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**INTERNATIONAL AIR PASSENGER  
AND FREIGHT TRANSPORT  
  
ASIA AND PACIFIC**

**1986**

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International Air Passenger  
and Freight Transport

**Asia and the Pacific**

Circular 201-AT/79



1986

INTERNATIONAL CIVIL AVIATION ORGANIZATION

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# INTERNATIONAL AIR PASSENGER AND FREIGHT TRANSPORT — ASIA AND THE PACIFIC

## Foreword

### *Background of the study*

1. This study, which examines the development of international air passenger and freight transport to, from and within Asia and the Pacific, is one of a series produced in accordance with Resolution A18-20 adopted by the Assembly of the International Civil Aviation Organization in 1971. Since 1976, these regional air transport studies have covered both passenger and freight transport, with particular emphasis on trends and developments during the most recent five-year period for which information is available. The present study follows the same format as the last one on Asia and the Pacific issued in 1980. The most recent ICAO regional studies dealing with international air passenger and freight transport are as follows:

Africa	Circular 189 (1984)
Latin America and the Caribbean	Circular 175 (1983)
Middle East	Circular 167 (1982)
Asia and the Pacific	Circular 160 (1980)
Africa	Circular 147 (1979)
Latin America and the Caribbean	Circular 141 (1978)
North America	Circular 128 (1976)

### *Purpose of the study*

2. Assembly Resolution A18-20, referred to above, recognized the importance of the efficient and economic development of international air passenger and air freight services in connexion especially with the growth of tourism and trade. The Assembly decided that the objective of these studies should be to assist States in the development of air transport services by providing current information on trends and developments in the air transport field, and by indicating obstacles to further development and measures to overcome these obstacles.

### *Scope of the Study*

3. The Asia/Pacific region, for the purposes of this Study, comprises 34 States and a number of extra-regional States with territories as shown on the map and in Appendix 1. The Study deals with the development of international air passenger and air freight services to, from and within this region during the decade ending December 1984 within the constraints of available and reliable data, and concentrates on questions of organization, economics, finance and facilitation. Forecasts of international traffic cover the period 1984 to 1994.

4. The Study is intended to be a general review of trends and developments and obstacles to further development. The work presupposes that, where necessary, States will make and implement their own plans for development. It is hoped, nevertheless, that this review will be of value in the preparation of these plans and in the formulation of policies.

#### *Sources and limits of information*

5. One of the main sources of information used in this and other ICAO air transport studies is the data regularly filed by Contracting States on Air Transport Reporting Forms and published in seven series of statistical digests: *Traffic — Commercial Air Carriers; Traffic by Flight Stage; On-Flight Origin and Destination; Airport Traffic; Fleet — Personnel — Commercial Air Carriers; Civil Aircraft on Register* and *Financial Data — Commercial Air Carriers*. There are some deficiencies in the statistical material and not all States are able to file all of the data requested.

6. To supplement the data available from the statistical programme, questionnaires were addressed to the Contracting States in the region, and to the other ICAO States with airlines operating to the region. Replies to these questionnaires were received from:

Australia	Jordan	Singapore
Brazil	Kenya	South Africa
Chile	Kuwait	Sri Lanka
Czechoslovakia	Mauritius	Sweden
France	Netherlands, Kingdom of the	Switzerland
Germany, Federal Republic of	New Zealand	Vanuatu
India	Norway	United States
Indonesia	Pakistan	Union of Soviet Socialist
Italy	Republic of Korea	Republics

7. Information was also obtained from certain States in the region (Fiji, Indonesia, Japan, Malaysia, New Zealand, Pakistan, Republic of Korea, Singapore and Thailand) as well as from Hong Kong, during missions undertaken by the Headquarters Secretariat to establish direct personal contact with appropriate officials of governments, air carriers, and other entities.

8. Another source of information used for this study was the large and constantly updated collection of research material on hand at ICAO, including completed ICAO studies, periodical and occasional publications of national administrations and international organizations, studies prepared by research agencies and individuals, and the aviation press. A selected bibliography is given in Appendix 16.

9. The monetary unit used throughout this study is the United States dollar.

#### *Review of the text*

10. This study, completed on the basis of the information sources indicated above, was reviewed by the Air Transport Committee. Taking into account the comments made by the Committee, the present text was prepared by the Secretary General and published by decision of the Council.

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# Summary

1. The following summary is intended to serve as a guide to the substantive parts of this Study.

## **BACKGROUND TO AIR TRANSPORT IN ASIA AND THE PACIFIC (Chapter 1)**

2. The Asia/Pacific region comprises 34 States as well as the dependent territories of several extra-regional States. The region has 2 580 million inhabitants or 55 per cent of the world's population. The region's population is expected to grow at 1.5 per cent a year to 3 340 million in the year 2000. The urban populations of the region represented only 26 per cent of the total, the lowest of any region. Nevertheless, the region had eight of the 25 most populous cities of the world in 1970 and 11 in 1980, with the expectation of having 14 cities of over 10 million by the year 2000.

3. Vast distances are the most striking geographic feature of this region which extends over half the circumference of the globe. Five States in the region are entirely land-locked, but almost half the States and almost all the territories in the region are islands or archipelago States.

4. The region, taken as a whole, is one of the least developed in the world, with an average per capita Gross National Product (GNP) in 1983 of \$925. At the same time, however, many countries in the region play an important and dynamic role in world economic development and trade. The region's total GNP (in constant dollar terms) increased at an average rate of 5 per cent per year during the 1974-1984 period. An increasing number of countries are relying on an export-led strategy of industrialization in which air transport plays an important role.

