performance of the carriers in the ESCWA region and IATA also reveals that average seat and load factors achieved by the region's airlines are in general well below the industry performance. For example, the average seat factor of the airlines in the ESCWA region was 56.6 per cent and average load factor was 49.5 against the industry average of 64.8 per cent and 61 per cent respectively. This discrepancy appears to be an inherent feature of the region's airline industry caused by a combination of factors including:

(a) Sharp seasonal variations in traffic flow and directional imbalances on many routes causing seat and load factors to remain at relatively low levels.

(b) Low traffic density on many routes due to limited traffic potentials on the one hand and the operation of parallel services by the region's airlines on the other.

The above two factors will be discussed in more detail later in the study.

3.8 Regulatory framework

The airline industry in the ESCWA region is governed by international government bilateral and inter-airline agreements. On the international level, safety regulation and navigational rules regulate the technical side of the airline industry while fares and rates applied on various routes are regulated through the Traffic Conferences of the International Air Transport Association (IATA). International rules and regulations are usually enforced by governments, including fares and rates agreed upon within IATA which were made subject to government approval.

The governments have also a major role to play in the regulation of the air transport industry through Bilateral Air Services Agreements. These are agreements between governments which set the basis for air services, designate the airlines and grant the necessary traffic rights.

The bilateral air agreements are broadly of two types:

(a) The Bermuda type, which is fairly liberal and usually has no, or very limited, restrictions upon the frequency of service or the capacity offered.

(b) The predetermination type which usually contains restrictive clauses determining the capacity offered (in terms of seats and cargo tonne capacity offered) and the frequency of services and possible commercial arrangements between the designated airlines. Most restrictive agreements result in a division of capacity between the designated carriers either equally or according to an agreed formula.

The governments of the ESCWA member States tend, in general, to adopt the predeterminist type of agreements. The only documented information on the restrictive nature of the bilateral agreements concluded by the region's governments could be found in a study published by the International Civil Aviation Organization (ICAO) in 1977.^{1/} The study is based on responses to an ICAO questionnaire which was distributed to various civil aviation authorities around the world. Among the respondents were five of the ESCWA member States who gave information on the nature of their bilateral air services agreements. As shown in table 3.9 below, most bilateral agreements signed by the five States include capacity clauses.

Table 3.9. Bilateral air services agreements with and without capacity clauses, 1977

Country	No. of bilateral agreements		Total
	With capacity clauses	Without capacity clauses	
Iraq	37	5	42
Jordan	33	7	40
Lebanon	30	-	30
Saudi Arabia	26	-	26
Syria Arab Republic	14	-	14
Total	140	12	152

Source: International Civil Aviation Organization, Regulation of Capacity in International Air Transport Services, circular 137-AT/43, Montreal, 1977, Appendix 3.

^{1/} International Civil Aviation Organization, Regulation of Capacity in International Air Transport Services, circular 137-AT/43, ICAO, Montreal, 1977.

There is no evidence to suggest that the restrictive nature of the region's bilateral agreements has changed in recent years. In fact, both the States and the airlines of West Asia have maintained their attitude and have become more restrictive recently following the decline in traffic growth rates.

In addition to intergovernment bilateral agreements, inter-airline pooling agreements are often used to regulate capacity. They are usually employed in accordance with the bilateral agreements when clauses concerning the capacity offered are left to the airlines concerned to finalize among themselves. Pooling agreements usually include a formula for sharing the revenue or the cost and revenue of the pooled services.

Detailed information on existing pooling agreements is not available, but there are indications that there is a tendency towards pooling arrangements as a successful means to control capacity, and eliminate competition. It is worth noting that this restrictive atmosphere which prevails in the ESCWA region is contrary to the liberal deregulated policy adopted by the United States Civil Aviation Board (CAB) since 1977. According to this liberal policy, Government restrictions and interference in Civil Aviation is minimized and limited to safety and technical matters, while all other commercial competitive issues, particularly the capacity and tariffs, are left free to the market forces. A recent liberal attitude has been witnessed in EEC countries which may gradually affect the ESCWA countries. This will be discussed in more detail later in chapter 9.

3.9 Airline associations

The airlines of the ESCWA region participate in two airline associations:

(a) International Air Transport Association (IATA): IATA is the scheduled airlines trade association which was founded in 1945 to help meet the problems anticipated in the expansion of civil air services following the Second World War. IATAs main activities include various aspects such as technical, medical, legal, facilitation, finance, industry research and security. International fares and rates are negotiated at the Traffic Conferences and active members are now able to decide whether to participate in fares and rate negotiations, known as Tariff Co-ordination.

In addition to 24 associate members, IATA has 120 active members including ESCWA region airlines of which nine participate in Trade Associations and Tariff Co-ordination activities. The three remaining carriers; Gulf Air, Alyemda and Emirates Airlines participate only in Trade Association activities. IATA has also 22 associate members.

(b) Arab Air Carriers Organization (AACO): AACO was established by the Arab League in 1964 to improve commercial, economic and technical co-operation among Arab carriers, promote joint projects and foster the development of an air transport industry in the Arab World. Membership of the organization is open to all airlines, holding the nationality of an Arab State member of the Arab League. All airlines based in the ESCWA region are members of AACO along with other Arab international scheduled airlines.

4. AIRPORTS OF WESTERN ASIA

4.1 Airport traffic

There are eighteen international airports in the ESCWA region in which more than 27.6 million international passengers were handled in 1985. The relative importance of individual airports is reflected by the volume of passenger traffic which varies greatly among airports. Figure 4.1 indicates that Cairo Airport is the most important international junction in the region with more than five million passengers handled in 1985. Next in relative importance is Jeddah (3.5 million), Kuwait (2.6 million) and Dubai (2.2 million). The predominance of the airports of the Gulf Co-operation Council member States, which between them handle 65 per cent of the total international passenger traffic of the region is noted.

Airport traffic in Western Asia grew significantly during the past decade. Table 4.2 gives information on passenger traffic growth between 1976 and 1985 for ten major international airports of which comparative data is available.

The table indicates that international passenger traffic at the ten airports almost doubled during the period in question. The highest growth rate was achieved by Muscat airport (195 per cent) followed by Dubai (147 per cent) and Amman (140 per cent), while the traffic of three other airports (Baghdad, Abu Dhabi and Doha) more than doubled during the same period.

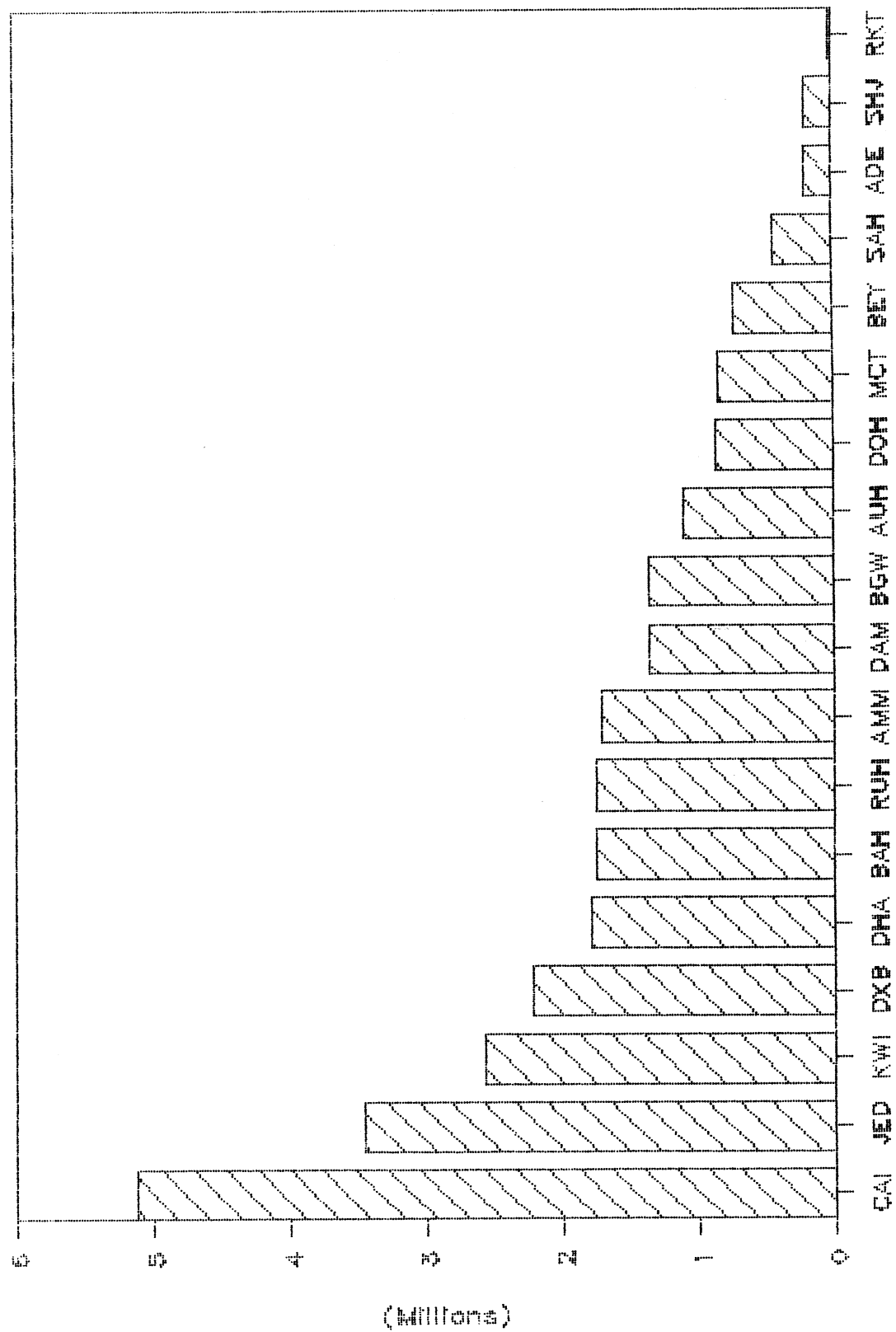
Table 4.2. Development of international scheduled passenger traffic at major Western Asian airports

Airport	No. of international passenger (000)		+ - change 1985/76
	1985	1976	
Cairo	5,135	2,959	73.5
Jeddah	3,455	1,932	78.8
Kuwait	2,570	1,350	90.4
Dubai	2,229	902	147.1
Bahrain	1,755	882	99.0
Amman	1,721	718	140.0
Baghdad	1,356	615	120.5
Abu Dhabi	1,099	480	129.0
Doha	880	435	102.3
Muscat	850	288	195.1
Total	21,050	10,651	99.3

Source: (1) International Civil Aviation Organization, Airport Traffic, 1976, Digest of statistics No. 220, ICAO, Montreal, 1977.

(2) Statistics of individual airports.

Figure 4.1. International passenger traffic of Western Asian airports, 1985



4.2 Existing facilities and infrastructure

The rapid air traffic growth in Western Asia put tremendous pressure on airport facilities and infrastructure especially at the initial period of growth. As a result major airports development projects were carried out throughout the region with the aim of updating the available facilities to cater for sharp growth rates and changes in traffic types and direction. The executed projects included expanding and modernizing the existing facilities as well as constructing new major airports.

The existing facilities and infrastructure throughout the region are impressive and well-developed. The six GCC countries have among them twelve international airports and twice as many domestic airports. Most of these airports have been either established or renewed during the past 10 to 15 years.

In Saudi Arabia two of the regions most important air projects: King Abdulaziz Airport at Jeddah and King Khaled Airport at Riyadh, were commissioned in 1981 and 1983 respectively. King Abdulaziz Airport is considered as one of the most prestigious airports in the world covering an area of 105 square kilometres and is located some 20 kilometres north of Jeddah. The airport whose total cost topped \$5 billion, replaced Jeddah Airport located at the heart of the city. It has three runways, spacious apron areas, two commercial terminals, a Tristar maintenance hanger, air cargo terminal, a Royal Pavillion and other operational buildings. The airport has also a remarkable tent-like Haj terminal occupying an area of 1.5 square kilometres and is capable of handling more than one million pilgrims during the Haj season. The terminal is also capable of handling ten B-747 aircraft at the gates with remote parking positions for a further 24 aircraft on each apron.

Riyadh's King Khaled International Airport has also been constructed to replace the city's old airport. It is located about 35 kilometres to the north of Riyadh and occupies an area of 235 square kilometres. It is designed to be capable of handling as many as 20 million passengers a year, and has two domestic and two international terminals connected by three linked bridges. The \$3.2 billion airport has two parallel runways and over 500,000 square metres of apron area in front of the passenger and cargo terminals.

Airport development projects in Saudi Arabia were not confined to the international airport but also included domestic and local airports where over \$14 million were invested in recent years to expand and update airport facilities throughout the Kingdom.

Kuwait International Airport's new terminal building, opened in 1979 is capable of handling four million passengers a year. Following a decision of shelf plans to construct a new airport, further away from the city, a second runway was constructed and the old passenger terminal was renovated at a cost of KD 1.3 million.

A new cargo terminal was recently completed at Bahrain International Airport. The airport is to undergo a major expansion programme which includes the construction of a new terminal building and the renewal of the existing terminal. Work at this project is expected to start later in 1987.

In the United Arab Emirates, the new Abu Dhabi International Airport (NADIA) was commissioned in January 1982. It was reported in February 1987 that the Abu Dhabi Public Works Department is planning to build six satellite lounges at the new airport which will be reached from the main building by covered walkways. Each lounge will measure 45 by 17 metres and, when completed, they will double to twelve the number of aircraft that can be handled by the terminal.

A new arrival terminal was opened in 1986 at Dubai International Airport providing a 10,000 square metre terminal area, central services complex and car park. The \$30 million project raised the traffic throughput capacity of the airport to 5.2 million passengers per annum. Also a fully computerized radar system became operational at Dubai International Airport in January 1987. The system guides the aircraft from a distance of up to 80 nautical miles and enables Dubai to feed Sharjah International Airport with needed information.

The arrival halls at Sharjah Airport were recently expanded to accommodate 450 passengers each. The airport, which was the first of the United Arab Emirates's completely new airports, began operation in 1977 and has a capacity of two million passengers a year.

In Oman, a major project was implemented at Seeb International Airport involving the provision of a new arrivals hall, expansion of the departure hall, the construction of a new transit hall, a new domestic terminal, VIP building, public concourse and car park. The two-phase project was completed in early 1986 at a cost of \$26 million.

Plans to build a new airport in Qatar were postponed and the existing Doha International Airport, which has one of the world's longest civil runways, was alternatively modernized. Improvements included the construction of a new cargo centre, a new transit lounge, and resurfacing of the airport's runway, taxiways and aprons.

Other countries in the region also implemented ambitious airport development projects including the construction of three new international airports in Baghdad, Damascus and Amman. The three airports were commissioned one after the other within a period of seven months. Baghdad's Saddam International Airport, which was opened in November 1982, has a 4,000 metre runway and a terminal complex that will be capable of handling ten million passengers a year when all stages of the project are completed.

The new Damascus International Airport was opened in December 1982 and is capable of handling 2.5 million passengers a year.

Queen Alia International Airport, 35 kilometres south of Amman, was opened in May 1983 to replace the city's old airport. It has two parallel runways and two identical passenger terminals; the south terminal serving Royal Jordanian and the north terminal serving other international airlines. Passenger facilities were designed for three million passengers per annum with possibilities for expansion to cope with 6-8 million passengers annually. The \$250 million project includes a cargo terminal, catering facilities, maintenance hanger, Royal Pavillion and various support facilities.

A new \$170 million terminal was recently opened at Cairo International Airport. It is designed along the lines of Charles de Gaulle Airport in Paris and is capable of handling five million passengers a year. The cargo handling capacity at the airport is planned to be doubled to 100,000 tonnes annually under a programme which includes a new 4,800 square metre cargo terminal and cold stores for the export of perishables.

Airport facilities of the least developed countries of the region were also improved during the past few years. A major \$30 million expansion project was implemented at Sana'a Airport to handle wide-bodied jets and included apron area, cargo terminal, runway lighting and improvement of electricity network. The project, completed in 1984, was financed by Saudi Arabia and implemented by a Chinese company. Two major projects were recently implemented at Aden Airport involving the building of a new terminal building and upgrading of the runway, taxiways and apron. A French consortium built the terminal with French finance while Soviet specialists upgraded the runway capabilities, installed a new lighting system and built two electricity generating power plants.

4.3 Management and maintenance of airports

Airports in the ESCWA region are constructed and managed by specialized government agencies. In most countries, the civil aviation administration is responsible for the management, operation and maintenance of all civil airports.

The rapid development of airport facilities and infrastructure and the introduction of highly sophisticated equipment preceeded the development of local expertise to manage, operate and maintain the new facilities. Therefore, intensive training programmes were organized by civil aviation administrations, sometimes with the help of the International Civil Aviation Organization (ICAO) technical assistance programme, to train the newly appointed personnel and update the knowledge of existing staff. A large number of expatriates are also recruited, especially at the airports of GCC member States, to maintain orderly operations and train national staff.

In some airports, certain functions are carried out by specialized foreign companies, for example, International Aeradio Limited (IAL) entered into a contractual arrangement with the Jordanian Civil Aviation Authority to supervise the electro-mechanical maintenance works at Queen Alia International Airport shortly after the opening of the airport in 1983. The same company also had an earlier agreement with Bahrain Airport where it operates air traffic control and technical services. Similar arrangements with different companies also exist in Qatar, Kuwait and in some airports in the United Arab Emirates and in Saudi Arabia for the provision of technical services or certain operational functions.

4.4 Airport finances

The cost of constructing, developing and renewing civil airports in the ESCWA region is born by national governments either directly or through its civil aviation administration. In oil producing countries the funds needed for airport development projects were readily made available from government

budgets which for many years enjoyed a large surplus. In other countries, financing was arranged through soft loans and grants from oil producing countries or through international agencies such as the World Bank.

The financial performance of the region's airports can not be thoroughly assessed due to the lack of information. In fact most airports in the region do not enjoy financial autonomy or have independent accounts. Airports are considered as public utilities and operating costs and revenues are rarely related to each other.

Airport revenues are generated from two major sources; aeronautical charges (landing, lighting, parking, overflying, passenger services fees) and non aeronautical sources such as the rental of shops and space, car parks and other concessions. Airports in the industrialized world generate an increasing proportion of their revenues from space rental and concession not from landing and other operating charges. Airports in the ESCWA region depend mostly on aeronautical charges and have not sufficiently developed their revenues from other sources. According to an ICAO study, it is also noted that with few exceptions aeronautical charges in the Middle East are relatively low, being estimated at levels close to half the world average. The study concluded that this may be related to the fact that there are a relatively large number of international airports in the region in close proximity to one another, particularly in the Gulf area, with a possible consequent reluctance for competitive reasons to increase charges as costs escalate.^{1/}

Revenues generated from various sources are sometimes sufficient to cover a major part of the operating cost, the cost of land and capital is seldom accounted for by the airport authority, but is usually absorbed by the government.

4.5 Airport development in the ESCWA region

Airport development programmes in the ESCWA region have been rapid and very ambitious by world standards. The Financial Times conducted a survey in 1983 of world airport development programmes in which the Middle East stood out from the rest.^{2/} The survey included a list of the world's major airports programmes, either under way or planned for the immediate future. The projects included were each valued at \$3 million and collectively accounted for almost \$24 billion.

As shown in table 4.3 below the total investment in Middle East airport development programmes topped the list with \$7,623 million accounting for some 32 per cent of total world investment.

(1) International Civil Aviation Organization, International Air Passenger and Freight Transport, Middle East, Circular 167-AT/62, Montreal, 1982, p. 27.

(2) Financial Times, Airport Planning Supplement, 12 October 1983.