5. The foreign trade of developing countries in the region grew between 1975 and 1983 at about 17 per cent per year against 11 per cent for the world. The region accounts for slightly less than one-fifth of total world trade by value.

6. The principal international governmental organizations concerned with the over-all economic and trade development objectives of the region are the Economic and Social Commission for Asia and the Pacific (ESCAP) and the United Nations Conference on Trade and Development (UNCTAD). In the air transport field ICAO, with a regional office in Bangkok, provides a forum for co-operation in the economic and technical aspects of air transport and acts as the executing agency for the United Nations Development Programme (UNDP) involving civil aviation projects. Although no formal civil aviation commission exists in Asia and the Pacific, there are regular informal meetings of Directors of Civil Aviation. Airline groupings active in the region include the International Air Transport Association (IATA), the Orient Airlines Association (OAA) and the Association of South Pacific Airlines (ASPA).

7. In maritime transport, liner shipping has largely been converted from general cargo break-bulk carriers to container vessels, thus reducing costs through improved efficiency and shorter transit times, with four major shipping lines now providing eastbound round-the-world container services. Air/sea intermodal services, with shorter transit times than sea-only and cheaper rates than air-only, are increasing in availability. Road and rail transport development in the region have only limited implications for air transport although Siberian and North American rail "land-bridges" are cutting sea-only transit times.

**AIRPORTS (Chapter 2)**

8. From 1978 to 1985, more new international airports opened in the Asia/Pacific region than in any other region. In addition, major construction work on terminals or runways was completed during this period at over one-third of the region's international airports. Many States have now opened regional airports (i.e. airports at points other than the principal city) to international flights. Additionally, almost half of the region's 109 airports now have main runways of 3 000 m or more. During the 1979-1985 period, the number of airports receiving wide-body scheduled flights increased by half from 42 to 62. Future spending in the region on expansion has been estimated at \$20-30 000 million through the year 2000.

9. The management of airports by national civil aviation administrations predominates but the trend continues toward establishment of autonomous airport authorities (i.e. entities that are outside the usual governmental ministry or department such as government-owned corporations), particularly where traffic volumes are high and there is promise of economic self-sufficiency. Aeronautical sources (i.e. landing, parking, hangar and passenger service charges) are major contributors to airport revenues. In 1981, the average combined landing and passenger service charges relating to representative DC-9 type aircraft were about 11 per cent below the world average level, but attained that level in 1984. For representative B-747 type aircraft these average charges increased from the world level in 1981 to 6 per cent above it in 1984. However, significant variations occur within sub-regions, and charges in the North-Eastern and South-Eastern sub-regions are significantly above world averages.

10. The sources of capital for airport development include, in addition to revenues from aeronautical and other charges, government funds and ordinary loans, guaranteed loans from foreign governments at below-market interest rates, and loans from various international organizations and funds, the last two sources being commonly used in developing countries.

11. Route facilities and services within the region are generally provided by governments and managed as a function of the civil aviation administrations. The region's route facility charging structure has remained essentially unchanged during recent years.

**AIR TRANSPORT OPERATORS AND THEIR FLEETS (Chapter 3)**

12. The 43 international scheduled airlines of the Asia/Pacific region produced one-quarter of the world's 1984 international scheduled air transport capacity (tonne-kilometres available). A total of 89 airlines, 46 based outside the region, provide scheduled international air services to Asia and the Pacific. International non-scheduled services are also provided by some of these airlines as well as by 10 non-scheduled operators based in the region and other carriers, based primarily in Europe and North America.

13. Strong traffic growth and generally profitable operations in recent years have enabled many of the region's airlines to modernize their fleets at a rapid rate, thus reducing unit operating costs and permitting them to take advantage of the much improved operating characteristics of the latest generation of jet aircraft. The number of wide-body aircraft (principally Boeing B-747s and Airbus A-300s) in use by the region's carriers more than doubled since 1979, from 130 to 287. Wide-body aircraft also accounted for 94 of the 179 new aircraft on order in the region in the latter half of 1985. The number of jet aircraft operated increased by 29 per cent from 448 in 1979 to 578 in 1985 and these now account for over two-thirds of the total commercial fleet of the region. Although the total fleet of 824 large aircraft operated by Asia/Pacific carriers increased by only 11 per cent from the 1979 total of 742, the productivity of the fleet, measured in tonne-kilometres available, rose by 56 per cent. In the air cargo field, as of mid-1985, 10 scheduled international airlines based in the region operated 38 jet all-cargo or combi aircraft.

**REGULATION AND ROUTE NETWORKS (Chapter 4)**

14. Regulatory approaches to important matters such as the role of the national carrier, the degree of competition to be permitted and the kinds of bilateral arrangements to be sought are by and large moving in many States of the

region in the direction of greater liberalization and lessening of controls to permit more operational and commercial flexibility for airlines; however, the pace of change varies among States. Also, a majority of States continues to favour fairly tight regulation or monitoring of capacity, to seek reciprocity in their bilateral arrangements and route access, at times to require the operation and development by their national airline of routes that have little or no prospect of being economically viable, and to maintain general government control over a single national carrier.

15. Recently, a number of States have considered reducing their level of ownership of national carriers, although not necessarily of control, through partial "privatization", usually giving the carrier greater exposure to commercial criteria and objectives. Several States have domestic carriers that aspire to an international role and in some the long-standing practice of designating only one carrier as international operator has been changed to permit designation of a domestic carrier as an international operator, usually on routes not served by the established national carrier and most recently on routes outside the sub-region or the region. Of added significance is the emergence or expected emergence in China of several new domestic regional airlines, some of which might at some time operate internationally.

16. Recent developments in two bilateral relationships are likely to have future implications for other bilateral arrangements involving the region. The first concerns China and the United Kingdom. Section IX, Annex I of the 1984 Joint Declaration of these countries on the Question of Hong Kong contains provisions concerning the regulation of civil aviation matters as from 1 July 1997 (see Appendix 15).

17. Another bilateral relationship of pivotal importance to the region is the one between Japan and the United States. Long unresolved issues are being reviewed against the background of changes in Japan's policies on issues such as designation, and the takeover of Pan American's Pacific operations by United Air Lines at increased frequency levels. Developments in this bilateral relationship will have a considerable impact on the already competitive environment on North Pacific routes and on other bilateral relationships.

18. In the South Pacific, a number of small island States with unique air transport problems have sought to improve their air transport links through the establishment of their own airlines and by means of different co-operative arrangements such as wet-leases, blocked-space agreements and management links with outside operators.

19. In September 1985, 326 country-pairs in the Asia/Pacific region were linked by through-plane services, with relatively extensive route networks existing within the Western, Central and North-Eastern sub-regions. Links between most sub-regions are not well developed. The route network between points in the region and points in other regions in September 1985 provided 301 through-plane country-pair scheduled service links, the best developed being to North America, followed by those to Europe and the Middle East.

20. The region's route system is characterized by the establishment of several important hubs which operate as interchange points between different airlines, and which permit traffic feed within their own systems for the airlines based at those hubs. Additionally, carriers based in the United States and Australia transfer on-line passengers between various points in their home continents at Tokyo and Singapore respectively.

#### **PASSENGER AND FREIGHT MARKETS (Chapter 5)**

21. Between 1979 and 1984, international tourist movements in Asia and the Pacific, which were predominantly by air, grew more rapidly than in the world as a whole (6.4 per cent per annum on average versus 2.3 per cent for the world). By 1984 the total annual arrivals of foreign tourists in States of the region reached almost 23 million. The total receipts earned from international tourism in the region in 1984 were about \$12 200 million, according to World Tourism Organization (WTO) estimates, or about 12 per cent of total world tourism receipts.

22. The Western and South-Eastern sub-regions had 10.3 per cent and 11.9 per cent respectively of tourist arrivals by all modes in 1984, while the Central and North-Eastern sub-regions had 40.5 per cent and 37.3 per cent respectively. Average annual growth rates in tourist arrivals for 1979-1984 ranged from 2.1 per cent for the Western sub-region, through 4.9 and 5.6 for the South-Eastern and Central sub-regions, to a high of 9.2 per cent for the North-

Eastern sub-region. The Central sub-region had the most tourist arrivals by air in 1984 (6.6 million), followed by the North-Eastern (6.2 million), the South-Eastern (2.7 million) and the Western (1.7 million). The percentages of 1984 tourist arrivals by air ranged from 99 per cent in the South-Eastern sub-region, through 88 per cent in the North-Eastern and 74 per cent in the Western, to 72 per cent in the Central.

23. Airports in the Asia/Pacific region handled some 3.4 million tonnes of international air freight in 1984, only a small proportion of the region's foreign trade by weight, but about one-sixth by value. An estimated one-fourth of the region's trade in manufactured goods by value now moves by air.

24. When total distribution costs, including ancillary costs (e.g. handling, insurance, capital costs related to time in transit) are included, carriage by air is often competitive with surface transport. Also, the availability of air freight transport is now influencing the total production strategies of some manufacturers (particularly those of high technology items and time-sensitive fashion goods) who offset higher air transport costs against lower costs of other factors of production (e.g. labour, capital and inventory) by using the wider locational choices permitted with air transport.

### **PASSENGER TRAFFIC (Chapter 6)**

25. In 1984 the airlines of the Asia/Pacific region produced just over one-quarter of the world's international scheduled passenger-kilometres. Their average annual passenger traffic growth rate was nearly 13 per cent compared to just over 8 per cent for the world's airlines as a whole over the period 1974-84. During the same period the Asia/Pacific airlines as a group consistently recorded the world's longest average stage lengths, highest average numbers of seats available per aircraft, highest average passenger load factors and longest average distances flown per passenger.

26. In 1984 approximately 15 per cent of Asia/Pacific international scheduled passengers moved to and from North America, 14 per cent to and from Europe, and 13 per cent to and from the Middle East. Only 1 per cent of the total traffic flow involved Africa and Latin America and the Caribbean. The highest growth rate over the 1979-1984 period (15.8 per cent) was achieved on routes to and from the Middle East, and the lowest (5 per cent) on routes to and from Europe, while travel to and from North America increased at an average rate of 8 per cent per year.

27. In 1984, of the more than 2 million passengers moving between Asia and the Pacific and other regions, the largest number (6.9 million or 34.3 per cent) originated in or were destined for the North-Eastern sub-region. Another large traffic flow (4.3 million or 21.5 per cent) moved between the Western sub-region and the Middle East and a third large flow (2.7 million or 13.3 per cent) occurred between the Central sub-region and Europe.

28. While the average annual growth rate achieved by the Asia/Pacific carriers for international passenger traffic over the first half of the 1974-1984 period, at 16.4 per cent, was well above the world average of 11.9 per cent, over the second half (1979-1984) their rate of increase, at 9.1 per cent, was almost double the world figure of 4.7 per cent and significantly higher than the average achieved by the carriers of any other region. In 1984 the domestic scheduled passenger traffic of the Asia/Pacific carriers as a whole amounted to 9.3 per cent of the world's total domestic traffic. The scheduled airlines of Asia and the Pacific in 1984 handled about 4 per cent of the world's international and 1 per cent of the world's domestic non-scheduled passenger traffic carried by the world's scheduled carriers.