Table 4.3. World airport development programmes by region

Region	Estimated cost \$M	Percentage share
Middle East	7,623	31.9
Europe	3,946	16.5
Far East	3,790	15.9
United States of America	3,204	13.4
Africa	1,780	7.5
Latin America	1,671	7.0
Australia	1,067	4.5
Others	787	3.3
Total	23,868	100.0

Source: Financial Times, 12 October 1983, Airport Planning Supplement.

Most of the airport development funds of the ESCWA region were made available during the economic boom years, enabling various countries to complete the major part of the development programmes before the recent slackening in economic growth in the region resulted in scarcity of funds and a sharp decline in traffic growth.

Some of the planned projects were postponed while the scale of others was vastly reduced. Among the postponed projects are a new international airport for Kuwait and a new cargo terminal at Dubai airport.

At the present time, there is a limited number of airport development projects being implemented in the ESCWA region. The largest of them is the \$2.1 billion project to construct a new airport in the eastern province of Saudi Arabia. The new airport, named King Fahd International, is designed to replace the existing Dhahran Airport and should be operational by 1990. The first phase of the project will include a multi-level terminal complex located at the centre of the airport with 24 gates served by air-bridges and 16 moving walkways on its five levels. The other important project is the \$330 million Al Ain Airport in the United Arab Emirates which is due to open in 1988. The new airport is envisaged to be handling 350,000 passenger a year by 1990 and serving as a tourist gateway to the area.

5. PASSENGER TRAFFIC OF WESTERN ASIA

5.1 Total passenger traffic

International airports in the ESCWA region are connected with a complex of routes running between the different countries of the region and to various parts of the world. As indicated in chapter 4, more than 27.6 million international passengers were handled at the region's airports in 1985. When double-counted traffic moving within the region is excluded, the number of international passengers amounts to 21.1 million.

The distribution of the traffic by airport was shown in graph 4.1 and indicated that Cairo and Jeddah have the busiest international traffic movement among the region's airports. On country-by-country basis, Saudi Arabia, with its three major international airports, stands out from the rest in terms of the number of passengers handled. As shown in figure 5.1, Saudi Arabia's airports handled more than seven million international passengers in 1985 accounting for one quarter of the region's traffic. Next is Egypt with five million passengers (18.6 per cent) followed by the United Arab Emirates (12.9 per cent), Kuwait (9.3 per cent), Bahrain (6.4 per cent) and Jordan (6.2 per cent). Passengers handled at the airports of the above six countries form 78.8 per cent of the total international traffic of the region. Most of these countries are major oil exporting States, while two of them, Egypt and Jordan, are major providers of migrant a labour force.

5.2 Regional distribution

Major passenger traffic-flows of the ESCWA region could be best described by referring to the movement of international passengers between the airports of the region, and between these airports and other international airports around the world. This information is given in annex B which also provides a regional traffic-flows summary as shown in figure 5.2 and table 5.3.^{1/}

Figure 5.2 indicates that traffic moving within the ESCWA region represents as much as 31.1 per cent of total international traffic of the region. Next in relative importance is the traffic of west Europe (25.9 per cent) followed by Asia (22.4 per cent). The combined traffic of the three regions form almost 80 per cent of total traffic of the ESCWA airports. The graph also indicates that traffic moves in limited volumes to the United States of America, but it should be noted that the reported figures are related to direct services only and do not include the United States of America traffic moving via intermediate points in west Asia or west Europe.

^{1/} Passenger traffic flow data used in this chapter are based on statistics of individual airports in the ESCWA region pertaining to the number of passengers handled at these airports by point of embarkation and disembarkation, which may not necessarily reflect the true origin and the final destination of traffic. Nevertheless, this data could be safely used as a good approximation of traffic flows in the absence of true origin-destination statistics which are not made available by any airport in the region.

Figure 5.1. International passenger air traffic of Western Asian countries, 1985

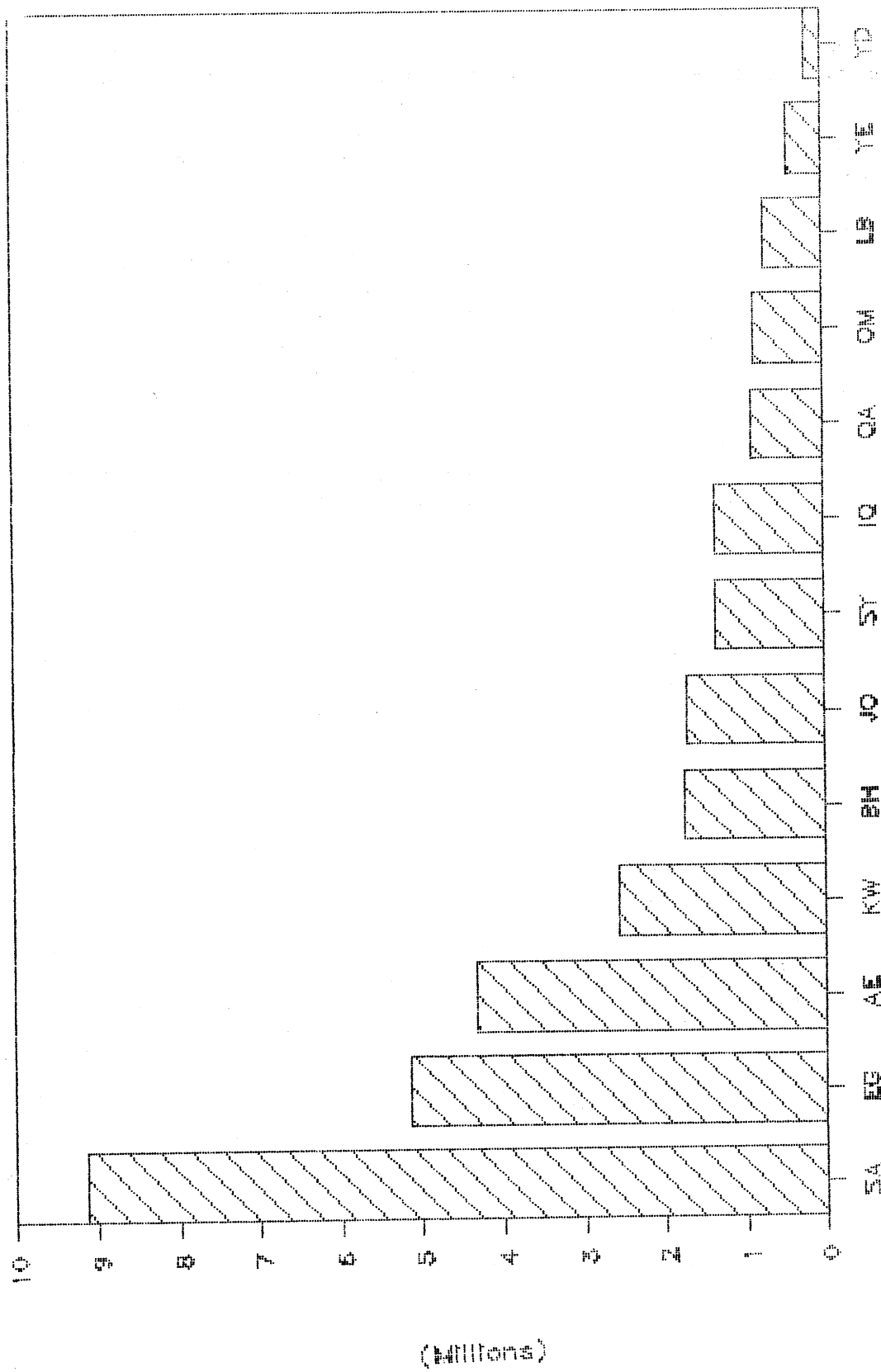
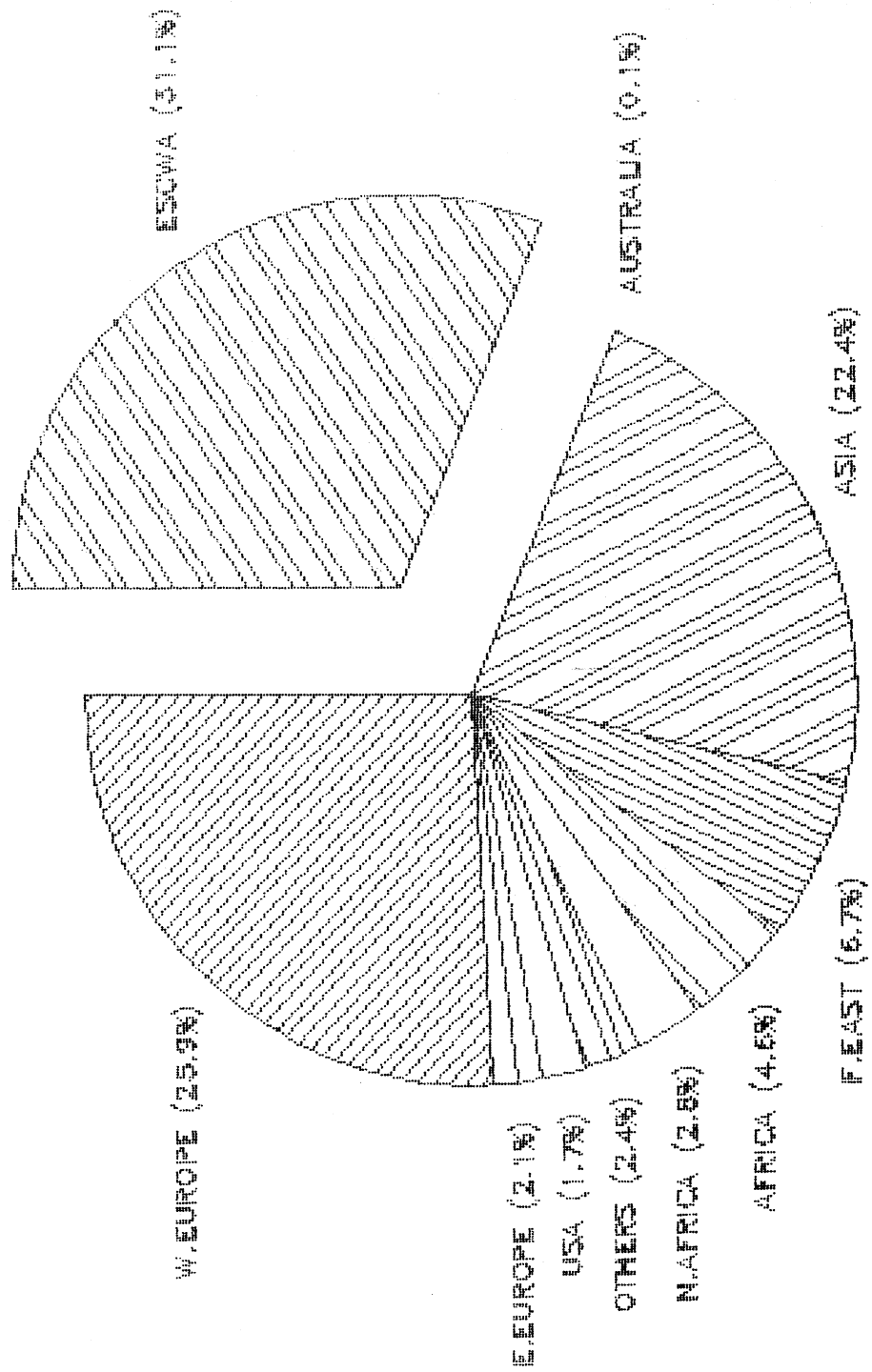


Figure 5.2. Western Asian city-pair passenger traffic by region



5.3 Traffic flow within the ESCWA region

Table 5.3 gives information on the regional distribution of passenger traffic of the eighteen international airports in the ESCWA region. The table indicates that traffic moving within the region forms the most important source of business for all airports with the only exception of Beirut airport. The table also indicates that Cairo Airport has the highest regional traffic volume with almost 2.8 million passengers handled in 1985.

According to annex B, traffic flow between Cairo and various destinations in the region is unevenly distributed. The busiest route in the region is that between Cairo and Jeddah with more than 768,000 passengers, or an average of more than 1,000 passenger per day each way. High traffic density could also be observed on routes between Cairo and Baghdad, Kuwait, Riyadh and Amman. The heavy regional traffic movement at Cairo Airport chiefly comprises of Egyptian expatriates working in various countries of the region, Arab tourists visiting Egypt, Egyptian religious traffic (Haj and Umra) to Saudi Arabia, Arab students studying in Egypt and limited business traffic.

Next in relative importance are the airports of Jeddah and Kuwait with about 1.4 million regional passengers each. The regional traffic of the two airports is largely concentrated on routes connecting them with other GCC States, as well as with labour-exporting countries. It is important to note that labour movement within the ESCWA region is a major contributor to the flow of regional traffic. As noted in chapter 2 (section 2.2), the vast economic and social development programmes of major oil-exporting countries generated a flow of regional traffic mainly from Egypt, Jordan, the Syrian Arab Republic and Lebanon to Saudi Arabia and the Gulf States comprising of a work force of teachers, doctors, technicians, labourers, etc... As shown in annex A, traffic moving between the above mentioned countries forms the backbone of the traffic flow within the ESCWA region.

At the same time, the high standard of living enjoyed by the nationals of oil-exporting countries generated a flow of holiday travellers from those countries escaping the tropical heat of the desert to cooler weather in Egypt, the Syrian Arab Republic, Jordan and, until 1975, Lebanon. Many of those tourists prefer to spend their holidays in the region where they can enjoy better weather conditions and have no problems with food, language or traditions of the host countries.

Traffic also moves in high volumes between GCC member States reflecting long-standing business, social and cultural ties among them. An interesting feature of the air services operated between those States is the generally short-haul nature of operations where most of the operated sectors are less than 500 kilometres long. The development of such high-density flows is due to the unfavourable climatic conditions and, in few cases, to difficult terrain. A good example for the latter case is the extremely short and dense route between the Island of Bahrain and Dhahran which are only 45 kilometres apart. In the absence of other modes of transport, apart from the traditional dhow, almost all traffic between the two cities was by air reaching in 1985 more than 350,000 passengers representing one fifth of Bahrain Airport traffic. However, the opening in November 1986 of the causeway linking

Table 5.3. International passenger traffic flow by region, 1985

BETWEEN I AND I	ABU DHABI	ADEN	AMMAN	BAGHDAD	BAHRIAN	BEIRUT	CAIRO	DAMASCUS	DHAKHAN	DOHA	DUBAI	JEDDAH	KUWAIT	MUSCAT	ALKHATMAH	RIYADH	SANAA	SHARJAH	TOTAL
ESCHA	453883	155322	1003212	690448	1154750	309959	2792631	539884	632659	525968	612833	1422626	1429570	216302	7980	639442	346620	89654	4565351
M. EUROPE	161534	1633	430404	395200	196900	390000	1650830	271997	245732	89358	258821	516583	406839	115442	91	264882	48334	14116	5458676
ASIA	366554	9788	14732	16560	244996	0	46910	262289	435880	247588	1176202	530143	485319	479917	27407	374503	13557	87987	4736629
F. EAST	35093	0	85341	39600	76604	21	68894	0	365785	966	128827	242742	115260	19312	0	239268	0	85	1417798
AFRICA	53251	15952	469	31200	27000	20800	246209	253	19828	16310	35924	415531	14132	10107	0	38425	28486	4582	978439
N. AFRICA	9173	0	48024	19760	1064	5000	83254	171768	0	0	1528	211759	31074	1896	0	16301	0	0	600601
E. EUROPE	12601	18754	31753	140400	0	0	87177	115821	0	0	6734	0	31819	0	0	0	6664	1256	452979
USA	0	0	105135	0	0	0	97419	1267	43231	0	5314	33898	56007	0	11	22104	0	0	366386
AUSTRALIA	6613	0	0	0	4494	0	0	0	0	0	2932	0	0	4592	0	0	0	0	18631
OTHERS	526	0	1614	22486	49248	707	61701	0	54902	260	30	79574	0	2773	119	153952	0	141	511736
G. TOTAL	1099228	201449	1720684	1355854	1755056	726487	5135025	1363279	1798017	880450	2229145	3454856	2570020	850341	35608	1748877	443661	197821	21107266 *

* TOTAL EXCLUDES DOUBLE COUNTING OF TRAFFIC MOVING WITHIN ESCWA REGION.

SOURCE : APPENDIX "B".

Bahrain and Saudi Arabia is likely to adversely influence air traffic on the said route. Statistical information is not yet available on the number of passengers currently using the air services, but it is observed that flight frequencies between the two cities were cut by almost 20 per cent during the past few months.

The importance of regional passenger traffic to, and out of Amman should also be noted as it represents 58 per cent of total airport traffic. Traffic moves in particularly high volumes between Jordan and Egypt, Saudi Arabia, Kuwait and the United Arab Emirates. Traffic between Amman and Cairo is dominated by the movement of Egyptian labourers working in Jordan (estimated at about 120,000 in 1985). At the same time, almost one third of the Jordanian work-force (250,000 persons) are employed outside Jordan primarily in Saudi Arabia and the Gulf States. Many of them are highly skilled and travel almost every year to spend their holidays with their relatives at home.

5.4 Interregional traffic flows

The strategic location of the ESCWA region and its wealth of oil and tourist attractions gave the region a unique position in world air transport. The concentration of interregional traffic among the region's airports is influenced by each country's traffic potentialities as well as the airport's location. Some points on the region's periphery (e.g. Cairo, Jeddah, Dubai, Bahrain) were found by foreign airlines to be convenient intermediate stops for traffic moving between Europe on the one hand and Africa and the Far East on the other which added to the importance of these points.

As shown in figure 5.2 and table 5.3, traffic flows between the ESCWA region and different regions of the world vary considerably. But the most important regions in terms of traffic volumes appear to be west Europe, Asia and the Far East.

5.4.1 West Europe

West European traffic flow is the most important among the interregional traffic flows of the ESCWA region. According to table 5.3 Cairo recorded the highest volume of west European passenger traffic (1.65 million) followed by Jeddah (0.52 million) and Amman (0.43 million). The volume of traffic moving between the ESCWA region and west Europe amounted to about 5.5 million passengers or almost 15,000 passengers per day travelling in both directions. Traffic flow between west Europe and the ESCWA region comprises mainly of Arab tourist spending their holidays or visiting friends and relatives in west Europe, passengers travelling for medical treatment, students, businessmen and European expatriates working in major oil-producing countries. It also includes a substantial European tourist movement to countries rich of touristic attractions such as Egypt, Jordan and the Holy Land, the Syrian Arab Republic and the Yemen Arab Republic. Development of some European tourist traffic to the Gulf States during the winter months was also observed in recent years but remained fairly limited. Traffic flow between the two regions also includes the movement of passengers travelling beyond Europe to points in the United States, Canada, South America and the Caribbean, especially in cases where direct services from the ESCWA region are not available.

Annex B gives information on the flow of traffic between the airports of the ESCWA region and west European cities which are listed in descending order to the volume of traffic. It indicates that London tops the list as the most popular destination in west Europe with more than 1.25 million passengers. Next is Paris with 0.552 million passengers followed by Athens, Frankfurt, Rome and Istanbul. Traffic flow between the region and Spain, Belgium and Scandinavian countries is fairly limited.

5.4.2 Asia

Next in relative importance is the Asian traffic flow which has developed rapidly in recent years due to the large increase in the number of migrant workers from Asia employed in the region (see chapter 2). Traffic moves in particularly high volumes between Asian cities and major oil exporting countries. As shown in table 5.3, Dubai is the main junction for Asian traffic in the region with 1.1 million passengers followed by Jeddah, Kuwait, Muscat and Dhahran with around 500,000 passengers each. Traffic movement between Asia and non oil-producing countries in the region is fairly limited when compared to traffic volumes moving to and from major oil producing countries. As indicated in annex B the most important Asian junctions are Bombay and Karachi, together accounting for two thirds of the traffic flow. Next in relative importance is traffic potentials of Tehran, New Delhi, Colombo and Dacca. It is observed that direct air services with Peking are not developed sufficiently despite the increased activities of Chinese companies in some ESCWA countries. Most of the Chinese expatriates working in the region travel via intermediate points in the Indian sub-continent and South East Asia.