29. The total number of international passengers embarked and disembarked at all airports in the Asia/Pacific region in 1984 is estimated at 75.5 million, about two and a half times as many as in 1974. About 27 million or almost 36 per cent of the region's total were accounted for by the airports of three cities, namely Hong Kong, Tokyo and Singapore.

**FREIGHT TRAFFIC (Chapter 7)**

30. In 1984 the airlines of the Asia/Pacific region produced more than one-quarter of the world's international scheduled freight tonne-kilometres. Their average annual freight traffic growth rate was 17.3 per cent compared to 10 per cent achieved by the world's airlines as a whole over the period 1974-1984. During 1984 the Asia/Pacific airlines as a group recorded the world's highest over-all freight capacity per aircraft, highest freight loads per aircraft, and highest over-all weight load factors.

31. Almost 2 million tonnes of freight were carried in 1984 on international scheduled air services to, from and within the Asia/Pacific region. About 42 per cent moved within the region, half of that between the four sub-regions and half within each individually. The remaining 58 per cent moved to and from other regions of the world: between the Asia/Pacific region and North America 30 per cent, Europe 22 per cent, the Middle East 6 per cent, and other regions 0.5 per cent.

32. The Asia/Pacific airlines almost doubled their share of the world's scheduled international freight traffic from 14.9 per cent in 1974 to 28.5 per cent in 1984. The domestic freight traffic of the Asia/Pacific airlines also increased from 1974 to 1984 much more rapidly than for the world's carriers as a whole, its average annual rate of growth being 19.3 per cent compared to the global rate of 3.7 per cent. Correspondingly, the Asia/Pacific carriers' share of the world's domestic freight traffic grew from only 2.2 per cent in 1974 to 8.8 per cent in 1984.

33. The total weight of international freight handled at the airports of the Asia/Pacific region in 1984, estimated at 3.4 million tonnes, was about three and a half times as much as in 1974, with an average annual rate of growth over the decade of 13.6 per cent. Just under 60 per cent of the freight was accounted for by the airports of the North-Eastern sub-region, 33.3 per cent at two cities, Tokyo and Hong Kong.

**FARES AND RATES (Chapter 8)**

34. With regard to both the establishment and the implementation of tariffs, the Asia/Pacific region is characterized by wide variations in the regulatory policies of States. IATA's role is limited in this region, and many fares and rates are in practice co-ordinated through the Orient Airlines Association (OAA) or made available by individual airlines. This over-all situation is reflected in varying levels and availability of fares and rates to, from and within the various sub-regions and in widespread discounting from the published levels in some markets.

35. Although the majority of bilateral air transport agreements entered into by States in the region contain a tariff clause calling for both parties to act on tariffs previously negotiated by airlines ("dual approval"), in recent years several States have signed agreements with one or more bilateral partners incorporating the "country of origin" approach whereby tariff control is exercised only by the State in which the traffic originates or the "dual disapproval" approach, whereby tariffs take effect unless disapproved by both governments concerned. China and the Philippines have entered into arrangements with the United States whereby fares falling within a band specified as a percentage above and/or below an agreed reference fare level are subject to the "dual disapproval" approach and fares falling outside the band to the "dual approval" and "country of origin" approaches respectively. Irrespective of the bilaterally agreed tariff approval mechanism, a number of States in the region abstain from intervening in some aspects of the tariff structure, for example fare construction rules, baggage allowances or currency conversion rules. Few States in the region regularly evaluate air carrier tariff submissions, and very few have disapproved or modified such submissions on more than isolated occasions.

36. Published normal economy fares for travel from Africa/Middle East to Asia/Pacific and from the Americas to the South-Eastern sub-region were significantly above the world average at all distances for the sample month September 1984. For travel from the South-Eastern sub-region to the Americas and from the region as a whole to Middle East/Africa, these fares were also well above the world average at longer distances, but below the world average at shorter distances. Fares between the South-Eastern sub-region and Europe showed a limited relationship with distance.

37. General cargo rates examined, applicable in September 1984, were significantly above the world average for shipments from Middle East/Africa to Asia/Pacific at all distances, while from Asia to Europe they were well below the world average except at the longest reference distance.

### **ECONOMICS OF AIRLINE OPERATIONS (Chapter 9)**

38. Although the Asia/Pacific scheduled airlines, as a group, had only about one-sixth of the operating revenues and expenses of the world's airlines during the 1974-1984 period, they earned more than one-third of the cumulative 1974-1984 operating surplus of the world's airlines. In terms of net results (i.e. after taking into account non-operating items as well), the Asia/Pacific airlines as a group over the 1974-1984 period had a \$1 550 million surplus of net profits over net losses, or nearly half of the net profits of all the world's airlines during the same years.

39. Over the 1974-1984 period the operating revenues of the Asia/Pacific scheduled airlines increased almost five-fold, from \$3 900 million in 1974 to \$18 200 million in 1984, at an average annual rate of 16.7 per cent. The tonne-kilometre yield for total transport operations of the Asia/Pacific airlines in 1984 was 7.2 cents (or 10 per cent) below the world average. Operating expenses increased at 15.9 per cent per annum on average for 1974-1984, but available capacity increased even more rapidly so that for the Asia/Pacific airlines as a group, the total operating expenses per tonne-kilometre available increased less rapidly than for the world's airlines. By 1984 operating expenses per tonne-kilometre available were 3.8 per cent below the world average. During the 1974-1984 period the excess of non-operating expenses over non-operating revenues depressed the operating results of the Asia/Pacific airlines to a greater extent than the operating results of the world's airlines, mainly because of the absence of subsidies and the rapid increase of income taxes, the latter due to the higher-than-average profitability of the region's airlines.