5.4.3 The Far East

The Far East traffic flow comprises of two major types of traffic; labourers and tourists. Labour movement originates from various Far East countries and is destined primarily to major oil-exporting countries. As shown in table 5.3, the busiest flow of Far East traffic is to Saudi Arabia where the three Saudi international airports, included in the table, handled as much as 847,795 passengers travelling to/from the Far East, accounting for almost 60 per cent of total traffic flow. As shown in annex B, Bangkok, is the most important traffic junction in the Far East, followed by Manila, Singapore and Seoul which are all located in major manpower exporting countries. There is also a sizable tourist traffic movement from the ESCWA countries to the Far East while tourist movement from the Far East to the West Asian region is growing rather slowly. The latter movement is currently confined to Japanese tourists travelling to Cairo and to some religious traffic to Saudi Arabia and Jordan.

5.4.4 Africa

African traffic flow is next in relative density with almost one million passengers. As shown in annex B more than half of this traffic is accounted for in the region's connections with Khartoum. It is believed that religious traffic forms a large proportion of the African traffic flow as more than 42 per cent of the total traffic is to/from Jeddah. Next in importance is Cairo, which accounts for 25 per cent of the traffic flow, followed by Abu Dhabi, Baghdad, Riyadh, Dubai and Bahrain. There is also a significant

proportion of worker traffic, especially from Sudan, travelling to various oil-producing countries. the importance of Cairo in the African traffic flow stems from the traditionally strong ties between Egypt and the African States and the position of Cairo as a key service hub in Africa offering air connections to the Middle East as well as to various parts of the world.

5.4.5 North Africa

Traffic flow to North Africa comprises mainly tourist traffic from the ESCWA region to Tunis and Casablanca, diplomatic traffic to the Arab League in Tunis, workers movement to Tripoli and Haj and Umra traffic to Jeddah. It is observed that Jeddah's share of the North African traffic flow amounts to 35 per cent. It is also observed that passenger traffic volumes to North Africa are relatively modest despite language and religious ties with the ESCWA region. This is due to the fact that North African countries had traditionally established closer trade and cultural ties with countries in southern Europe (France, Italy and Spain) while their ties with ESCWA member States were developed to a lesser extent.

5.4.6 East Europe

Traffic flow between the ESCWA region and East Europe is fairly limited and amounts to less than 0.5 million passengers. Traffic moves in relatively high volumes to Baghdad, Damascus and Cairo, and moderately to Kuwait, Amman, Aden and Sana'a, while East European traffic is completely absent from other ESCWA airports. This regional traffic flow is composed mainly of East European technicians, Arab students, tourists and businessmen.

5.4.7 The United States of America

The United States traffic flow, as reported in annex A, is confined to passengers carried on direct services between the ESCWA region and the United States and does not include traffic travelling via European gateways. As indicated in annex B, New York is the main destination in the United States and Amman Airport has the highest passenger count of United States traffic among the region's airports. Amman is also the only airport in the region with direct connections to three United States destinations.

5.4.8 Australia

As there are no direct services to Australia from the ESCWA region, the traffic flow to this continent appears to be very slim. However, it is believed that there is a tangible traffic potential to Australia mainly comprising ethnic traffic of Arabs residing in Australia and their relatives. This traffic is currently using indirect routing via various points in Asia and the Far East.

5.5 Characteristics of passenger air traffic

The foregoing analysis pointed to a number of features that are peculiar to the development of passenger air traffic in the ESCWA region.

(a) The rapid growth in economic activity, the expansion in trade relations, and increase in employment opportunities for expatriate workers, have resulted in the achievement of exceptionally high traffic growth rates and rapid expansion of route networks. As indicated in the preceding analysis of interregional traffic flow, there is a substantial number of direct connections between the airports of the ESCWA region and the major commercial centres of the world.

(b) Interregional traffic flows have a relatively large number of shallow routes, some with exceptionally low density. For example, the analysis of traffic flows between ESCWA region and west Europe (see annex B) indicates that there are about 165 city-pairs of which only 17 have an average of more than 100 passengers per day each way, while 119 city-pairs have an average of less than 50 passengers per day each way. This is primarily due to limited traffic potentialities to some destinations, and the operation of parallel services from adjacent airports especially in the Gulf region.

(c) The rapid expansion of route networks was accompanied by an increase in the average distance flown by passengers. As shown in table 5.4 below, average passenger distance of the ESCWA airlines increased by 62 per cent from 1,518 kilometres in 1970 to 2,463 kilometres in 1985.

Table 5.4. Average passenger distance in kilometres

Year	<u>Average passenger distance (km)</u>	
	ESCWA region	IATA
1970	1,518	2,316
1975	1,670	2,496
1980	2,026	2,981
1985	2,463	3,148

Source: Annex A.

In contrast, the average passenger distance of IATA member airlines increased during the same period by 36 per cent from 2,316 kilometres to 3,148 kilometres.

(d) The traffic density within the ESCWA region is substantially higher than that observed on interregional routes. Almost half of the ESCWA region city-pairs included in annex B have an average of more than 50 passengers per day each way. Intensive operation within the region and the generally low frequency of service on long-haul services is an important reason behind the relatively low average passenger distance of the ESCWA region airlines when compared to IATA members average shown in table 5.4.

(e) Passenger traffic is dominated by two major types; labour and holiday traffic. The nature of these two types create problems of sharp seasonal variations and traffic directionality. The movement of labour traffic is intensified during holiday periods, coinciding with the travel of

holiday-makers. This creates a sharp peak during the holiday periods continuing throughout the summer months. At the same time there are typical cases of heavy traffic movement in one direction at the beginning of the holiday season followed a few weeks later by a similar movement in the opposite direction thus creating operational imbalances.

Information gathered from some airlines indicates the presence of sharp seasonal variations in both regional and interregional traffic flows of the ESCWA region.

Traffic carried during the peak month on some routes may be as much as three times higher than that carried during the trough month. Since airlines usually plan their facilities according to the peak requirement, such sharp variations result in a situation where the airline's staff, equipment and facilities will remain underutilized for a major part of the year. At the same time the presence of traffic directionality creates imbalances in traffic flow and reduces the passenger load factor which may consequently hamper the profitability of operations.

(f) The passenger air traffic of the ESCWA region is by nature sensitive to economic depression, employment policies and political instability. Changes in one or more of these factors would significantly affect the direction as well as the density of traffic flows.

6. CARGO OPERATIONS

6.1 Total cargo traffic

The scheduled international airlines based in the ESCWA region carried on their scheduled services 407,416 tonnes of cargo in 1985. At the same time international airports based in the ESCWA region handled 808,876 tonnes of incoming and outgoing cargo carried by various carriers on their scheduled and unscheduled flights.

The distribution of total cargo traffic by airport is shown in table 6.1 and figure 6.2 which indicate that, as in the case of passenger traffic, Cairo and Jeddah are the largest airports in terms of cargo tonnage, with more than 100,000 tonnes each, accounting together for 30.6 per cent of the total traffic of West Asian airports. Next is Dubai Airport (11.6 per cent) followed by Kuwait (9.2 per cent) and Amman (7.8 per cent). Figure 6.3 gives information on cargo traffic distribution by country and shows that the three main Saudi Arabian airports together handled close to 216,000 tonnes of international cargo, accounting for almost 27 per cent of the region's cargo traffic. The four airports of the United Arab Emirates processed about 135,000 tonnes, and the Gulf States (the United Arab Emirates, Kuwait, Oman, Qatar and Bahrain) handled together 269,456 tonnes. This clearly indicates the predominant position of Saudi Arabia and the Gulf States which together account for 63 per cent of the region's total cargo traffic.

6.2 Flows of cargo traffic

Available information on international cargo traffic flows for various city-pairs are limited to twelve of the region's eighteen international airports. Cargo traffic information of the remaining airports was either not available altogether or reported only by airline and not on city-pair basis. The following analysis of cargo traffic flows will therefore be confined to the airports of Aden, Amman, Damascus, Dhahran, Dubai, Jeddah, Kuwait, Muscat, Ras-Alkhaimah, Riyadh, Sana'a and Sharjah. Cargo traffic handled at those airports accounts for some 60 per cent of total traffic processed through the region's airports. Detailed city-pair traffic flow information for those airports are given in annex C and are summarized by region (see table 6.5).

Figure 6.4 indicates that the region's cargo traffic moves in high volumes within the region and to only two other regions; west Europe and Asia. The combined traffic flows of the three regions form as much as 78 per cent of the total traffic of the twelve airports included in this analysis. Traffic flows of the other five regions are relatively low with a percentage share revolving around 1-7 per cent of total traffic. The most important traffic flow appears to be that of west Europe (35.8 per cent) followed by the ESCWA region (21.2 per cent) and then Asia (21 per cent). Far East and east Europe traffic flows are next in relative importance with shares of 7 per cent and 4.2 per cent respectively.

Table 6.1. Cargo traffic of Western Asian airports, 1985

CITY	TOTAL	%	CITY	TOTAL	%
CAIRO	144001	17.8	ABU DHABI	30199	3.7
JEDDAH	103683	12.8	DOHA	28038	3.5
DUBAI	94006	11.6	MUSCUT	26148	3.2
KUWAIT	74472	9.2	BAGHDAD *	21034	2.6
AMMAN	62738	7.8	SHARJAH	9767	1.2
DHAHRAN	57001	7.0	SANAA	9138	1.1
RIYADH	55216	6.8	ADEN	6576	0.8
BEIRUT *	48000	5.9	DAMASCUS	5033	0.6
BAHRIAN	33000	4.1	RAS ALKHAIMAH	826	0.1
=====			=====		
			T O T A L	808876	100.0
=====			=====		

Figure 6.2. International cargo traffic of Western Asian airports, 1985

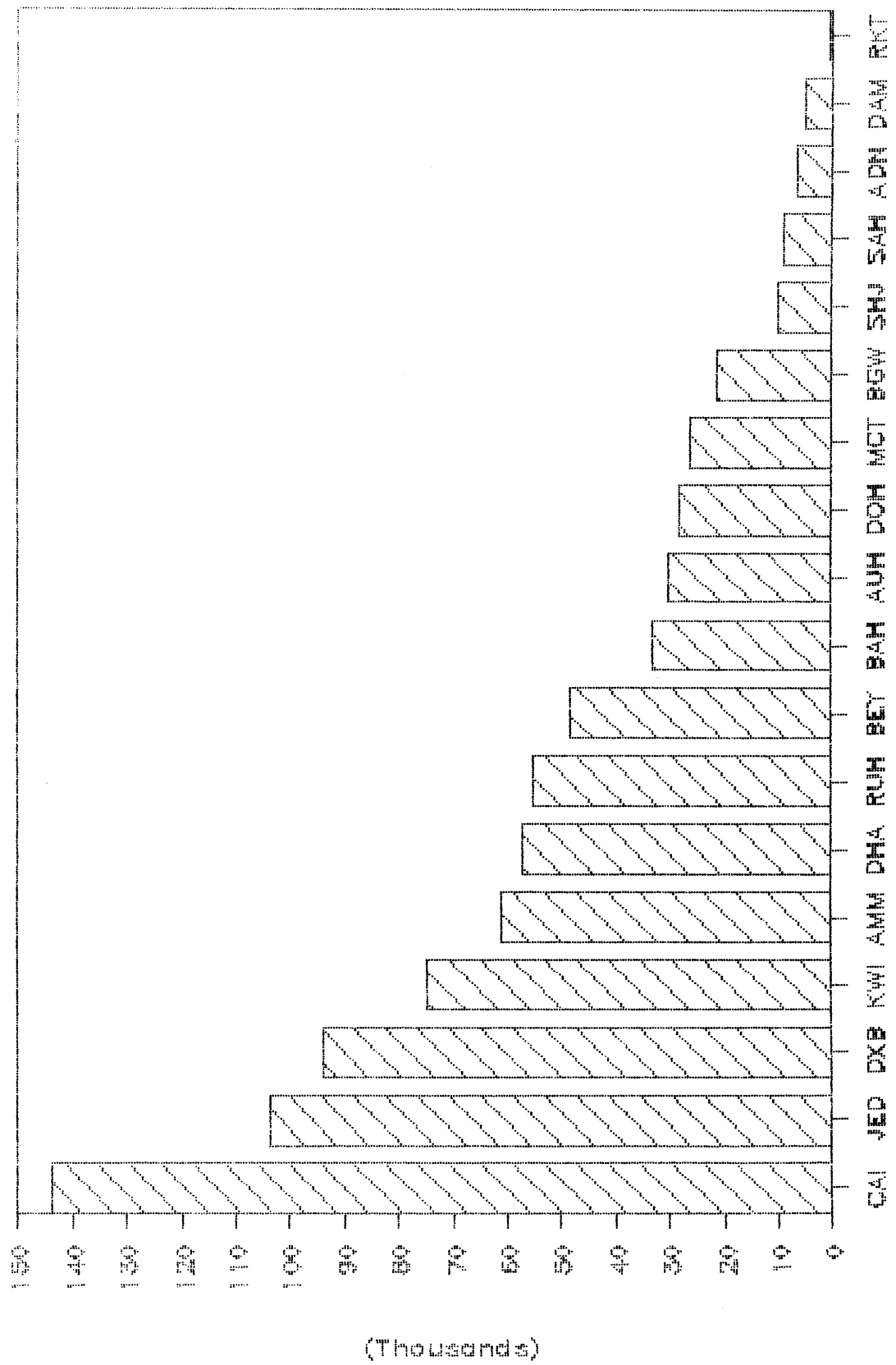


Figure 6.3. International cargo air traffic of Western Asian countries, 1985

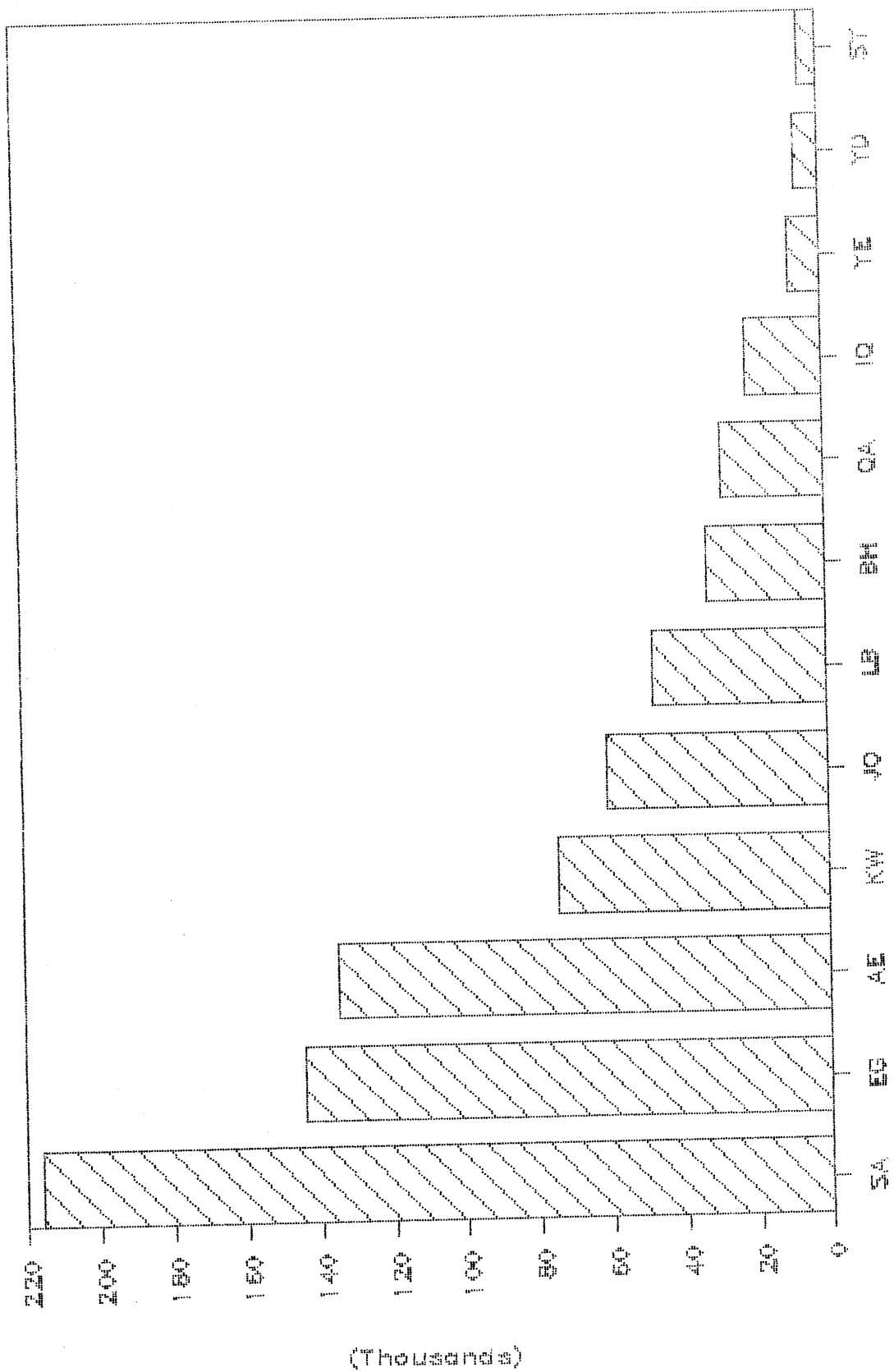
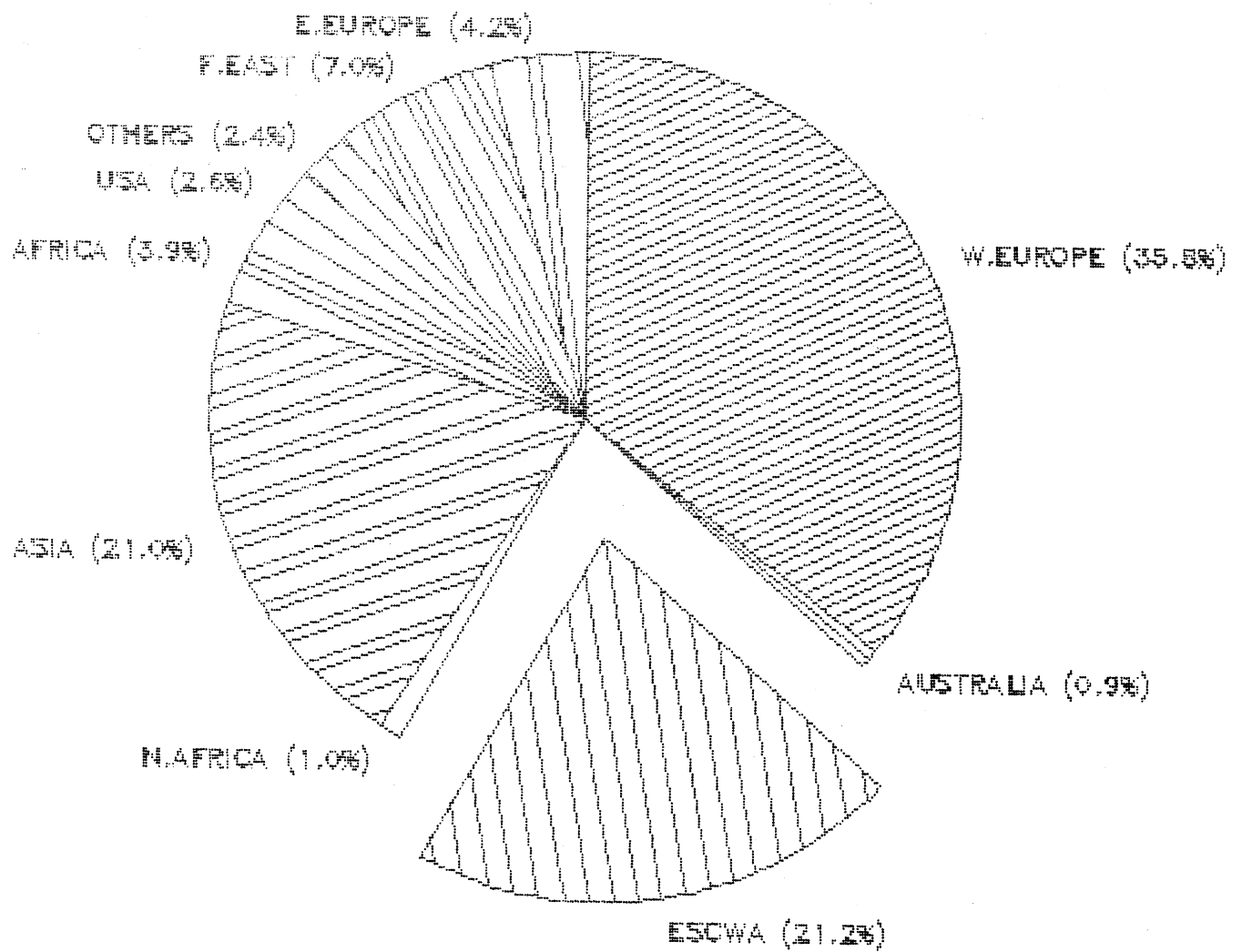


Figure 6.4. International cargo traffic of Western Asian airports, 1985



6.2.1 West Europe

As shown in table 6.5, west European cargo traffic flow passes through all airports included in the analysis with the only exception of Ras-Alkhaimah. The dense traffic flow reflects the region's longstanding trade relations with west Europe which were further strengthened in the wake of the economic boom in the region. The table also indicates that Dubai is the most important junction for west European traffic, followed by Jeddah, Kuwait, Riyadh and Amman. On the other hand, annex C shows that London and Frankfurt top the list as the most important cargo traffic junctions in west Europe followed by Paris and Amsterdam. Cargo loads moving between those four traffic centres and various destinations in the ESCWA region form about 73 per cent of west European traffic flow. The remaining 27 per cent is unevenly distributed among fifteen other west European airports.

6.2.2 ESCWA

Cargo traffic flow within the ESCWA region is fairly limited. Regional traffic handled at the twelve airports included in table 6.5 amounted to 102,391 tonnes or about 280 tonnes per day. Jeddah had the largest cargo movement within the region followed by Kuwait, Amman and Riyadh. However, it is worth noting that cargo traffic appears to be moving in relatively high volumes between the countries of diversified economics (Egypt, Lebanon and Jordan) to the major oil-exporting countries. As shown in annex C more than half of the cargo traffic moving within the ESCWA region is handled at Cairo Airport. Regional traffic processed at Cairo, Beirut and Amman accounted for 73 per cent of total traffic.

6.2.3 Asia and Far East

Cargo traffic of Asia is mostly incoming comprising mostly of textiles, clothing, foodstuffs and some consumer goods. As in the case of west Europe traffic flow, Dubai Airport accounts for some 36 per cent of the Asian traffic emphasizing the importance of Dubai as a major transit junction. As shown in table 6.5, the three Saudi airports account for 38 per cent of the traffic and Kuwait for about 15 per cent which indicates that almost 90 per cent of the Asian traffic is handled at the airports of Saudi Arabia, Dubai and Kuwait. On the other hand, about 88 per cent of the traffic is handled at the airports of India, Pakistan and Iran (annex C).

Cargo traffic moves in relatively smaller volumes between various Far East commercial centres on the one hand and some countries in the ESCWA region on the other. As in the case of other interregional traffic flows, this is mostly incoming traffic originating mainly from Bangkok, Singapore, Manila, Seoul and Hong Kong. As much as 87 per cent of the ESCWA-Far East traffic flow is handled at those airports.

6.2.4 Other regions

Other cargo traffic flows to/from the ESCWA region include those of eastern Europe, Africa, the United States of America, North Africa and Australia. Eastern European traffic flow is generally shallow with the exception of traffic moving to Amman from Bucharest, Belgrade and Varna. This traffic accounts for some 85 per cent of east European traffic flow and consists of fresh meat transported daily to Jordan.

Table 6.5. International cargo traffic flow by region

BETWEEN	ADEN	AMMAN DAMASCUS	DHAKHAN	DUBAI	JEDDAH	KUWAIT	MUSCAT	ALKHAIMA	RIYADH	SANAA	SHARJAH	RAS	TOTAL
AND													
W. EUROPE	123	21551	2191	16602	33932	28514	28212	11420	0	26819	1378	2093	172835
ESOWA	3869	15429	1581	8476	10892	32024	23044	7508	96	12939	6347	2289	102391 *
ASIA	269	356	388	16197	36562	15154	15294	5718	705	7320	130	3343	101437
F. EAST	0	3495	0	11030	6963	5266	3207	510	0	3211	0	180	33863
E. EUROPE	184	17267	499	0	394	0	265	5	0	0	58	1580	20252
AFRICA	2131	0	0	35	1700	12849	135	109	0	409	1225	241	18834
USA	0	4018	3	1314	180	1921	3110	0	0	1941	0	0	12487
N. AFRICA	0	621	271	0	60	2296	1134	37	0	215	0	37	4671
AUTRALIA	0	0	0	0	3332	0	0	840	0	0	0	0	4172
OTHERS	0	0	0	3347	0	5659	71	1	25	2362	0	4	11469
G. TOTAL	6576	62738	5033	57001	94006	103683	74472	26148	826	55216	9138	9767	482411 *
* TOTAL EXCLUDES DOUBLE COUNTING OF TRAFFIC MOVING WITHIN ESCWA REGION.													

* TOTAL EXCLUDES DOUBLE COUNTING OF TRAFFIC MOVING WITHIN ESCWA REGION.

6.3 Types of commodities

Commodities carried by air on various regional and interregional routes could be divided into five major categories:

(a) Perishable goods such as fruits, vegetables, plants, flowers, meat, seafood and dairy products. Demand for such commodities increased substantially in the region following the vast improvement in per capita incomes and consequent changes in shopping habits. The growing needs of hotels and the expatriate population also added to the demand for such products. Fruits and vegetables are chiefly imported by the Gulf States and Saudi Arabia from other ESCWA countries, especially Egypt, Jordan, the Syrian Arab Republic and Lebanon and to a lesser extent from Asia and the Far East. Fruits and vegetables are also exported to western Europe especially from Egypt.

(b) Goods needed for expediting the completion of development projects such as machinery, construction materials, chemical products, spare parts, etc. The flow of these commodities to the region is primarily from Europe and the United States.

(c) Consumer goods including a wide range of items such as textiles, clothes, leather goods, shoes, knitwear, handicrafts and perfumes. They also include electrical and electronic appliances, musical instruments, plastic products, pharmaceuticals, glass products, etc. These goods and many other items are imported from west and east Europe, Asia, the Far East and the United States of America.

(d) Small parcels and high value goods including medical instruments, precision instruments, etc.

(e) Commodities requiring speedy transportation such as printed matter (periodicals), ship spare-parts and personal effects of expatriates employed in the region.

It is very difficult to accurately identify the relative importance of each of the above categories due to lack of information on air cargo loads by type of commodity. But it is believed that perishable and consumer goods form the largest part of incoming cargo while the outbound traffic comprises mainly of handicrafts, fruits and vegetables and personal effects.

6.4 Characteristics of cargo operations

The main characteristics of air cargo traffic of the ESCWA region could be summarized as follows:

(a) The most important feature of cargo traffic flow in the region is the directional imbalance of demand. The movement of freight is mainly one way, unlike the passenger who in most cases ultimately returns home. The ESCWA region relies heavily on imported goods and has a very limited cargo generating ability. Therefore, cargo traffic flow is mostly inbound, and it is estimated that outbound cargo hardly represents 25 to 30 per cent of total traffic. This imbalance has adverse effects on the economics of freight operations especially in cases of all cargo services. Directional imbalances

also have serious implications for scheduling of freighter services especially from Europe where such flights have to continue through to points beyond in the Indian sub-continent to pick up backloads to Europe.

(b) Seasonal variations in cargo traffic are generally mild and not as sharp as those of the passenger traffic. There are some fluctuations in demand during the year, especially for particular perishable products such as fruits and vegetables, which may slightly disturb the consistency of cargo traffic of the region.

(c) As in the case of passenger traffic, the strategic location of the ESCWA region enabled some airports on the region's periphery to perform the role of a transit traffic terminal. As indicated by the foregoing traffic flow analysis, Dubai has become one of the most important cargo traffic junctions in the region. With the rapid and important development of the concept of sea/air combined transportation, Dubai introduced itself as a major sea/air trans-shipment port. It was recently reported that the container terminal at Port Rashid, Dubai, is currently handling in excess of 1,000 tonnes per month of this traffic. This is likely to increase the total air cargo potential, especially on the outbound routes and thus helping to reduce directional imbalances.

(d) The major part of the region's air traffic cargo is carried in the holds of passenger aircraft. All cargo services, including those of TMA, account for 38 per cent of total cargo traffic indicating the limited role of freighters. The development of freighter services is discouraged by three major factors:

- (i) Competition from passenger aircraft. Airlines often consider freight as a by-product and therefore require the revenue to cover only the incremental costs of freight carriage such as handling and marketing costs, while the aircraft direct operating cost is chiefly covered from passenger revenue. This philosophy enabled the airlines to introduce very low cargo rates which are not feasible for all-cargo services.
- (ii) Sharp directional imbalances which result in the achievement of fairly low load factors that could hamper the profitability of operations.
- (iii) Low traffic density on many routes confines the operation of freighters to a small number of routes which may result in fairly low aircraft utilization rates. Airlines are also sometimes forced to operate multi-sector routes, which are more expensive to operate, in order to improve the load factor performance and maximize the total revenue.

(e) The demand for air cargo services is a derived one, and is generally dependant on the demand for imported goods and the exporting abilities of the region's States. Changes in those two factors are likely to leave a tangible effect on the future development of air cargo traffic of the ESCWA region.

7. ECONOMICS OF OPERATIONS

7.1 Recent traffic performance

The foregoing analysis indicated that airlines based in the ESCWA region operated for many years in a favourable economic environment. The rapid economic and social development in the region resulted in generating a remarkable movement of persons and goods to/from and within the region. As shown in annex A, traffic carried and capacity offered by most airlines grew at an annual average rate of more than 25 per cent per annum during the period 1970-1975. Fairly high growth rates were also maintained during the period 1975-1980 despite a slowdown in traffic growth between 1978 and 1980.

The rapid growth brought about drastic changes in airline's equipment, staff and route network which seem to have been taking place almost every year. While such changes meant an increase in the cost of operation, rapid traffic growth rates also generated additional revenues to cover the cost. Governments' unstinting support to the airlines also helped them in their endeavour to increase the scale of their operation in order to meet the rapidly growing demand.

The effect of the exceptionally favourable environmental conditions started to wane during the past few years and traffic growth rates showed a declining trend following a series of economic and political shocks noted in chapter 2. As a result, the airlines found themselves at the beginning of a new era where part of their capacity is underutilized because of negative shifts in traffic demand. They also found that growth rates achieved are now fairly modest and fall below the industry average. In fact, the results available so far for 1986 indicate that the traffic and capacity of some airlines has dropped for the first time in many years.

The decline in the average seat factor of the region's airlines during the period 1980-1985 is another clear sign of recession. This drop has widened the gap between the airlines of the ESCWA region average seat factor and the world (IATA members) average which now shows that the former is more than eight points lower than the latter (table 3.8). But despite this gap and even a larger gap in load factor, profitability of operation was maintained on many routes due, inter Alia, to the relatively high level of fares and rates.

7.2 Level of fares and rates

A comprehensive survey undertaken by the International Civil Aviation Organization (ICAO)^{1/} studied the level of passenger air fares and cargo rates on international city-pairs with direct through-plane service. It analysed the level of normal economy fares for a total of 8,449 international city-pairs and the level of general cargo rates for 6091 city-pairs. The survey reveals that fares and rates may differ merely because of the geographical area to which they are applied. By relating the normal economy fare and general cargo rates to route distances, the survey estimated the average economy fare per passenger/kilometre and the average cargo rates per tonne/kilometre at various route distances.

^{1/} International Civil Aviation Organization, Survey of International Air Transport Fares and Rates, September 1985, Circular 198-AT/76, Montreal, 1986.

Table 7.1. Comparison of average economy fares per passenger/kilometre by route group and by distance, 1985

ROUTE GROUP	Cents per Passenger-Kilometre By Distance (km)									
	250	500	1000	2000	4000	8000	12000	16000		
International Total - WORLD	28.7	23.6	19.4	16.0	13.2	10.8	9.7	8.9		
North-Central America	32.2	23.8	17.6	13.0	9.6	-	-	-		
Central America	32.0	24.4	18.7	14.3	-	-	-	-		
North America	25.3	19.1	14.4	10.9	8.2	-	-	-		
North-South America	-	21.6	18.2	15.3	12.9	10.9	9.9	-		
South America	20.4	17.8	15.5	13.5	11.8	-	-	-		
Europe	36.3	27.9	21.5	16.6	12.8	-	-	-		
Middle East	31.8	25.5	20.4	16.3	-	-	-	-		
Africa	20.7	17.8	15.4	13.3	11.4	-	-	-		
Europe-Middle East	-	-	23.0	19.3	16.2	-	-	-		
Europe-Africa	-	27.3	22.1	17.9	14.5	11.8	10.4	-		
North Atlantic	-	-	-	-	12.0	11.1	10.6	-		
Mid Atlantic	-	-	-	-	15.0	11.6	10.0	-		
South Atlantic	-	-	-	-	11.5	11.2	11.1	-		
Asia/Pacific	18.2	16.3	14.6	13.0	11.7	10.4	9.8	-		
Europe-Asia/Pacific	-	-	18.3	15.6	13.2	11.2	10.2	9.5		
North-Mid Pacific	-	-	-	-	12.1	9.8	8.6	7.9		
South Pacific	-	-	-	-	14.8	12.2	11.0	10.1		

Source: ICAO, Survey of International Air Transport Fares and Rates, September 1985, Circular 198-AT/76, Table II.3

The main findings of the survey concerning the level of passenger normal economy fares on the world route groups are reproduced in table 7.1. The table shows that at various route distances, the level of average normal economy fare charged on local Middle East routes is one of the highest in the world. Among the local routes, the estimated unit fare on Middle East routes is surpassed only by that estimated for European routes. At the same time, it is observed that the unit fares charged on Europe-Middle East route areas are higher on average than those charged on local Middle East routes which may indicate the presence of a cross-subsidization element in Middle East fare structure.

According to the table, a comparison between the average unit fares on local Middle East routes and the estimated world average indicates that the local fare is higher than the world average by 10.8 per cent at 250 kilometres. This difference declines gradually at the longer route distances to reach only 2 per cent at 2000 kilometres. Meanwhile, the estimated average fare on routes between Europe and the Middle East is higher than the world's average by 19 to 23 per cent at various route distances.

The survey's findings on cargo rates are produced in table 7.2. The table includes a comparison of average general cargo rates per tonne/kilometre for shipments of less than 45 kilometres by route group and by distance. It indicates that average unit rates estimated for local Middle East routes are significantly higher than the world's average rate at 250 and 500 kilometres. It is 3 per cent higher and 6 per cent lower than the world average at 1000 kilometres and 2000 kilometres respectively. In contrast, unit rates estimated for Europe-Middle East route areas are higher than the world average rate at distances of 2000 kilometres or more.

7.3 Average yield

The average yield per unit of traffic is a more accurate measure of the actual revenue performance of various route areas. It is obtained for all services by dividing the total operating revenues^{1/} by the tonne-kilometres performed and for passenger services by dividing their revenue by the passenger-kilometres performed.

Table 7.3 lists the average yields per revenue tonne-kilometre (RTK) and per revenue passenger-kilometres (RPK) for thirteen major route areas. The table indicates that the yield per RTK achieved on local European routes is the highest among the listed route areas followed by that of the local Middle East. Next are the average yields of Africa-Middle East and Europe-Middle East route areas, indicating the generally high level of average revenue yields achieved on the regional and interregional routes of the Middle East which are far above the world's average. The same applies to the yield per RPK achieved on passenger operations. This time however, local Middle East route areas top the list with the highest average yield followed by local Europe, Europe-Middle East and Africa-Middle East route areas respectively.

^{1/} Total operating revenues include the airline's earnings from the transportation of passengers, excess baggage, mail and cargo. They also include revenue earned from passengers paying less than 25 per cent of the normal fare, surface transportation, no-show and cancellation fees, capacity equalization payments arising from pooling services, etc.

Table 7.2. Comparison of average general cargo rates per tonne/kilometre for shipments of less than 45 kilograms by route group and by distance, 1985

ROUTE GROUP	Cents per Tonne-Kilometre by Distance (km)									
	250	500	1000	2000	4000	8000	12000	16000		
International Total - WORLD	215.0	180.0	150.0	125.0	105.0	87.0	78.0	73.0		
North-Central America	254.0	191.0	144.0	109.0	82.0	-	-	-		
Central America	260.0	203.0	159.0	124.0	-	-	-	-		
North America	230.0	154.0	103.0	69.0	46.0	-	-	-		
North-South America	-	214.0	168.0	131.0	103.0	81.0	70.0	-		
South America	306.0	239.0	187.0	146.0	114.0	-	-	-		
Europe	253.0	203.0	163.0	131.0	105.0	-	-	-		
Middle East	268.0	203.0	154.0	117.0	-	-	-	-		
Africa	132.0	122.0	113.0	104.0	96.0	-	-	-		
Europe-Middle East	-	-	142.0	131.0	121.0	-	-	-		
Europe-Africa	-	211.0	167.0	132.0	105.0	83.0	72.0	-		
North Atlantic	-	-	-	-	103.0	87.0	79.0	-		
Mid Atlantic	-	-	-	-	102.0	113.0	109.0	-		
South Atlantic	-	-	-	-	147.0	114.0	99.0	-		
Asia/Pacific	142.0	124.0	109.0	96.0	84.0	73.0	78.0	-		
Europe-Asia/Pacific	-	-	171.0	140.0	114.0	93.0	83.0	76.0		
North-Mid Pacific	-	-	-	-	130.0	91.0	74.0	64.0		
South Pacific	-	-	-	-	87.0	81.0	78.0	75.0		

Source: ICAO, Survey of International Air Transport Fares and Rates, September 1985, Circular 198-AT/76, Table II.5

Table 7.3. Average yield achieved on IATA scheduled services, 1985

(In US cents)

ROUTE AREA	YIELD/RTK	YIELD/RPK
WITHIN EUROPE	133.1	12.90
WITHIN MIDDLE EAST	124.2	13.52
AFRICA-MIDDLE EAST	83.1	9.12
EUROPE-MIDDLE EAST	78.7	9.18
EUROPE-WEST AFRICA	65.8	8.40
WITHIN FAR EAST	59.1	6.00
WORLD TOTAL	59.1	7.34
SOUTH ATLANTIC	53.3	6.89
EUROPE-EAST AFRICA	50.4	7.01
EUROPE/AFRICA/ MIDDLE EAST-FAR EAST	49.6	6.35
FAR EAST-SOUTHWEST PACIFIC	48.4	5.51
MID ATLANTIC	46.3	5.47
NORTH ATLANTIC	42.3	5.48
EUROPE-SOUTH AFRICA	41.2	5.27

Table 7.4. Unit operating cost* incurred on IATA scheduled services, 1985

(In US cents)

ROUTE AREA	COST/ATK	COST/ASK
WITHIN EUROPE	70.8	7.46
WITHIN MIDDLE EAST	56.3	6.78
AFRICA-MIDDLE EAST	42.5	5.61
EUROPE-MIDDLE EAST	42.0	5.24
WITHIN FAR EAST	36.4	4.18
WORLD TOTAL	35.7	4.61
EUROPE-WEST AFRICA	35.6	4.71
SOUTH ATLANTIC	33.8	4.58
EUROPE-EAST AFRICA	33.4	4.40
EUROPE/AFRICA/ MIDDLE EAST-FAR EAST	31.3	4.30
MID ATLANTIC	30.9	3.75
EUROPE-SOUTH AFRICA	27.9	3.72
FAR EAST-SOUTHWEST PACIFIC	27.4	3.16
NORTH ATLANTIC	27.0	3.69

* INCLUDING INTEREST

SOURCE : IATA , AIRLINE ECONOMIC RESULTES AND PROSPECTS
1984 - 1988 , ROUTE ANALYSES AND TOTALS

The high level of average yield achieved on the Middle East route areas is due to several reasons which include, inter Alia, the high proportion of high-yield traffic such as business and labour traffic, the relatively modest tourist traffic and limited competition.