40. Throughout the 1974-1984 period, assets and liabilities of the Asia/Pacific airlines showed practically the same growth rates (at about 17 per cent) as operating revenues, indicating that the region's airlines have generally maintained their preparedness for continued expansion. Among assets, current assets were among the most rapidly increasing and their share in the total assets of the airlines of the region has grown from 26.7 per cent in 1974 to 32.2 per cent in 1984. Among liabilities, long-term debt and capital grew at an average rate of more than 18 per cent per annum compared to a world-wide average growth rate of only 10 per cent annually, resulting in a debt-equity ratio of about 2.4 for the region's airlines against 1.8 for the world's airlines. The current ratio (current assets to current liabilities) of the airlines of the region, a common indicator of solvency, improved from 0.87 in 1974 to 1.08 in 1984, whereas for the world's airlines the current ratio deteriorated between these years from 1.05 to 0.96. However, the ratio of total assets to debt decreased for the Asia/Pacific airlines from 2.7 to 2.4 and increased for the world's airlines from 2.6 to 2.7.

41. In 1984, the average passenger yield for all the international operations of the Asia/Pacific airlines, at 5.8 cents per passenger-kilometre, was somewhat lower than the world average of 6.9 cents. Between 1979 and 1984, mainly through the greater use of wide-body aircraft, airlines in the Asia/Pacific region achieved an increase in aircraft productivity on international routes (in terms of available seat-kilometres per block-hour) of 5.8 per cent per annum, well above the world average of 3.5 per cent per annum, although at the cost of above-average depreciation and interest charges related to flight equipment. In 1984, the average freight revenue yields for the routes within the Asia/Pacific region were well above the world average of 25.9 cents, but the yields of Asia/Pacific airlines on the other international routes were close to the world average.

### **FACILITATION (Chapter 10)**

42. In certain countries of the Asia/Pacific region, facilitation is in a highly advanced state, among the best in the world, and some of these countries have found this to be of great assistance in developing tourism and trade. In other countries, facilitation requires serious attention. Most of the States of the region still require entrance visas for temporary visitors from most other countries of the world, providing exemptions in some cases, solely on a reciprocal basis, and a majority of the States of the region still require the completion of embarkation or disembarkation cards by passengers, in many cases with more items than are prescribed by ICAO. Many countries of the region insist on

making a systematic examination of incoming passenger baggage, rather than adopting the oral declarations and sampling procedures recommended by ICAO. Several countries of the South-Eastern sub-region often require disinsecting of aircraft on arrival while passengers are still seated in the aircraft, contrary to the requirements of Annex 9.

43. Some of the most successful trading States and Territories of the region — for instance, Singapore and Hong Kong — are also among those with the most advanced and efficient cargo clearing procedures. There are, however, a number of States in the region where import and export formalities are still restrictive, documentation requirements excessive and clearance procedures a hindrance to the efficient flow of air cargo traffic.

#### **THE OUTLOOK FOR PASSENGER AND FREIGHT TRAFFIC (Chapter 11)**

44. Growth in real Gross Domestic Product (GDP) for the region has averaged 4.9 per cent per annum over the 1974-1984 period, against a world average of approximately 2.6 per cent per annum for that period, and has been responsible for a significant part of the rapid growth in the region's air traffic demand. The region's large population base provides a potential for continued rapid economic growth in the 1984-1994 forecast period. Based on World Bank scenarios, low, base and high GDP growth rates of 3.7, 4.3 and 4.9 were developed for the region for 1985-1995. In international trade, the export growth of the region has outperformed the GDP growth by approximately three percentage points from 1974 to 1984. Other external factors considered include differences between countries in inflation rates and changes in exchange rates. Government goals and regulations can also stimulate or constrain travel to some degree, depending on their objectives.

45. The main internal (industry) factors affecting traffic growth in the region include fares and rates, airline costs, and the availability of airline services. During the last decade the weighted average passenger and freight yields of the airlines of the region declined in real terms at an average annual rate of 2.3 per cent and 4.3 per cent respectively. During the 1974-1984 period expenses per available tonne-kilometre declined by approximately 3 per cent per annum in real terms. Cost efficiency to some degree improved with the progressive replacement of older aircraft with new, more fuel efficient aircraft. The total number of scheduled aircraft departures by airlines of the region has increased by approximately 54 per cent over the last 10 years.

46. On the basis of the above factors, international scheduled passenger traffic of the airlines of the Asia/Pacific region is forecast to grow at an average rate of 11 per cent per annum during the period 1984-1994 compared to 12.6 per cent per annum during the period 1974-1984. International freight of the airlines of the region is forecast to grow at an average annual rate of 13.0 per cent for 1984-1994 compared to 17.2 per cent during the period 1974-1984.