7.4 The cost of operations

Table 7.4 includes information on the unit operating costs incurred on various route areas.^{1/} The table indicates that the cost per available tonne-kilometre, which is a measure of the cost on all services, vary significantly among the route areas. One can immediately observe that The Middle East regional and interregional routes have a fairly high unit operating cost which is only surpassed by that incurred on local European routes. The same applies to the unit cost of passenger services per seat-kilometre.

The unit cost performance of the three Middle East route areas included in table 7.4, (within Middle East, Europe-Middle East and Africa-Middle East) gives a good indication of unit costs incurred by airlines serving the ESCWA region, as traffic moving on these route areas represents more than 60 per cent of the total ESCWA region traffic flows.

Information on the unit cost performance of the airlines based in the ESCWA region is available for only six carriers. As shown in table 7.5 below, the unit cost of operation of different airlines varies significantly ranging from 32.9 cents for Royal Jordanian to 56.6 cents for Alyemda.

Table 7.5. Unit cost of operations of selected Western Asian airlines, 1985

Airline	Unit cost US cents/ATK
Royal Jordanian	32.7
MEA	32.9
Kuwait Airways	40.1
Saudia	48.6
Yemen Airways	53.8
Alyemda	56.6

As discussed below, the level of unit operating cost is largely determined by the operational and environmental conditions of various airlines and route areas.

^{1/} Operating costs include the direct costs incurred in relation to flying the aircraft (flight operations, maintenance and overhaul, depreciation and amortization of flight and ground equipment) and indirect operating costs incurred in relation to the airline's support and administrative operations (ground and station, passenger services, ticketing, sales and promotion, general and administrative and other operating expenses).

7.5 Factors influencing the cost of operation

The unit cost of operation in the airline industry is influenced by a large number of operational and external factors. Several studies were conducted in order to explain the observed variation in unit cost including a comprehensive study on the development of Middle East airlines.^{1/} With the help of multiple regression analysis, the study identified a number of operating variables that were found to be conducive to low cost attainment in exploring possible ways of influencing these variables.

It was noted that Middle East airlines, in comparison with other small international airlines of developing countries, were producing their services at significant cost disadvantages. The high cost of operation was found to be primarily due to sharp seasonal variations in capacity offered throughout the year, sub-optimal utilization of one fleet, medium and short-haul operation and relatively high cost of labour input of the airlines of oil exporting countries.^{2/} other significant factors included small fleet size per type, which deprives the airlines from the economics of fleet standardization, and labour productivity. The generally small size of output also puts the airlines at a comparative disadvantage to large carriers which are able to achieve economies of scale in certain areas of operations.

7.6 Economic viability

The relatively high unit cost of operation and the low seat load factors achieved negate the favourable effects of high revenue yield and may eventually jeopardize the economic viability of operations. According to a recent report published by the IATA Cost Committee,^{3/} only one of the three Middle East route areas examined reported profits after interest.

The report noted that profits have been achieved in both 1984 and 1985 on local Middle East route areas but traffic growth was reported almost stagnant. Weight load factor declined from 56.4 per cent in 1984 to 53.9 per cent in 1985, but remained well above the break-even load factor^{4/} which was estimated at 45.3 per cent in 1985.

^{1/} Sabri M.A., An Alternative Development Strategy for Small International Airlines (with particular reference to Middle East airlines). Ph.D. Thesis, Polytechnic of Central London, London, March 1980.

^{2/} Ibid, p. 170.

^{3/} International Air Transport Association, Airline Economic Results and Prospects, 1984-1988, July 1986.

^{4/} The break even load factor represents the percentage of available capacity which must be sold so that the operating revenue just equals the operating cost. Thus, the airline would be realizing a zero profit level.

On the Europe-Middle East route area, a small profit after interest was achieved in 1984 (about 1 per cent of total revenue), but the situation deteriorated afterwards and turned into a negative result. As shown in table 7.6 below the weight load factor achieved in 1985 was 1.4 points below the break-even load factor which indicates incurring a loss.

Table 7.6. Financial performance of selected route areas, 1985

Route area	US cents		Weight load factor	Break-even load factor
	Yield/RTK	Cost/ATK		
Within Middle East	124.2	56.3	53.9	45.3
Europe-Middle East	78.1	42.0	51.9	53.3
Africa-Middle East	83.1	42.5	44.4	51.2
Total (World) Route Areas	59.1	35.7	62.1	60.4

Source: International Air Transport Association, Airline Economic Results and Prospects, 1984-1988, Route Analyses and Total, pp. 51, 57, 87.

The report also noted that only seven out of the nineteen reporting airlines achieved profits after interest on Europe-Middle East route area in 1985 and only two of them were able to surpass their profit target. On Africa-Middle East route area significant losses were reported amounting to more than 15 per cent of the total revenue earned. The loss is clearly indicated in table 7.6 by the substantial difference between the weight load factor and the break-even point.

The table also shows that the achievement of a relatively low break-even load factor on the Middle East route areas, despite the high unit operating cost, is due to a fairly high average revenue yield. At the same time, the load factor achieved on routes within the Middle East is the highest among the three route areas but more than eight points lower than the world average.

Restoring profitability and maintaining it across the route areas operated by the airlines based in the ESCWA region is not an easy task to achieve. It would involve increasing the total revenue without adversely affecting the total cost which could be achieved by improving seat and load factors or improving average yield or by a combination of the two measures. The profitability situation could also be improved by influencing the operational conditions of the region's airlines in such a way that is conducive to low cost attainment.

8. AIR TRANSPORT REGIONAL CO-OPERATION

The air transport co-operation in the ESCWA region takes many forms ranging from the exchange of information and co-ordination of policies to the establishment of joint projects. Co-operative arrangements, in their various forms, aim in general at maximizing the utilization of available resources, co-ordinating administrative, financial and technical matters within a regional or a multilateral context, alleviating the problems of small size of operation and reducing the level of unit operating cost.

Some co-operative arrangements in West Asia are set up under the auspices of regional organizations, while others are established by a number of airlines or civil aviation administrations. The following analysis will discuss the two types of arrangements and will describe existing co-operation within the ESCWA region in various fields of air transport industry.

8.1 Co-operation through regional organizations

There are two air transport regional organizations based in the ESCWA region; Arab Civil Aviation Council (ACAC) and Arab Air Carriers Organization (AACO). The two organizations have been particularly active in promoting the regional co-operation in the air transport field.

8.1.1. Arab Civil Aviation Council (ACAC)

The Arab Civil Aviation Council (ACAC), formally known as the Civil Aviation Council for Arab States (CACAS), is a specialized organization of the Arab League with a membership comprising of all Arab Civil Aviation Administrations. The agreement which provided for the establishment of the regional body was signed in 1961 but the Council began operation in 1967. The objectives of ACAC include the following:

(a) To co-operate with the Arab League, international organizations and particularly with International Civil Aviation Organization (ICAO) for the achievement of the common objectives of progress and welfare of civil aviation.

(b) To examine international civil aviation agreements and recommend to member States the adherence to those which are considered to be of benefit to them.

(c) To aim at the unification of civil aviation procedures, legislation and terminology in the Arab countries.

(d) To settle the differences and disputes that may arise among member States in the field of civil aviation.

(e) To conduct research on the various aspects of civil aviation and air navigation and facilitate the exchange of information among various countries.

(f) To consider situations that impede the progress of air navigation in the Arab countries.

The activities of ACAC so far has covered a wide range of areas of which regional co-operation is the prominent theme. In 1972, ACAC issued a model Arab Civil Aviation Law which was circulated among Arab States in an endeavour to unify aviation laws in the region within the framework of ICAO regulations. Many Arab countries benefited from the draft law when they amended their old legislation. Shortly afterwards, ACAC issued the civil aviation lexicon, which contained civil aviation terms translated into Arabic, and the navigation maps of Arab countries showing airports and navigational aids.

In its twelfth session in Marrakech in 1974, ACAC unanimously adopted the "Marrakech Declaration" which emphasized the need for the liberalization of traffic rights between the Arab countries. The Declaration called for "liberalization" of the Five Freedoms of the Air^{1/} within the Arab countries for the international scheduled Arab airlines on a reciprocal basis as follows:

(a) Exercising First and Second Freedom.

(b) Exercising Third and Fourth Freedom in accordance with the air transport requirements between the contracting States.

(c) Exercising the Fifth Freedom to facilitate connections within the Arab world in order to attain the main objectives of the declaration.

Subsequent sessions of the Council reaffirmed this declaration and called on Arab States to amend their existing bilateral air services agreements and to conclude agreements with those Arab countries with which agreements are not yet concluded, in order to ensure the implementation of the principles laid down in the declaration.

^{1/} The Five Freedoms of the Air are negotiated in bilateral air services agreements:

First Freedom: The right to fly over another country without landing.

Second Freedom: The right to make a landing for technical reasons (eg. for refuelling in another country without picking up/setting down revenue traffic.

Third Freedom: The right of an airline from country (A) to carry revenue traffic from his own country (A) to country (B).

Fourth Freedom: The right of an airline from country (A) to carry revenue traffic from country (B) to his own country (A).

Fifth Freedom: The right of an airline from country (A) to carry revenue traffic between country (B) and other countries such as (C) or (D). This freedom can only be exercised if countries (C) and (D) also agree.

ACAC also issued general statements of policy regarding the regulation of capacity, scheduled and non-scheduled international services, and concluded an agreement on non-scheduled services.

The Council was also active in many areas of regional co-operation including co-ordinating the calibration of navigational aids in Arab States, manpower training including the allocation of technical training assistance budget, search and rescue, agricultural aviation, translation, etc. It also performs a major role in co-ordinating and unifying the stand of Arab civil aviation authorities in ICAO meetings.

In its twenty-ninth session which was held in Casablanca in January 1987, the Council approved its 1987 programme which included; the formation of a strategy for the Arab civil aviation industry, the issuance of a model guide for air traffic control services in the Arab world, conducting a seminar on flight safety and updating the Arab translation of ICAO Annexes. The Council also agreed to conduct a study on the state of civil aviation industry in the Arab world and its role in fulfilling the development needs.

8.1.2 Arab Air Carriers Organization (AACO)

As mentioned in chapter 3, AACO was established by the Arab League in 1964 primarily to promote commercial, technical and economic co-operation among Arab Carriers. Various activities of the organization are co-ordinated by a secretariat and performed by a number of committees covering various aspects of airline activity such as commercial, flight operations, catering, air cargo, air mail, airport services, engineering, public relations, planning finance and training. Most of these committees are fairly active and meet at least once a year.

Co-operation within the AACO framework includes several activities pertaining to the exchange of information, co-ordination of policies, establishment of common stands among its members in IATA meetings, agreements on fares and rates, co-operation in training and other related activities. A number of joint projects have also been proposed to member airlines with the aim of improving the efficiency of operation and reducing the operating costs. Most of them however did not materialise despite their obvious cost-saving advantages. For example, a joint computer reservation system was proposed by AACO and a feasibility study was completed in 1978 including preliminary design and functional specifications. Ten Arab carriers expressed their interest in the \$30 million project which was scheduled for completion by the end of 1981. The project was later cancelled and individual airlines concluded bilateral agreements to subscribe to international reservation systems.

The AACO also sponsored several projects for the establishment of joint maintenance facilities to offset the cost disadvantage of small fleet size. One of those projects, which included airframe overhaul facilities and engine overhaul workshops, was agreed upon initially by five airlines (Royal Jordanian, MEA, Kuwait Airways, Syrian Air and Gulf Air) but did not materialize.

A few years ago, four AACO member airlines negotiated collectively a joint insurance policy through one broker. Although each of them pay a different fee according to its standing, they have all reduced their premiums by as much as 50 per cent.

The preparation of a commercial strategy for Arab carriers for the period 1987-1991 was one of the most important tasks completed by AACO in recent years.

The strategy document introduced, for the first time, collective traffic and fleet forecasts for the airlines of the Arab world and proposed marketing and pricing strategies to be implemented during the next five years.

AACO maintains strong relations with international and regional organizations particularly IATA and ACAC. Co-operation between AACO and ACAC was enhanced in recent years with the formation of an air transport joint committee with the objective of "improving the co-ordination between the two organizations to fulfill the common objective of developing air transport sectors in the Arab world". The Committee meets at least once a year and whenever the need arises, to discuss subjects of mutual interest pertaining to pricing, traffic rights and airport navigational facilities. The Committee also deals with air transport strategic issues which aim at safeguarding the interest of passengers as well as that of Arab air carriers.

8.2 Co-operation among airlines

Co-operative arrangements among the ESCWA airlines included the operation of joint services, which has so far met with very limited success, and the establishment, or the use, of joint facilities. The operation of joint services include cost/revenue pooling agreements which are concluded on bilateral basis. One interesting example to such agreements is when the service is operated by one airline on behalf of the pool partners with the aim of consolidating traffic on the pooled route to minimize the cost of operation. In 1978, Gulf Air concluded three separate agreements of this kind with MEA, Royal Jordanian and Cyprus Airways. Each of the three airlines operated air services between its home country and points in the Gulf Air territories, the cost incurred and the revenue earned on these services were shared between each operating airline and Gulf Air on a previously agreed basis. These agreements were concluded because of Gulf Air's shortage of equipment and were later terminated when the airline received more aircraft.

A unique arrangement was concluded in 1977 between Alia (Royal Jordanian) and Syrian Air concerning the operation of North American routes. The Governments of Jordan and the Syrian Arab Republic negotiated jointly with the United States Government for traffic rights between Amman/Damascus and New York. The idea was that the route would be operated alternatively by Alia and Syrian Air, but it was agreed later that Alia would operate the service on behalf of the two airlines. The initial success of the joint venture attracted the attention of other airlines in the region. In June 1978, it was reported that six airlines (Alia, Syrian Air, Gulf Air, Kuwait Airways, MEA and Saudia) agreed in principle to form a consortium which would hire member airlines' aircraft and operate under separate livery two scheduled B-747

services per day across the Atlantic. This project was not implemented, and each of the above carriers (with the exception of Syrian Air and Gulf Air) operates independent services across the Atlantic.

Apart from joint operations projects, there were some proposals to establish joint facilities in various areas such as passenger handling, aircraft maintenance and training. Some of these proposals did not materialize while a number of co-operative arrangements were successfully implemented in the region especially those concluded on bilateral basis. For example the training centres of some airlines (e.g. Royal Jordanian, Saudia, etc.) offer training courses to other carriers in various fields ranging from flight simulator training to commercial and management courses. A recent co-operative arrangement involved the leasing of one Tristar L-1011-500 Royal Jordanian aircraft to Sudan Airways to operate the latter's European routes. The arrangement also involved co-operation in various fields including personnel and aircraft maintenance.

Calls for airline mergers have not been taken seriously so far despite the vast economic and operational benefits of mergers. In 1975, intergovernmental agreement was reached in principle to rationalize the Gulf transport system including the possible merger of Gulf Air and Kuwait Airways. The merger plan was later dropped, but a government statement pointed out that this decision should not obscure the prospects of investigating longer-term forms of collaboration including possible future mergers.

Ten years later, Gulf Air called for the merger of the GCC's three carriers (Saudia, Kuwait Airways and Gulf Air) to improve the efficiency and profitability of the airlines. The proposal, put forward in 1985, called for the merger of the three airlines into one carrier with four separate divisions covering domestic, air taxi, air cargo and international flights.

9. FUTURE TRENDS AND DEVELOPMENT PROSPECTS

9.1 Future traffic trends

The foregoing analysis of traffic development in the ESCWA region indicated that air traffic witnessed contrasting changes in growth rates reflecting the rapid and contradictory changes in the region's economic and political conditions. But it is now evident that, given the present circumstances, the exceptionally high traffic growth figures achieved previously are unlikely to be attained in the near future.

The Arab Air Carriers Organization (AACO) recently collected from member airlines information on their expected passenger and cargo traffic until the year 1995. The results of the collected data were included in AACO strategic plan which was prepared during the year 1986 and presented to AACO members in March 1987.^{1/} Information pertaining to the airlines based in the ESCWA region are reproduced in tables 9.1 and 9.3 and figures 9.2 and 9.4.

Table 9.1 shows that the region's airlines expect their international passenger traffic to increase by almost 50 per cent during the period 1987-1995 from about 12.6 million passengers to almost 18.9 million with an average annual growth rate of 4.6 per cent. This is in contrast with an increase in passenger traffic of more than 150 per cent and an average annual growth rate of almost 10 per cent achieved during the preceding period of 1975-1985 (Annex A). The table also indicates that airlines based in the ESCWA region were conservative in forecasting an overall average annual growth rate of 4.6 per cent during the period in question which is close to the average growth rate predicted for total world traffic.

The traffic growth rate predicted for 1987 is fairly modest (2.9 per cent) but a slight recovery in growth magnitude is foreseen during the period 1988-1990 after which growth rates will range between 4-4.5 per cent while double-digit growth rates have been predicted for some regions during some years (e.g. Africa and America), growth rates of total traffic will remain throughout the period below 6 per cent. The lowest growth rates were predicted for traffic moving within the Arab world with an average annual growth rate of 2.9 per cent.

The relative importance of various regions changed slightly during the period under study but Arab world traffic maintained a high share of 47 per cent in 1995 down from 51 per cent in 1986. This slight drop was due to relatively higher growth rates achieved by other regions such as west Europe, the United States and Africa.

^{1/} Arab Air Carriers Organization, Arab Commercial Airline Strategy, 1987-1995, (in Arabic).

Table 9.1. International passenger traffic forecast and average growth rates 1986-1995 of ESCWA region scheduled international airlines

R E G I O N	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
ARAB WORLD	6467222	6605592	6796738	7046222	7332948	7610013	7885891	8188475	8519937	8873577
AVG. GROWTH		2.1	2.9	3.7	4.1	3.8	3.6	3.8	4.0	4.2
WEST EUROPE	2420305	2490566	2655229	2825769	3027649	3197533	3373910	3554296	3744096	3941915
AVG. GROWTH		2.9	6.6	6.4	7.1	5.6	5.5	5.3	5.3	5.3
EAST EUROPE	17528	19379	21116	22830	24543	26312	28122	29803	31477	33247
AVG. GROWTH		10.6	9.0	8.1	7.5	7.2	6.9	6.0	5.6	5.6
AFRICA	262017	281419	337167	396286	466439	494909	525542	558017	588831	621268
AVG. GROWTH		7.4	19.8	17.5	17.7	6.1	6.2	6.2	5.5	5.5
ASIA & F. EAST	2985908	3067535	3237755	3421595	3640588	3785916	3936161	4092834	4252874	4412180
AVG. GROWTH		2.7	5.5	5.7	6.4	4.0	4.0	4.0	3.9	3.7
AMERICA	402789	459717	538104	586932	651372	708735	757571	813237	868085	925694
AVG. GROWTH		14.1	17.1	9.1	11.0	8.8	6.9	7.3	6.7	6.6
T O T A L	12555769	12924208	13586109	14299634	15143539	15823418	16507197	17236662	18005300	18807881
AVG. GROWTH		2.9	5.1	5.3	5.9	4.5	4.3	4.4	4.5	4.5

SOURCE : ESCWA AIRLINES INDIVIDUAL FORECASTS FROM : AACO , ARAB COMMERCIAL AIRLINE STRATEGY 1987-1995
(IN ARABIC) , TABLES 21 - 27 .

Figure 9.2. International passenger traffic forecast of ESCWA region
airlines 1986-1995

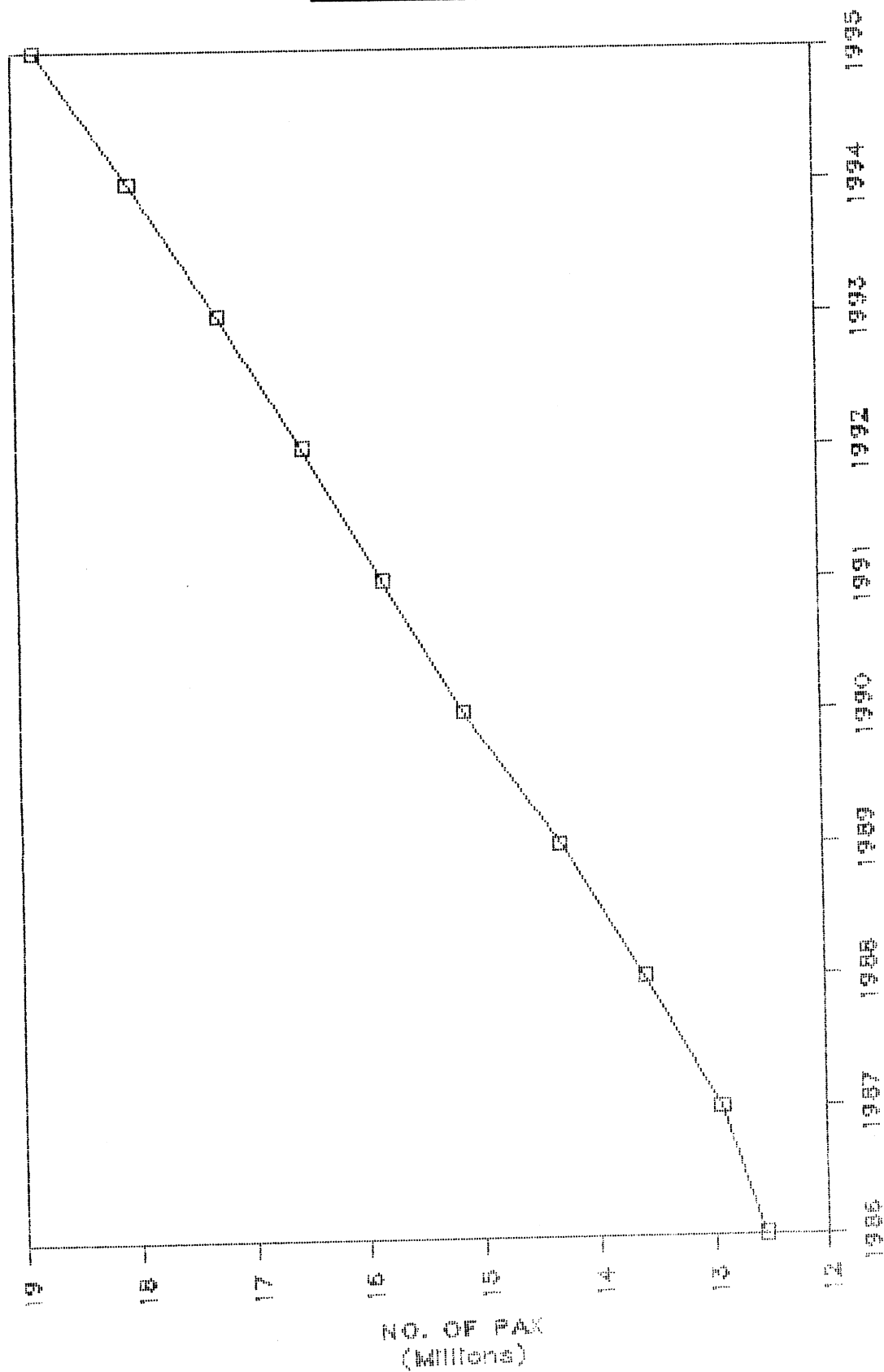


Table 9.3. International cargo traffic forecast and average growth rates
1986-1995 of ESCWA region scheduled international airlines

R E G I O N	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
ARAB WORLD	91619	94864	100189	106014	115467	121740	128073	134962	142519	150922
AVG. GROWTH		3.5	5.6	5.8	8.9	5.4	5.2	5.4	5.6	5.9
WEST EUROPE	70713	70469	74581	80660	89349	94641	100327	106535	113306	120682
AVG. GROWTH		-0.3	5.8	8.2	10.8	5.9	6.0	6.2	6.4	6.5
EAST EUROPE	48	51	55	58	62	65	70	75	80	85
AVG. GROWTH		6.3	7.8	5.5	6.9	4.8	7.7	7.1	6.7	6.3
AFRICA	5955	7113	9121	12111	16676	17571	18574	19667	20840	22101
AVG. GROWTH		19.4	28.2	32.8	37.7	5.4	5.7	5.9	6.0	6.1
ASIA & F. EAST	89823	99948	108348	118301	132073	139846	148442	157940	168423	179983
AVG. GROWTH		11.3	8.4	9.2	11.6	5.9	6.1	6.4	6.6	6.9
AMERICA	17312	18109	19452	21145	23092	24773	26562	28469	30421	32485
AVG. GROWTH		4.6	7.4	8.7	9.2	7.3	7.2	7.2	6.9	6.8
T O T A L	275470	290554	311746	338289	376719	398636	422048	447648	475589	506258
AVG. GROWTH		5.5	7.3	8.5	11.4	5.8	5.9	6.1	6.2	6.4

SOURCE : ESCWA AIRLINES INDIVIDUAL FORECASTS FROM : AACO , ARAB COMMERCIAL AIRLINE STRATEGY 1987-1995
(IN ARABIC) , TABLES 28 - 34 .

Figure 9.4. International cargo traffic forecast of ESCWA
region airlines 1986-1995

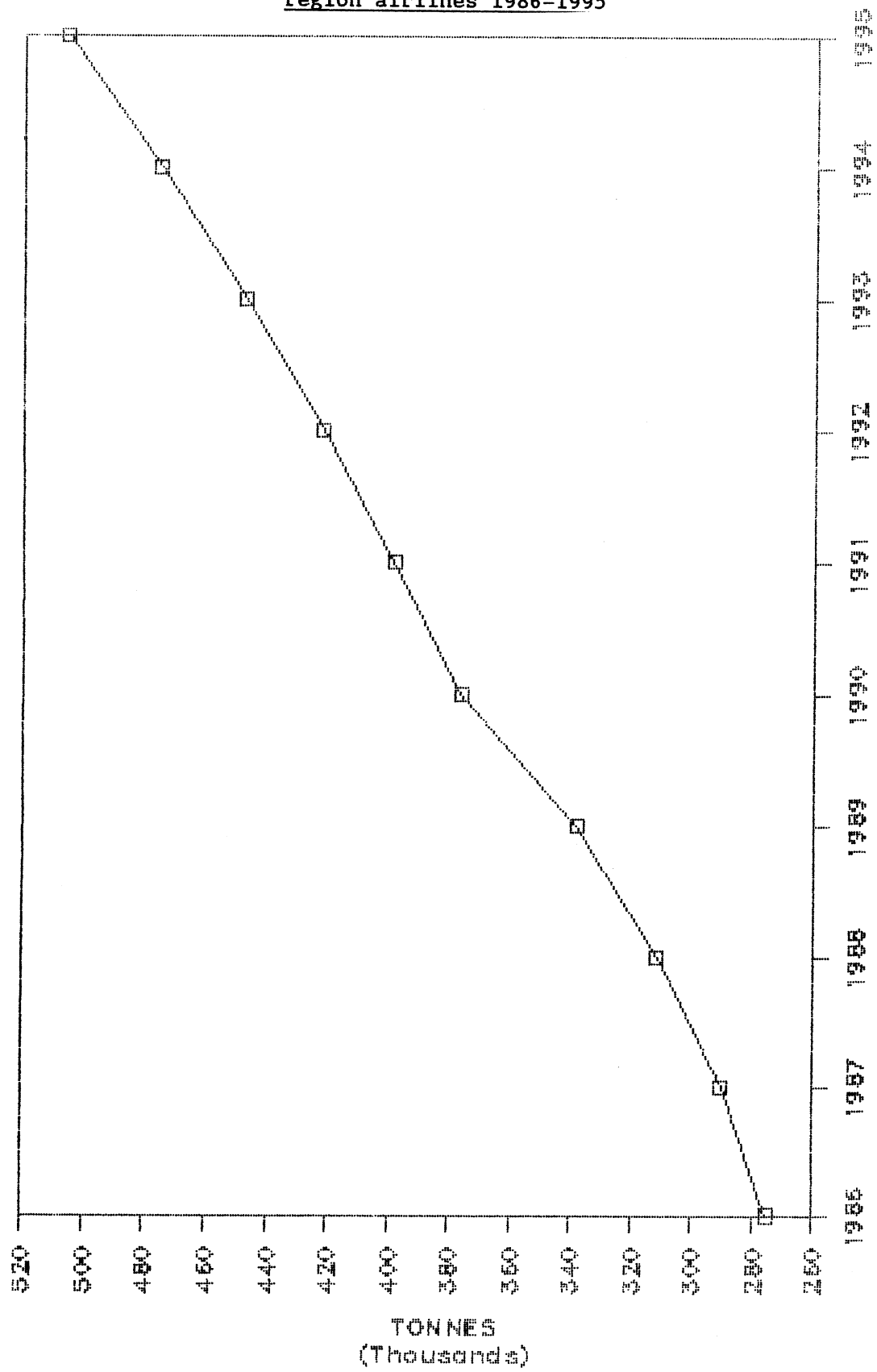


Table 9.5. Fleet forecast of Western Asian scheduled airlines*, 1986-1995

AIRCRAFT TYPE	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
LONG RANGE	64	64	66	66	67	78	79	79	80	80
SH/MEDIUM RANGE	104	105	107	109	111	116	117	118	120	121
SHORT RANGE	19	19	21	21	21	21	21	21	21	21
OTHERS	16	16	16	16	16	17	17	18	18	18
T O T A L	203	204	210	212	215	232	234	236	239	240

* EXCLUDING EGYPT AIR & EMIRATES AIRLINES.

SOURCE : AACO , ARAB COMMERCIAL AIRLINE STRATEGY 1987-1995 , (IN ARABIC), TABLES 16-20

Freight traffic showed a similar trend (figure 9.4) with slightly higher average annual growth rates. As shown in table 9.3, the airlines of the ESCWA region (excluding TMA) predicted that their cargo traffic will grow from 275,470 tonnes in 1986 to 506,258 tonnes in 1995 or by almost 84 per cent at an annual growth rate of 7 per cent. This forecast is considerably below the increase of 156 per cent and the average annual growth rate of 10 per cent achieved during the period 1975-1985. As in the case of passenger traffic, the lowest growth rate is predicted for the year 1987 which appears to be followed by a period of relative recovery extending from 1988 to 1990.

The above forecasts indicate that the region's airlines are expecting traffic growth rates to be close to those predicted for the total industry. Their predictions are fully justified by the very recent air traffic performance as well as by the prevailing economic and political circumstances. Unpredictable changes in these circumstances, such as a significant increase in oil prices or an end to the Gulf war would entail drastic changes in the direction and magnitude of air traffic growth. Until such development takes place, the airlines as well as the airport authorities of the region accept the relatively modest growth rates as a fact of life and draw their future plans accordingly.

9.2 Fleet forecast

Future traffic growth on various routes areas is expected to affect the size and composition of the fleet of the region's airlines. According to AACOs strategic plan, West Asian airlines (excluding Egypt Air and Emirates Airlines) are expected to add 37 aircraft to their fleet during the period 1987-1995. As shown in table 9.5 the plan envisages the addition of sixteen long-range aircraft, seventeen short/medium-range, two short-range and two other aircraft. The short- and short/medium-range equipment will continue to dominate the fleet with a total count of 142 aircraft in 1995, representing 59 per cent of the total fleet, which reflects the importance of regional and Asian traffic flows. The insignificant addition of only two aircraft to the purely short-range fleet indicates a limited scope for the use of such types. The same applies to smaller types classified under the "others" category.

The above expected additions to the fleet are in net terms and do not reflect aircraft purchases arising from replacement of existing types. In fact a significant proportion of the airlines fleet will be fully depreciated before the year 1995. This includes most of the region's narrow-body aircraft fleet which amounted to 120 aircraft in 1985 (table 3.2) as well as some wide-body aircraft. Some aircraft may be replaced earlier due to the technological factors. West Asian airlines own 58 aircraft which, effective from January 1988, will be banned from using any West European airspace for violating noise regulations. Although most of those aircraft could be brought in line with the noise regulations by installing a "hush kit", airlines will be reluctant to keep those aircraft in the long run due to their relatively high operating and maintenance cost.

9.3 Expected changes in regulatory and competitive conditions

Apart from the declining traffic growth, there are clear signs of radical changes in environmental conditions that are about to take place.

9.3.1 Changes in regulatory environment

The airlines of the ESCWA region have for a long time enjoyed a competitive advantage under an umbrella of government restrictions and protectionist measures. During the past ten years, the world air transport industry has witnessed successive moves towards deregulation of air services. The implementation of this policy started in the United States in 1977 and involved removal of government controls on commercial aspects of the United States air transport industry including air fares, entry of new carriers, capacity, frequency and route operating rights.

The new winds of change soon crept into Europe where regulatory controls are being gradually loosened through bilateral and regional actions. In 1983, the European Commission issued a directive calling for the deregulation of interregional air services between regional airports of the member States of the European Community. Further action was taken in 1986 by both the Commission and the European Court against price fixing and commercial agreements between European airlines on the basis of violating the competition articles of the Rome Treaty.

There are clear indications that the deregulation mode will soon prevail within Europe and will later reach other parts of the world including the ESCWA region. This would lead to major changes in the present air transport regulatory system of the region and the level of air fares which would consequently affect the competitive position of the region's airlines.

9.3.2 Increased competition and reduced fares

The slackening of traffic growth had led most airlines to embark on a new pricing strategy aimed at stimulating traffic or maximizing market shares through significant reductions in air fares. At the same time, foreign carriers who have incurred losses or lost market shares in the deregulated markets increased their reliance on the relatively high yield markets of the region and offered promotional fares to attract traffic to their services. Some of those airlines operate multi-sector routes extending beyond West Asia and enjoy fifth freedom traffic rights to and from the region which gives them a comparative advantage. Those airlines, by the virtue of their size and route structure, can offer extremely low prices at intermediate points to attract "fill up" traffic. They also enjoy a competitive advantage through their high priority listing in the international automated reservation systems, such as Sabre, Apollo, etc., especially in major markets. This has always presented a serious problem for small carriers, including airlines in the ESCWA region, which are mostly left with low yield traffic in highly competitive markets.

A recent survey conducted by the Arab Air Carriers Organization (AACO) indicates that cut-price ticketing has become a common practice on most route areas.^{1/} Large discounts are offered to passengers travelling on interregional routes which could be, in some cases, as much as 65 per cent of the normal economy fare. According to the survey, the largest discounts are given on Asian, West European and North Atlantic routes ranging between 20 and 60 per cent of normal fares while discounts on travel within the Arab world which were previously minimal increased significantly in many markets.

^{1/} Arab Air Carriers Organization, Arab Commercial Airline Strategy, 1987-1995, (in Arabic).

Increased discounting will put tremendous pressure on the relatively high yield which has so far concealed the disadvantages of high unit operating costs incurred by most airlines in the ESCWA region. The drop in yield together with the decline in seat and load factors further complicates the problems of the region's airlines and seriously hampers their profitability.

10. PROPOSED THRUST AREAS FOR REGIONAL ACTION

It is evident that certain measures have to be taken in order to improve the operating and environmental conditions of the air carriers in the ESCWA region. The improvement should aim at reducing operating cost level and creating a more flexible regulatory framework in order to enable the airlines to compete successfully and survive financially in the long run.

The ability of individual carriers to unilaterally affect the needed changes is very limited. What is required is a joint action through the execution of certain policy measures on a regional basis.

10.1 Co-operation in ground facilities

The establishment of joint ventures among the region's carriers in certain areas such as passenger handling, maintenance, reservation system and personnel training can offset to a great extent the small-scale disadvantages and may lead to significant cost savings. This project should aim at eliminating duplication of expensive facilities wherever possible and maximize the utilization of staff and equipment in various fields.

There are numerous areas in which significant cost reductions could be achieved. In aircraft maintenance for example, the airlines of the regions may agree to form a joint company to establish maintenance workshops at major out-stations to provide routine maintenance work at a reasonable cost. They can alternatively enter into joint contracts with specialized agencies to provide this service. The airlines can also establish joint heavy maintenance and overhaul facilities and pool the maintenance work among themselves in order to maximize the productivity of maintenance equipment and personnel. This will also reduce the maintenance cost and provide the airlines with a much better alternative than sub-contracting heavy maintenance work to other airlines at a considerably higher cost.

10.2 Regional training institute

The Civil Aviation Safety Centre in Beirut which used to train as many as 1700 students annually has been inoperative for a long time, and it is questionable whether it can be fully restored to its previous position. At the same time, the Civil Aviation Training Centre in Cairo has not been able to fulfill the region's training needs because of financial and political reasons.

It is evident that there is an urgent need for the establishment of a regional civil aviation training institute to serve the airlines and the civil aviation administrations of the region. The institute should form the central core of a system of education and training with the following objectives:

- (a) To promote basic and advanced training in the following major areas:
 - (i) Airline commercial and management training.
 - (ii) Pilot training.

- (iii) Airport management and finance.
- (iv) Maintenance and engineering.
- (v) Air traffic control and radar training.
- (vi) Cabin attendants training.
- (vii) Food and passenger services.
- (viii) Aeronautics management (maintenance management, flight safety, flight operations management, etc.)

(b) Set criteria for selection for aviation training.

(c) Define scope and curricula.

(d) Establish common standards for certificates and licences.

(e) Conduct fundamental and recurrent training for airline and civil aviation personnel.

The establishment of such an institute would create a common source of standards and controls to be introduced to aviation training throughout the region. It will also reduce the cost of establishing duplicated facilities and will maximize the utilization of the central facilities and thus reduce the training cost per hour. Meanwhile, the airlines will continue to do their own training tailored to local needs in close co-ordination with the regional institute.

It is believed that the institute should be established as soon as possible with the financial and professional participation of airlines and civil aviation administrations in the region, ICAO, UNDP, ACAC and Arab Air Carriers Organization.