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## Conclusions

1. The international passenger and freight traffic carried by the airlines of the Asia/Pacific region as a whole grew during the 1974-1984 period at a significantly higher average rate than that of the world's airlines as a whole. This rapid growth in demand for air transport to, from and within the region has resulted in the development of many new routes and the acquisition of a large number of new aircraft, particularly wide-body types. During the 1984-1994 period the demand for the services of the Asia and Pacific air carriers is forecast to grow less rapidly than during the 1974-1984 period, but still at a relatively high rate. However, this continued development of air services to meet the potential demand will require the solution of a variety of problems.
2. In accordance with the terms of reference, the studies are concerned with problems generally grouped under the term "air transport", i.e. financial, economic, regulatory and administrative, and not with problems of a legal or technical nature. The limitation to international air transport services contained in the terms of reference does not, of course, imply that States should give priority to the development of these over domestic services. As mentioned in the Foreword, the Assembly has directed that this series of regional studies of international air passenger and freight transport, called for by Resolution A18-20, in addition to providing current information on trends and developments, should indicate obstacles to further development, and measures to overcome these obstacles.
3. Certain problems of a world-wide nature which may constitute obstacles to development are currently under consideration by ICAO and accordingly are not examined here although they are referred to in the body of the Study. These problems lie largely in the fields of regulation of air services and establishment of fares and rates.
4. The obstacles to further development of international air transport that are described below vary in importance and in susceptibility to remedial action. Some are more pronounced in some of the States in the region than in others, and some are the result of conditions and developments external to the air transport industry. Furthermore, in view of the variety and complexity of the air transport situation in Asia and the Pacific and the fact that governments, air carriers, and airport authorities are all engaged in study and planning for the future, the treatment here given to problems and related measures is general in nature. Suggested remedies are intended only to be indications of types of appropriate action, it being assumed that specific measures would be applied only on the basis of precise plans drawn up by those directly responsible. Many of the problems and measures described are closely interrelated so that the text should be considered as a whole rather than by parts.
5. Effective action clearly involves not only civil aviation authorities, airport administrations and airlines but also those government departments concerned with such matters as tourism, trade and transport in general, environment and resource control, finance, and customs and immigration. In the private sector, responsibility may fall not only on air carriers but also on other bodies interested in the promotion of air tourism and air freight. Accordingly, it is desirable that all interested bodies be involved, both public and private, and that co-operative action be encouraged.

### Air transport and economic development

6. An efficient and economically viable air transport system is an essential element in economic development. Adequate and efficient air transport services facilitate the conduct of public and private business and constitute a key factor in the development of tourism and foreign trade. Not infrequently, however, insufficient attention is given to

the role of air transport in national economic and transportation planning, owing in part to those not directly involved in civil aviation having insufficient information about the relative costs and benefits of air transport. This is important in view of the key role played by air transport in many countries in the region in the development of non-traditional exports.

*Remedial actions*

- a) Ensure that in national economic and transportation planning, full account is taken of the relative benefits of air transport.
- b) Develop statistical information by transport mode on the value of trade and on the commodities shipped in order to better identify trade opportunities which rely on air transport.
- c) Make appropriate arrangements to inform potential shippers and economic planners of the advantages of air freight and to inform the airline industry about how it could better meet the needs of such shippers.

7. The provision of adequate and efficient air services is of particular importance to developing island and land-locked countries, whose economies are hampered by a lack of access to overland or sea transport, and to developing areas in general because of their often inadequate means of surface transport and their remoteness from major market areas.

*Remedial actions*

- a) Where feasible, consider the usefulness of implementing ICAO Assembly Resolution A24-12, concerning the concept of "community of interest" within regional economic groupings as a valid basis for the designation by one developing country in that grouping of an associated country's airline.
- b) Grant to adjacent land-locked developing countries, to the extent possible, unimpeded transit rights to commercial air transport services.
- c) Consider favourably, to the extent possible, requests by land-locked or island developing countries for traffic rights that may improve the viability of their services.
- d) Where feasible, encourage airline co-operative agreements (e.g. aircraft leasing, management contracts) to facilitate air service development.

**Air transport policy**

8. Air transport policy has been the subject of extensive review and change in several States in the region as a result of growing awareness among governments of the linkages between air transport and national development and of policy changes in other regions. A wide variety of approaches to the regulation of air transport exists in the region, reflecting its economic, political and cultural diversity. There is no formal regional civil aviation body, as in some other regions, to facilitate harmonization of policy on different issues, but annual meetings of Directors-General of Civil Aviation take place and sub-regional fora have become more important.

*Remedial actions*

- a) Support sub-regional initiatives to examine common problems and develop co-ordinated approaches to issues of policy and regulation.
- b) Re-examine whether greater regional co-ordination and harmonization of policy is desirable and feasible, and particularly whether it could be facilitated by expanding on existing informal regional meetings.

9. Many bilateral disputes involving States in the region in recent years have been disagreements over the need for additional capacity in cases where existing services rely to an often disputed extent on Fifth Freedom traffic and on so-called "Sixth Freedom" traffic.

*Remedial action*

Collect and maintain adequate and consistent statistics to aid in assessing any discrepancies between capacity provided and required on international routes.

10. Some States in the region continue to regulate international tariffs on the basis of detailed evaluation of IATA agreements, resulting in lengthy approval procedures and relatively high levels of fares and rates. On the other hand, many States promote or permit continual amendments to tariffs which are designed to respond to market forces but which are frequently insufficient to cover costs. These disparate approaches have led to major discrepancies in the levels of fares and rates from neighbouring countries and significant directional imbalances in fares through manipulation of IATA's "currency adjustment factors", thereby encouraging discounting and placing continued downward pressure on unit yields. The instability and uncertainty so engendered is compounded by the fact that many States formally adopt IATA-agreed fares and rates but at the same time permit significantly lower fares and rates to be offered by individual airlines or through agreements by the Orient Airlines Association or airline groups in individual countries.

*Remedial action*

Review existing tariff regulation practices with a view to developing a regulatory environment which both recognizes the realities of the marketplace and is conducive to a more stable and economic tariff structure.