The institute could be based in Amman where the government has already devoted land at Amman Airport for the establishment of a regional air academy. Present facilities and capabilities of training in Jordan constitute a satisfactory foundation for the proposed institute. The facilities include Royal Jordanian Air Academy, offering flight training for the commercial pilot certificate, Royal Jordanian Training Center, offering airline commercial management, engineering, operations and pilot training and Queen Noor Civil Aviation Training College which covers the training needs of the Jordanian Civil Aviation Authority.

10.3 Airline joint operations

The analysis of passenger and cargo traffic flows indicated the low density of operations on a large number of routes. This results in a low frequency of service and the achievement of a relatively low seat and load factor which puts pressure on the economics of operation. The operation of joint services, especially on long-haul routes would consolidate the region's traffic on those routes and allow for an economical operation. A revival of the region's proposed consortium for the operation of the Trans-Atlantic services is worth considering (chapter 8). Giant airlines currently operating across the Atlantic are operating in favourable conditions and producing their services at a low level of operating cost. The airlines of the region

operating in the North Atlantic find themselves handicapped in competing with those airlines. Joint operations appear to be the only alternative which would enable the West Asian carriers to compete successfully with large airlines and achieve a reasonably high market share.

At the same time, the joint operation of new long-haul services (e.g. to Australia and South America) would be far more economical than a unilateral operation. The latter would result in a shallow traffic flow, low frequency of service, poor seat and load factors, high operating cost and consequently loss of profitability.

10.4 Airline mergers

An airline merger is an effective way of improving the economics of operations. If two or more of the region's airlines were merged, they would be able to consolidate traffic on various routes and improve the utilization of their aircraft and ground facilities. There would also be real scope for achieving economies of scale through the amalgamation of common functions such as engineering, catering, traffic handling and sales. The merger would bring about an improvement in the airlines' bargaining power and marketing strength.

The above advantages of mergers were recognized by the American airline industry which witnessed a wave of mergers in the past few years. As a result, the largest five airlines now control as much as seventy per cent of the market. There are signs that further mergers are being considered elsewhere in the world. In Europe, Sabena and SAS are studying the possibility of a merger, or alternatively pooling resources on long-haul routes. Other European airlines such as Lufthansa, Iberia and British Caledonian held bilateral talks at different times during 1986 to consider possible joint ventures. In the Far East, it was recently reported that a committee of the Thai Parliament has proposed a merger of Thai Airway International (THAI) and Thai Airways Company (TAC) on the grounds of increased efficiency and elimination of losses. In the ESCWA region, a proposal for the merger of the GCC member States airlines has been called for by Gulf Air also on grounds of improved efficiency (see chapter 8).

The airlines of the ESCWA region could be merged to form three or four large airlines, each carrying the flags of its shareholding States. The grouping of airlines of adjacent countries could be successful especially if there is a similarity in operational, financial and regulatory conditions of the region's airlines.

10.5 Need for policy changes

The future development of the air transport industry in the ESCWA region along the above mentioned guidelines requires major changes in air transport policy. The most important of these proposed changes include the following:

(a) Governments should take a more liberal attitude towards granting traffic rights to the region's airlines to enable them to consolidate traffic on various routes and intensify the utilization of the region's route system. This however should be co-ordinated within a regional plan which would ensure fair and equal opportunity for all carriers.

(b) A flexible fare-fixing system is urgently needed for the region to put an end to illegal price-cutting practices and bring about healthier competitive conditions. The proposed pricing system should also aim at generating more traffic and at introducing cheap fares during off-peak periods to stimulate traffic and enable the airlines to distribute their capacity more evenly throughout the year.

(c) Governments should look more positively into the issue of alleviating visa restrictions to promote, particularly, traffic moving for touristic purposes or for visiting friends and relatives.

(d) Airlines should review their capacity deployment policy in order to cut their capacity to meet the demand adequately and eliminate excess capacity. Joint operations with other carriers can help reduce the capacity and at the same time improve seat and load factors.

Finally, it is important to emphasize the need for a drastic change of policy towards all types of co-operative arrangements within the region. The economic advantages brought about by such arrangements are numerous and would help both the airlines and governments overcome the present problems and face future challenges.

11. CONCLUSIONS

1. The development of air transport in the ESCWA region took place under generally favourable environmental conditions. The rapid growth in the economies of the region's States promoted an intensive movement of persons and goods to, from and within the region and enabled the governments and airlines to expand and vastly improve air transport facilities. However, recent declines in oil revenues and consequently in economic activity together with the Gulf war have adversely influenced the region's air traffic. Traffic is expected to grow during the next few years at relatively modest rates close to the industry average.
2. Airport development programmes in the ESCWA region have been rapid and very ambitious by world standards, accounting for 32 per cent of total world airport investment in recent years. Limited airport development projects are envisaged in the near future, but efforts should be concentrated on the fields of manpower training and airport management and finances.
3. The airlines of the regions have grown very rapidly during the 1970s at rates well above the industry average. The rapid growth is clearly indicated in the development of passenger and cargo traffic, route network and fleet. The airlines have always concentrated their efforts on scheduled services and they all perform the role of multi-product carriers with the exception of one airline, (TMA), which specializes in all-cargo services.
4. Passenger traffic is largely dominated by labour and holiday traffic which creates problems of seasonal variations and directional imbalances. The harmful effects of this problem on the utilization of capacity could be alleviated by the introduction of promotional cheap fares during off-peak periods to improve seat factor performance and distribute traffic more evenly throughout the year.
5. The traffic moves in high volumes within the ESCWA region, and between the region on the one hand and west Europe and Asia on the other. However, the operation of a large number of shallow routes has been observed, some with exceptionally low traffic density. This is primarily a result of the rapid expansion of route networks and the operation of parallel services by individual airlines from adjacent airport, which is partly responsible for the achievement of low seat and load factors. The airlines of the region should recognize the interdependence of their route networks and agree on a formula to rationalize the existing route system to consolidate traffic on various routes.
6. Cargo operations suffer from serious directional imbalances on imported goods and its limited exporting capabilities. All cargo services are limited to a small number of routes and are influenced by competition from passenger aircraft.
7. The airlines of the ESCWA region are operating in a highly restricted regulatory environment. The restrictive policies in granting traffic rights, increasing frequency or capacity and in fare fixing are aimed at protecting

the national carriers from competition. Such policies do not enable the airlines to consolidate traffic on thin routes or reduce fares to generate additional traffic or to schedule for higher frequency to adequately meet the demand.

8. The airlines of the ESCWA region are providing their services at a relatively high unit operating cost. This problem has so far been concealed by the high average revenue yield achieved by the airlines. However, deteriorating yields, seat and load factors have put tremendous pressure on the economies of operation and hamper the airlines' profitability.

9. The disadvantages of small scale operations and low traffic density could be alleviated within a regional context through the establishment of joint ground services and the joint operation of long-haul routes. Traffic consolidation on the region's route system would improve seat and load factors and reduce the operating costs of the region's airlines. Mergers should be considered more seriously as an effective means to improve the competitive position and the economics of operation.

10. Radical policy changes are required for a healthier development of the air transport industry including a more liberal attitude towards traffic rights, a flexible fare-fixing system and increased regional co-operation.

ANNEXES

Annex A.1. Western Asian airlines scheduled international services
development of traffic and capacity 1970-1985

	PASSENGER R.P.K.s		A.S.K.s		PAX		FREIGHT		R.T.K.s		PERFORMED		A.T.K.s		WEIGHT
	CARRIED	(000)	(000)	(000)	L.F %	TONNES	TONNES	IPASSENGER	CARGO	TOTAL	(000)	(000)	(000)	L.F %	
ALYEMDA															
1970*	28500	34200	71250	48.0	200	3078	1200	4278	9100	47.0					
1975*	45000	70833	141666	50.0	350	6375	2150	8525	17000	50.1					
1980	74929	135228	275859	49.0	752	12171	4328	16499	46359	35.6					
1985	117755	240477	450735	53.4	1521	21643	9631	31274	64397	48.6					
EGYPT AIR															
1970	458524	965605	1899265	50.8	6480	86904	16122	103026	225126	45.8					
1975	679178	1348961	2399685	56.2	8640	121406	21187	142593	291309	48.9					
1980	1269681	2535547	4604733	55.1	10138	228199	30078	258277	547936	47.1					
1985	1736504	4002316	7216273	55.5	39035	360208	100153	460361	899611	51.2					
GULF AIR															
1970*	187332	47103	94207	50.0	300	4239	580	4819	10039	48.0					
1975	692172	759300	1502682	50.5	8124	68337	16324	84661	189906	44.6					
1980	1676000	2701356	4626769	58.4	40074	243122	105598	348720	700117	49.8					
1985	2869893	4980139	8716614	57.1	52042	448213	137135	585348	1092873	53.6					
IRAQI AIRWAYS															
1970	164674	188767	335588	56.2	13213	16989	1968	18957	34410	55.1					
1975	244350	472291	923721	51.1	2493	42506	7430	49936	112973	44.2					
1980	433974	1082682	2104694	51.4	12447	97441	52519	149960	317668	47.2					
1985*	569196	1369556	2685403	51.0	16180	123260	66370	189630	417100	45.5					
KUWAIT AIRWAYS															
1970	315236	556849	1123063	49.6	5000	50116	14110	64226	144061	44.6					
1975	624827	955069	1578463	60.5	11248	85956	25292	111248	205437	54.2					
1980	1076214	2113789	3981343	53.1	29062	190241	75032	265273	631557	42.0					
1985	1442153	3802656	6917120	55.0	43712	342239	168613	510852	1116332	45.8					
M.E. AIRLINE															
1970	548550	848276	2071117	41.0	12567	76345	29548	105893	257331	41.2					
1975*	1075900	1839742	4380337	42.0	22637	165577	58926	224503	552089	40.7					
1980	930287	1571125	2719485	57.8	19336	141401	40234	181635	347833	52.2					
1985	501268	929587	2001444	46.4	15573	83663	36384	120047	262901	45.7					

Annex A.1. (Continued)

	PASSENGER R.P.K.s		A.S.K.s		PAX	FREIGHT		I.R.T.K.s		PERFORMED		A.T.K.s		WEIGHT	
	CARRIED	(000)	(000)	(000)	L.F. %	TONNES	PASSENGER	CARGO	TOTAL	(000)	(000)	(000)	(000)	L.F. %	
ROYAL JORDANIAN															
1970	118794	168865	411113	41.1	906	15198	2524	17722	45602	38.9					
1975	363507	706611	1309471	54.0	5743	63595	13453	77048	155177	49.7					
1980	1070154	2598763	4524086	57.4	27062	233889	81203	315092	611177	51.6					
1985	1220147	3537073	6120328	57.8	40588	318337	153365	471702	913621	51.6					
SAUDIA															
1970	219678	242356	640201	37.9	2411	21812	3655	25467	84193	30.2					
1975	674223	1031879	1795017	57.5	12846	92869	43469	136338	290244	47.0					
1980	2191410	4958431	9464275	52.4	45064	446259	144818	591077	1516506	39.0					
1985	3116386	10031879	16887918	59.4	114218	902869	417786	1320655	2813011	46.9					
SYRIAN ARAB															
1970	80273	192673	337117	57.2	433	17341	1215	18556	31647	58.6					
1975	288322	700516	1048560	66.8	2887	63046	6783	69829	112066	62.3					
1980	383311	907883	1714950	52.9	4685	81709	16153	97862	204024	48.0					
1985	442344	929074	1620332	57.3	4492	83617	15687	99304	185427	53.6					
YEMEN AIRWAYS															
1970*	52000	54600	113750	48.0	300	4914	360	5274	10988	48.0					
1975*	125705	150846	301692	50.0	900	13576	1747	15323	30646	50.0					
1980	252473	354724	669290	53.0	2099	31925	4074	35999	83630	43.0					
1985	317823	559878	1098461	51.0	5055	50389	9812	60201	132667	45.4					
T . M . A															
1970					18007	115647	115647	182874	182874	63.2					
1975					83304	435853	435853	793978	793978	54.9					
1980					91792	496095	496095	784829	784829	63.2					
1985*					75000	360000	360000	600000	600000	60.0					
T O T A L															
1970	2173561	3299294	7096671	46.5	59817	296936	186929	483865	1035371	46.7					
1975	4813184	8036048	15381294	52.2	159172	723244	632614	1355858	2750825	49.3					
1980	9358433	18959528	34685484	54.7	282511	1706358	1050132	2756490	5791636	47.6					
1985	12333469	30382635	53714628	56.6	407416	2734437	1474936	4209373	8497940	49.5					

* Estimated data.

Annex A.2. Western Asian airlines scheduled international services development of traffic and capacity annual average growth rates, 1970-1985

	PASSENGER R.P.K.s		A.S.K.s	FREIGHT R . T . K.s		PERFORMED A.T.K.s	
	CARRIED			TONNES	PASSENGER CARGO TOTAL		
ALYEMDA							
1970 - 1975*	9.6	15.7	14.7	11.8	15.7	12.4	14.8
1975 - 1980	10.7	13.8	14.3	16.5	13.8	15.0	14.1
1980 - 1985	9.5	12.2	10.3	15.1	12.2	17.3	13.6
1975 - 1985	10.1	13.0	12.3	15.8	13.0	16.2	13.9
1985 / 1970**	313.2	703.1	632.6	760.5	703.1	802.6	731.0
EGYPT AIR							
1970 - 1975	8.2	6.9	4.8	5.9	6.9	5.6	6.7
1975 - 1980	13.3	13.5	13.9	3.2	13.5	7.3	12.6
1980 - 1985	6.5	9.6	9.4	30.9	9.6	27.2	12.3
1975 - 1985	9.8	11.5	11.6	16.3	11.5	16.8	12.4
1985 / 1970	278.7	314.5	280.0	502.4	314.5	521.2	346.8
GULF AIR							
1970 - 1975	29.9	74.4	74.0	93.4	74.4	94.9	77.4
1975 - 1980	19.3	28.9	25.2	37.6	28.9	45.3	32.7
1980 - 1985	11.4	13.0	13.5	5.4	13.0	5.4	10.9
1975 - 1985	15.3	20.7	19.2	20.4	20.7	23.7	21.3
1985 / 1970	1432.0	10472.9	9152.6	17247.3	10472.9	23544.0	12046.0
IRAQI AIRWAYS							
1970 - 1975	8.2	20.1	22.4	-28.4	20.1	30.4	21.4
1975 - 1980	12.2	18.0	17.9	37.9	18.0	47.9	24.6
1980 - 1985	5.6	4.8	5.0	5.4	4.8	4.8	4.8
1975 - 1985	8.8	11.2	11.3	20.6	11.2	24.5	14.3
1985 / 1970	245.7	625.5	700.2	22.5	625.5	3272.5	900.3
KUWAIT AIRWAYS							
1970 - 1975	14.7	11.4	7.0	17.6	11.4	12.4	11.6
1975 - 1980	11.5	17.2	20.3	20.9	17.2	24.3	19.0
1980 - 1985	6.0	12.5	11.7	8.5	12.5	17.6	14.0
1975 - 1985	8.7	14.8	15.9	14.5	14.8	20.9	16.5
1985 / 1970	357.5	582.9	515.9	774.2	582.9	1095.0	695.4
M.E. AIRLINE							
1970 - 1975	14.4	16.7	16.2	12.5	16.7	14.8	16.2
1975 - 1980	-2.9	-3.1	-9.1	-3.1	-3.1	-7.3	-4.1
1980 - 1985	-11.6	-10.0	-5.9	-4.2	-10.0	-2.0	-7.9
1975 - 1985	-7.4	-6.6	-7.5	-3.7	-6.6	-4.7	-6.1
1985 / 1970	-8.6	9.6	-3.4	23.9	9.6	23.1	13.4

Annex A.2. (Continued)

	PASSENGER R.P.Ks		A.S.Ks		FREIGHT R . T . Ks		PERFORMED A.T.Ks	

	CARRIED				TONNES	PASSENGER	CARGO	TOTAL
ROYAL JORDANIAN								
1970 - 1975*	25.1	33.1	26.1		44.7	33.1	39.7	27.8
1975 - 1980	24.1	29.8	28.1		36.3	29.8	43.3	31.5
1980 - 1985	2.7	6.4	6.2		8.4	6.4	13.6	8.4
1975 - 1985	12.9	17.5	16.7		21.6	17.5	27.6	19.4
1985 / 1970**	927.1	1994.6	1388.7		4379.9	1994.6	5976.3	1903.5
SAUDIA								
1970 - 1975	25.1	33.6	22.9		39.7	33.6	64.1	28.1
1975 - 1980	26.6	36.9	39.4		28.5	36.9	27.2	39.2
1980 - 1985	7.3	15.1	12.3		20.4	15.1	23.6	13.2
1975 - 1985	16.5	25.5	25.1		24.4	25.5	25.4	25.5
1985 / 1970	1318.6	4039.3	2537.9		4637.4	4039.3	11330.5	3241.1
SYRIAN ARAB								
1970 - 1975	29.1	29.5	25.5		46.1	29.5	41.0	28.8
1975 - 1980	5.9	5.3	10.3		10.2	5.3	19.0	12.7
1980 - 1985	2.9	0.5	-1.1		-0.8	0.5	-0.6	-1.9
1975 - 1985	4.4	2.9	4.4		4.5	2.9	8.7	5.2
1985 / 1970	451.0	382.2	380.6		937.4	382.2	1191.1	485.9
YEMEN AIRWAYS								
1970 - 1975	19.3	22.5	21.5		24.6	22.5	37.2	22.8
1975 - 1980	15.0	18.7	17.3		18.5	18.7	18.5	22.2
1980 - 1985	4.7	9.6	10.4		19.2	9.6	19.2	9.7
1975 - 1985	9.7	14.0	13.8		18.8	14.0	18.8	15.8
1985 / 1970	511.2	925.4	865.7		1585.0	925.4	2625.6	1107.4
T . M . A								
1970 - 1975				35.8	35.8		30.4	34.1
1975 - 1980				2.0	2.0		2.6	-0.2
1980 - 1985				-4.0	-4.0		-6.2	-5.2
1975 - 1985				-1.0	-1.0		-1.9	-2.8
1985 / 1970				316.5	316.5		211.3	228.1
T O T A L								
1970 - 1975	17.2	19.5	16.7		21.6	19.5	27.6	21.6
1975 - 1980	14.2	18.7	17.7		12.2	18.7	10.7	16.1
1980 - 1985	5.7	9.9	9.1		7.6	9.9	7.0	8.0
1975 - 1985	9.9	14.2	13.3		9.9	14.2	8.8	11.9
1985 / 1970	467.4	820.9	656.9		581.1	820.9	689.0	720.8

Annex B.1. Western Asian international passenger traffic flow
by region and destination 1985

BETWEEN AND	ABU DHABI	ADEN	AMMAN	BAGHDAD	BAHRAIN	BEIRUT	CAIRO	DAMASCUS	DHAHRAN	DOHA	DUBAI	JEDDAH	KUWAIT	MUSCAT	AL-KHAIMA	RIYADH	SAMAA	SHARJAH	TOTAL**
ECSWA REGION																			

CAIRO	94777	2	230458	448382	37231	37637	823696	28027	82060	79787	61277	768215	375288	48802	4985	300635	54639	11452	265364
JEDDAH	22565	72495	91547	14043	43697	51216	361287	109862	29487	14713	23984	88261	93102	4809	1189	59033	131593	1569	149881
DUBAI	38135	22788	174462	54135	156910	48163	37231	136014	356415	171842	142733	91494	15810	41091	1770	54599	6171	2640	1406977
BAHRAIN	72795		35146		15156	39849	238095	42837	35577	28336	41566	91494	179534	13780	36	48995	4424	14440	1151750
AMMAN	47115			170130	35146		448382		30		267	14043	54135	13780		3447	3120	402	1015012
BAGHDAD			170130		3000														693648
RIYADH	12201	6325	51161	3447	54599		300223	81795	14719	15837	9803	768215	375288	4683		64749	2055	62947	62224
DHAHRAN	8250		36510	30	356415		87169	26470	11210	15837	12091		29923	366		20280	1		586974
DUBAI	115		40522	267	142733		57514	3566	15499	61758		16703	186325	36626		9498			534672
DOHA	57397	2312	27726		171842		78382	8743	15499	8577	5530	23978	128212	14209		15856	7317	16515	457773
DAMASCUS	24420	8024	41782		3501	1039	30081	8743	28590	53759	4983	93633	38141	24051		63638	12589	18182	457773
ABU DHABI		11192	44788		72795	32921	93120	26027	8456	53759	1	17407	5559			13426	10769	729	452544
SAMAA	3544	23027	6376		4424		73739	12658	16056	5188	19867	51216	48163	4759		56542		6466	303225
BEIRUT	32921	4958	39849		15156	4759	37637	1039	48913	14209	35465	63140	21925			5620	22209	11229	309930
MUSCAT	24209				41091	4958			366	2252	4948		3725			5754		3412	212431
ADEN	11397	24					383	8390		91			2619	11239			25		143880
MEDINA						294	64358	28935		16515						2199	8760		53449
SHARJAH	2677				14440		10571	22020		3000			952						3356
SAS AL-KHAIMA	3			214	1770		3613												7980
TOTAL	453683	155322	1003212	670648	1154750	309959	2792631	539884	632659	525968	612833	1422626	1429570	216302	7980	639442	346620	89534	655351
N.AFRICA																			

TRIPOLI	415		35560	9360	1064	4000	34130	135462			23	29030	15868			2599			216358
TUNIS	2331		7400			500	35297	10182			1503	61794	5406	1896		592			141885
ALGIERS			445			500	19717	19717			2	75148	2128			592			134294
CASABLANCA	6407		4419	10400		500	13827	6407				45787	7672			13110			18559
TOTAL	9173	0	48024	19760	1064	5000	83254	171768	0	0	1528	211759	31074	1896	0	16301	0	0	500491

Annex B.1. (Continued)

BETWEEN AND	ABU DHABI	ADEN	AMMAN	BAGHDAD+	BAHRAIN+	BEIRUT+	CAIRO	DAMASCUS	DHAKRAH	DOHA	DUBAI	JEDDAH	KUWAIT	MUSCAT	ALKHAIMA	RIYADH	SAMAA	SHARJAH	TOTAL
WEST EUROPE																			

LONDON	61794		68738	31025	92342	21797	238706	34958	42452	59075	110469	159107	131273	85641	91	86824	7750	2318	1254360
PARIS	32756	1633	40453		7369		267771	51976	18263	10289	18893	50005	30957	7126		53202	11949	2657	552483
ATHENS	4127		42819		5260		143573	37956	10720	2478	15221	43155	24041	1411		17627	1780	18	461350
FRANKFURT	11146		42415		7199		213321	23435	34966	3620	12163	40225	35096	4281		18301	12035	3452	384287
ROME	1025		37132		5243		41037	20284	10854		12163	34360	23045			16564	7125	14	317102
ISTANBUL	4721		38713				87147	8335	18278	4818	33848	12391	12764	11199		21569	1145	4	271568
AMSTERDAM	24246		28994		5651		53142	26609	39411	7190	8501	16911	32955	5784		2740	3810	4	221638
LARNACA	2578		33155		9560		67818	4656	23438	1888	4442	30507	16314			45654			214824
GENEVA	1673		20302				35000	12887	5911		4251	7089	4701						94363
VIENNA			23257		373	1185	74212	17283			559								83939
MUNICH					2459		49164	3800			9232	9921	4643						72123
ZURICH	13507		11285				37591				8454	15027	5235						70926
BRUSSELS	2872		16222				29461	16546			2581	8477						54	37565
AMSTERDAM	12		6599				25122	2836											25122
COPENHAGEN							16350					1670	6910						24930
MILAN							11302	149			238		3028						15333
BARCELONA							14754	102											15277
NICE	616						8335												8335
STUTTGART	441						3543	789											4332
HELSINKI																			
TOTAL	161534	1633	430404	395200	194900	390000	1650830	271977	245732	89358	258821	516583	404839	115442	91	264882	48334	14116	5458676
EAST EUROPE																			

MOSCOW	1394	17384	10238				5895	35960			2741		2313				6664	14	79862
BELGRADE			9843				22597	9988					6992						52141
SOFIA	3967	1370	628				15325	12543			2866		5743					1238	40814
BUDAPEST							13912	11198			90		6686					4	34662
BUCHAREST	3464		8103				11688	9484					1625						34458
BERLIN			2941				6191	18302			1026		4905						27434
PRAGUE	3776						4568	9389			11		3555						25864
WARSAW							7001	8777											19344
TOTAL	12601	18754	31753	140400	0	0	87177	115821	0	0	6734	0	31819	0	0	0	6664	1256	452979

Annex B.1. (Continued)

BETWEEN		ABU	ADEN	AMMAN	BAGHDAD+	BAHRIAN+	BETRUT+	CAIRO	DAMASCUS	DHAHRAN	DOHA	DUBAI	JEDDAH	KUWAIT	MUSCAT	ALKHATHA	RIYADH	SANAA	SHARJAH	TOTAL
AND		DHARI																		
FAR EAST																				

BANGKOK	2822			56856	39600	34062	21	16593		98144		32359	37718	51292	13807		97427		44	480745
MANILA	10678					10254		11381		116867		25685	28678	38717			88945			331205
SINGAPORE	11504			23382		9983		10525		48983		25345	40891	4269	5295		15456			173633
SEOUL	2913					2172				65934		1	23384	11438			32723			138565
HONG KONG	2377					18573				29434	966	21808			11					73169
JAKARTA	1545												49826							
KUALA LUMPUR	345			5103		600						3281	41991		199		4717		3	56088
TOKYO	2490					960		30395		6423		2312	2730	7802						51522
TAIPEI												3417	17525						2	46689
HALE	419											14619		1742					36	27367
TOTAL	35093		0	85341	39600	76604	21	68894	0	365785	966	128827	242742	113260	19312	0	239268	0	85	1417798
ASIA																				

BOMBAY	124376		9788	14732		103492		19129	10619	185371	112494	307480	110166	170538	257014	14152	158660	10637	27422	1621338
KARACHI	122610					32218		24682	17115	168431	81165	257046	344225	123842	121237	6115	190915	2920	5183	1512636
TEHRAN	9294								220155		22041	324639							21675	597804
N. DELHI	10326					15464		2899	14119	45748	5339	67149	11513	70217	49957				9067	244557
COLOMBO	18955					26679				14987	7541	33283	64239	70390	22884		304		65	237382
Dacca	18360									21343	18523	29159		32507	28835		24624			231424
TRIVANDRUM	48469											49549		14155						154418
ISLAM ABAD	5495								142		77	46386							13742	52100
PESHAWAR	186											32030								32216
LAHORE												24392								24392
MADRAS	8283																		8823	17106
PEKING																			1777	5447
KATHMANDU																			213	5119
CALCUTTA																				447
RAWAL PINDI																				139
KABUL																				124
TOTAL	366554	9788	14732	14560	24496		0	46910	262289	435880	247588	1176202	530143	485319	479917	27407	374503	13557	87987	4736629

Annex B.1. (Continued)

BETWEEN AND	ABU DHABI	ADEN	AMMAN	BAGHDAD+	BAHRIAN+	BEIRUT+	CAIRO	DAMASCUS	DHAHRAN	DOHA	DUBAI	JEDDAH	KUWAIT	MUSCAT	AL KHAFIA	RIYADH	SANAA	SHARJAH	TOTAL
AFRICA																			

KHARTOUM	28772		469				159187	253	19828	14541	6559	246074	14132	5281		38425	13089	4582	551192
MAIROBI	922	1031					30386				11408	30331					730		74808
MOGADISHU	13250	3469					4990			1769	905	39689							64072
ADDIS ABABA	6679	5468					9054				7068	28415					6643		63337
LAGOS							19740					32268							52028
DJIBOUTI	3628	4960					2488				216	13587		112			8024		33015
DAR ES SALAM	1024						11359				6999	3878		4714					27974
REUNION												5900							5900
ACCRA							4588												4588
ABIDJAN							4387												4387
NIAMEY												4038							4038
NOUAKCHOTT											2769	3334							3334
ENTEBBE																			2769
DAKAR												2768							2768
NOUAKCHOTT												2580							2580
SEYCHELLES												1758							1758
KIGALI												532							532
MAURITIUS												379							379
TOTAL	53251	15952	469	31200	27000	20800	246209	253	19828	16310	35924	415531	14132	10107	0	38425	28486	4582	978459
U.S.A																			

NEW YORK							97419	1267	43231		5248	35898	56007			11	22104		342965
LOS ANGELES							31				31								13462
CHICAGO							23				23								9947
WASHINGTON							12				12								12
TOTAL	0	0	105135	0	0	0	97419	1267	43231	0	5314	35898	56007	0	11	22104	0	0	366326
AUSTRALASIA																			

SEDNEY	5244				4494		1829				1829			4351					16018
MELBOURNE	1369						1003				1003			2745					5117
PERTH														241					241
TOTAL	6613	0	0	0	4494	0	0	0	0	0	2932	0	0	4592	0	0	0	0	18631
OTHERS	526	0	1614	22486	49248	707	61701	0	54902	260	30	79574	0	2773	119	153952		141	511736
G.TOTAL	1099228	201449	1720684	1355854	1755056	726487	5135025	1363279	1798017	880450	2229145	3454856	2570020	850341	35608	1748877	443661	197821	21107266 *

* Total excludes double counting of traffic moving within ESCWA region.

** Horizontal traffic totals within the ESCWA region for individual airports may be slightly inconsistent with vertical totals primarily due to discrepancy in reported data of different airports on same city-pairs and due to the inclusion of Medina on the vertical listing, reported figures were not changed in order to maintain airport grand totals intact.

+ Regional total for airports marked + is correct, but is not equal to the sum of traffic by destination due to some missing data.

Total excludes double counting of traffic moving within ESCWA region.

Annex C.1. Western Asian international cargo traffic flow by region and destination 1985

BETWEEN AND	ADEN	AMMAN DAMASCUS	DHAHRAN	DUBAI	JEDDAH	KUWAIT	MUSCAT	AL KHAYMA	RIYADH	SANAA	SHARJAH	TOTAL
RAS												
ES C W A												

CAIRO	47	1380	48	3047	2497	23776	11890	893	19	10165	673	1149
BEIRUT	272	1327	35	1810	1268	1578	1335	2748			181	10554
AMMAN			386	1410	1597	1913	1293	1390		830	110	8930
JEDDAH	1598	1847	185		275		1124	40			3773	8667
BAHRAIN		753	7	1481	1822		1688	1159	41	347	37	7559
KUWAIT	1093	1282	450	294	1889		234	16	192	315	17	5783
SANAA	209		103	27		4038	348		680		173	5578
DUBAI		1578	4	119			1710	386	140			3937
DAMASCUS	97	792		239	133	401	661		273	134	115	2346
DHA	106	886	29		664		492	218	94	80	89	2660
ABU DHABI	302	1236	49	49	15		415	330	95	80	9	2579
RIYADH	43	848	105		159		502	31		744	103	2535
MUSCAT		1346			429		209		34		80	2093
DHAHRAN		1394	38	120			248	1		19	3	1823
BAGHDAD		760			28		314		50		1	1153
ADEN			78		290		405		8	228	59	1068
SHARJAH	100		152				399	78	30	154		913
MEDINA			12	14			2					28
RAS AL KHAYMAH							9					9
TOTAL	3869	15429	1681	8476	10882	32024	23044	7508	96	12939	6347	2289
												10391
N.AFRICA												

CASABLANCA		196	12			1168	300		179			1555
TUNIS		185	43		53	993	295	37	36		37	1659
TRIPOLI		260	193		7	41	429					930
ALGIERS			23			94	110					227
TOTAL	0	621	271	0	60	2256	1134	37	0	215	0	4271

BETWEEN		ADEN	AMMAN DAMASCUS	DHAKHAN	DUBAI	JEDDAH	KUWAIT	MUSCAT	AL KHAIWA	RIYADH	SANAA	SHARJAH	TOTAL
WEST EUROPE													

LONDON	4143	367	4470	6571	5262	5063	3483	4801	297	336			34793
FRANKFURT	2352	247	4631	6524	4842	9193	2281	4313	144	290			34722
PARIS	1394	291	2962	5929	4310	5357	518	5130	442	174			29257
AMSTERDAM	4011	195	1475	3044	3465	3158	4778	5134	103	535			26346
ROME	119	140	715	543	4087	1064		1225	137				6039
BRUSSELS	440		14	6430	319		140	125	45				7253
ISTANBUL	2337	9	140	116	1951	240	98	612	45	85			5076
ATHENS	591	67	456	826	1229	1067		1156		101			6679
ZURICH		39	1259	788		1336	81		160	551			4139
LARIACA	1793	107	271	170	189	937	33			17			4014
LUXEMBOURG	1216			2748		358		989					2140
GENEVA	524	13	28	143	1085	125				1			2373
VIENNA	1525	315	181	44	182	316		216		2			2304
MADRID	700	12		43	118			7					688
COPENHAGEN	506	372		12		96							384
MUNICH													96
BARCELONA				1	3	2	8						17
NICE													17
HELSINKI		17											
TOTAL	123	21551	2191	16602	33932	28514	28212	11420	0	26819	1379	2093	172835
EAST EUROPE													

BUCHAREST		47			1	2				888			9810
BELGRADE		23			359	55				42			6941
VARNA									53				1913
MOSCOW	156	20	177			34				534			999
SOFIA	28		34			34				96			192
WARSAW			41			74							115
BERLIN			114										114
BUDAPEST			31		33	44	5						113
PRAGUE			32		1	22							55
TOTAL	184	17267	499	0	394	0	265	5	0	0	58	1580	20232

Annex C.1. (Continued)

BETWEEN / AND	ADEN	AMMAN DAMASCUS	DHAHRAN	DUBAI	JEDDAH	KUWAIT	MUSCAT	AL-KHAIMA	RIYADH	SANAA	SHARJAH	TOTAL
FAR EAST												

BANGKOK	2008		2315	725	661	1544	336		1024		44	8677
SINGAPORE	1433		2324	1679	501	161	168		498			6964
MANILA			3042	648	219	623			1084		64	5680
SEOUL			1999	25	1859	428			354			4705
HONG KONG			881	2521			1				38	3441
KUALA LUMPUR	55			625	976		5				1	1662
JAKARTA					971				21			992
TOKYO				311	69	389					29	798
TAIPEI			469	228							4	701
MALE				201		42						243
TOTAL	0	3496	0	11020	6963	5266	3207	510	0	3211	0	38853
ASIA												

BOMBAY	269	129	9435	6553	2067	3105	3002	644	3742	96	1349	24891
KARACHI		103	5549	8555	10559	3144	892	23	2644	34	574	32739
TEHRAN		88		9319							402	10010
N. DELHI		68		4399		1277	334		382		153	6593
DACCA			366	1467	1851	1198	819		171			5872
COLOMBO			664	1427	297	829	571		3			2897
KABUL				2750								2876
TRIVANDRUM				1236		718		33			126	2523
ISLAM ABAD		183		251	318				598			1150
LAHORE				304	62						251	617
PESHAWAR				169								149
PEKING						23					16	39
MADRAS											25	35
KATHMANDU				33								33
TOTAL	269	366	388	16197	36563	15154	15394	5718	705	7380	130	10497

Annex C.1. (Continued)

BETWEEN	ADEN	AMMAN	DAMASCUS	DAHHRAN	DUBAI	JEDDAH	KUWAIT	MUSCAT	RAS ALKHAIMA	RIYADH	SANAA	SHARJAH	TOTAL
AND													
AFRICA													

KHARTOUM				35	62	7076	135	21		409	981	30	9749
ADDIS ABABA	2001				76	1420					190	24	3711
NAIROBI	69				428	1428					12		1937
ENTERBE					958							35	993
NDJAMENA						809							809
PORTOUBI	41				1	698				42			792
LAGOS						757							757
DAR ES SALAM					171			88				51	310
MOGADISHU	20				4	136							160
NGUAKHOTI						137							137
NIAMEY						121							121
DAKAR						106							106
BJJUMBURA												101	101
KISPLI						79							79
MAURITIUS						42							42
REUNION						40							40
TOTAL	2131	0	0	35	1700	12849	135	109	0	409	1225	241	18834
U.S.A													

NEW YORK		3336	3	1314	180	1921	3110			1941			11805
LOS ANGELES		402											402
CHICAGO		280											280
TOTAL	0	4018	3	1314	180	1921	3110	0	0	1941	0	0	12487
AUSTRALIA													

MELBOURNE					2461			482					2943
SEDNEY					869			340					1209
PERTH					2			18					20
TOTAL	0	0	0	0	3332	0	0	840	0	0	0	0	4172
OTHERS	0	0	0	3347	0	5659	71	1	25	2362	0	4	11469
S.TOTAL	6576	62738	5033	57001	94006	103683	74472	26148	926	55216	9138	9767	482411 *

Note: # Total excludes double counting of traffic moving within ESCWA region.

BIBLIOGRAPHY

- Arab Air Carriers Organizations (AACO), Arab commercial airline strategy 1987-1995, (in Arabic). AACO, Beirut, 1987.
- _____. Comparative operations of the Arab air carriers 1985 and 1984. AACO, Beirut, 1986.
- _____. Annual statistical bulletin of Arab airports 1985. Passenger traffic, Beirut, 1986.
- _____. Annual statistical bulletin of Arab airports 1985. Freight traffic, Beirut, 1986.
- Arab League. Al Taqreer Al Iktisadi Al Arabi Al Muwahad, Arab Unified Economic Report. Arab League, Tunis, 1986.
- Davis, R.G. A History of the World Airlines. Oxford University Press, London, 1964.
- Doganis R. Flying off course: the economics of international airlines. George Allen and Unwin, London, 1985.
- ESCWA. Survey of economic and social development in the ESCWA region, 1986.
- IATA. Airline economic results and prospects 1984-1988. IATA, Geneva and Montreal, 1986.
- IATA. World air transport, annual.
- ICAO. Regulation of capacity in international air transport services. Circular 137-AT/43, ICAO Montreal, 1977.
- ICAO. International air passenger and freight air transport, Middle East. Circular 167-AT/62, ICAO, Montreal, 1982.
- ICAO. Survey of international air transport fares and rates, September, 1985. Circular 198-AT/76, ICAO, Montreal, 1986.
- ICAO. Regional differences in fares, rates and costs for international air transport 1984. Circular 199-AT/77, Montreal 1986.
- ICAO. Digests of statistics: Civil aviation statistics of the world, annual; Airport traffic, annual; Fleet, personnel, commercial air carriers, annual. Traffic, commercial air carriers, annual.
- Sabri, Majdi Ali. An alternative development strategy for small international airlines (with particular reference to Middle East airlines. Ph.D., thesis (unpublished), Polytechnic of Central London, March 1980.
- Sharif, Amer. Commercial aviation in the Arab world. Bardwail and Company, Beirut, 1974.

- Smith, Peter. Air freight: operations, economics and marketing. Faber and Faber Limited, London, 1974.
- Straszheim, M. The international airline industry. The Brookings Institution, Washington D.C., 1969.
- Tanega, N.K. The commercial airline industry. D.C Heath and Company, Toronto, 1976.
- Turney, R. (Editor), Arab Transport and Shipping 1986. Falcon publishing W.L.L, Bahrain, 1986.
- Wiley, J.R. Airport Administration. ENO Foundation for Transportation Inc., Westport, Connecticut, 1981.