**Air carriers**

11. The airlines of Asia and the Pacific have continued to enjoy both high growth and profitability. While the over-all picture presented by the airlines of the region is that of a successful and dynamic industry, this collective view masks the difficulties that continue to be experienced by individual airlines of many developing countries.

*Remedial actions*

- a) Consider ways in which improved co-operation between airlines could result in better service to countries or regions poorly served at present.
- b) Draw attention to the need for increased bilateral and multilateral assistance to the airlines of some developing countries, for example the training of technical and management personnel.

12. The withdrawal from service of B-707 and DC-8 freighter aircraft has led to growing reliance on wide-body freighters and "combi" aircraft on major routes and on the below-deck capacity of passenger aircraft on routes with less traffic. Adequate air freight capacity in smaller markets is therefore increasingly dependent upon passenger services being able to provide below-deck capacity. Despite these changes, the proportion of total revenues derived from freight and mail carriage has continued to grow in importance. To ensure continued improvement in the future, however, vigilance is required on the part of management.

*Remedial action*

Encourage the development of freight and mail traffic and revenues in close conjunction with passenger traffic and revenues so as to achieve optimal over-all results. In particular, consider new or expanded use of combination passenger/cargo aircraft on appropriate routes.

13. A key issue affecting many routes to, from and within the region concerns the right of airlines operating indirect routes to apply fares developed for direct routes. While some airlines operating direct services with restrictions such

as limited stopovers and transfers feel that they can only offer low fares through the lower costs thus achieved, these restrictions affect the ability of other airlines to participate in the traffic and may inhibit over-all traffic and tourism growth. At the same time, there is a need to ensure that participation by carriers with indirect routings does not lead to destructive competition.

#### *Remedial action*

Pursue international co-operation to develop a regulatory environment in which opportunities are afforded airlines operating indirect routings to apply fares developed for direct routes.

### **Airports and route facilities**

14. The high rate of traffic growth at many airports in the region has placed a continuing demand on governments and airport authorities to expand capacity and to accommodate wide-body aircraft. In several instances, the provision of adequate capacity to handle long-term growth at existing sites appears difficult and the selection of new sites must be considered because of land use and environmental problems. This situation has arisen even at some airports developed on new sites within the last two decades, indicating the difficulty of long-term planning under conditions of high growth. During the past decade, the region has emerged as the most active in the world in terms of spending on airport development.

#### *Remedial actions*

- a) Promote the collection of adequate airport traffic and financial data required for effective long-term planning.
  - b) Promote the regular exchange of information by airport planners on traffic trends and forecasts on a sub-regional or regional basis to ensure realistic assessments of future capacity requirements for airports and route facilities, and appropriate allocation of resources so as to meet essential requirements.
  - c) Where funds for airport construction or expansion are difficult or impossible to obtain from domestic sources, careful consideration may be given to the possibilities offered by multilateral sources, regional development banks and bilateral donor agencies.
  - d) It may be appropriate to consider measures to co-ordinate airport development programmes, particularly in the South Pacific, where these are sponsored by different States or different bilateral agencies, with the aim of ensuring that the operational needs of the area served are met as fully and efficiently as possible.
15. There is a continuing need to generate internal funds for airport development, and to this end improvement in the fiscal and operational management of airports is essential. Traffic at many airports in developing countries is now of sufficient volume to make it feasible to cover operating costs and to develop new sources of revenue. Higher traffic levels also permit a higher rate of recovery of the cost of providing en-route facilities.

#### *Remedial actions*

- a) Where required, establish the costs of operation of airports and route facilities and services to identify possible economies, determine cost recovery levels and needs for adjustment of user charges.
- b) Develop non-aeronautical revenues further and, in certain cases, consider the establishment of airport free zones, to increase and diversify airport revenues and to enhance the role of the airport in economic development.
- c) Where not already the case, consider the desirability of establishing independent authorities or public corporations to separately manage airports, route facilities or both, where this could lead to improved efficiency and better financial results.

16. Environmental and other considerations have delayed the expansion of capacity at a number of major airports in the region. These delays could have adverse effects on traffic growth on some routes involving these airports, with consequent repercussions for other airports and airlines both in the region and outside. Airports currently experiencing capacity difficulties include the Japanese airports at Tokyo/Narita, Tokyo/Haneda and Osaka/Itami. Other airports that may experience capacity problems in the foreseeable future, pending development of alternative sites, are Hong Kong and Sydney.

*Remedial action*

Take necessary steps to minimize the effect of airport capacity restrictions on airline schedules and routing patterns, pending further expansion.

**Facilitation of international air passenger and freight traffic**

17. The development and flow of international air traffic is being impeded in a number of States in the region, particularly where the Standards of Annex 9 are not being adhered to. Mandatory visas, the required completion of embarkation and disembarkation cards, systematic examination of all incoming luggage, treatment of unaccompanied and mishandled baggage as cargo, and disinsecting of aircraft with passengers aboard, are major impediments to the facilitation of passengers. Complicated documentary and inspection requirements, inadequate storage, and overtime charges for clearance impede freight movements.

*Remedial actions*

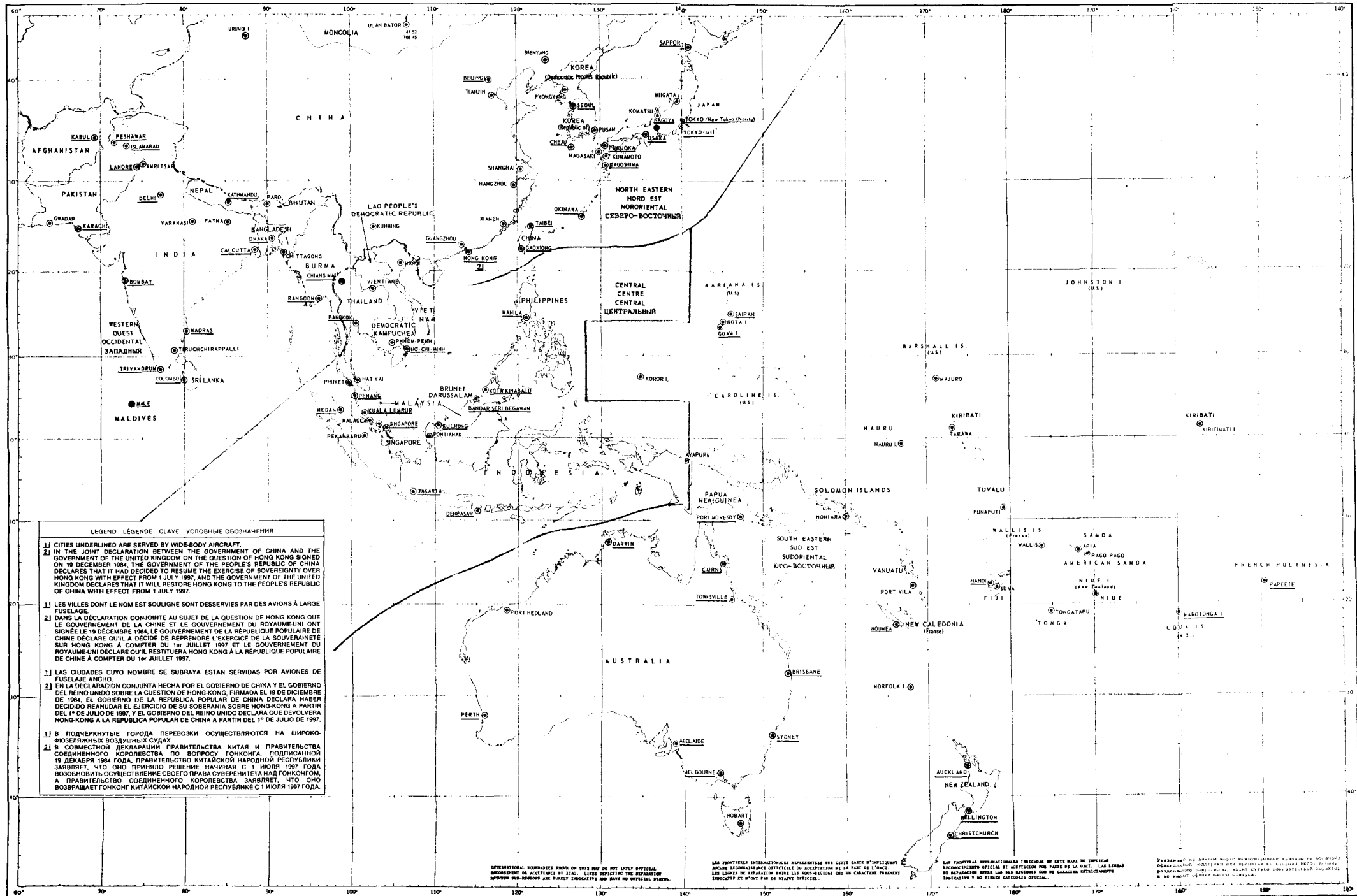
- a) Reduce or eliminate entrance visa requirements for temporary visitors from a larger number of States, on a reciprocal basis.
- b) Eliminate the need for passengers to complete embarkation/disembarkation cards as well as requirements for passenger lists.
- c) Examine the feasibility of using machine-readable passports.
- d) Gradually abandon the practice of systematic examination of incoming passenger baggage and adopt sampling inspection methods, including the dual-channel clearance system.
- e) Decrease the requirements for cargo documentation, both the number of forms to be completed and the number of copies demanded of operators and shippers.
- f) Arrange for adequate coverage of airline operating times by customs service officers on regular duty, without requiring the payment of overtime by airlines.

18. Experience has indicated that the most useful vehicle to obtain improvements in facilitation in Contracting States has been the establishment and effective operation of local airport facilitation committees where topical problems affecting international airports can be examined and solved at the local level by officials of the various departments and operators concerned, including immigration, customs, health, agriculture, tourism, airport authorities, security, narcotics control and air transport operators, both commercial and private, national and foreign.

*Remedial actions*

- a) Establish local airport FAL committees to report to a national facilitation committee empowered to establish a national facilitation programme with definite objectives and deadlines for their implementation.
- b) Ensure high-level representation in the national facilitation committee to permit the adoption of national policies and legislation as may be required for effective trade facilitation.

ASIA AND PACIFIC REGION WITH STATES, TERRITORIES AND CITIES RECEIVING SCHEDULED INTERNATIONAL AIR SERVICES — 1985<sup>1</sup>  
 RÉGION ASIE ET PACIFIQUE AVEC LES ÉTATS, TERRITOIRES ET VILLES, DESSERVIS PAR DES SERVICES AÉRIENS INTERNATIONAUX RÉGULIERS — 1985<sup>1</sup>  
 ESTADOS, TERRITORIOS Y CIUDADES DE LA REGION ASIA Y PACIFICO A LOS QUE SE PRESTAN SERVICIOS AEREOS INTERNACIONALES REGULARES — 1985<sup>1</sup>  
 АЗИИ И ТИХОГО ОКЕАНА С УКАЗАНИЕМ ГОСУДАРСТВ, ТЕРРИТОРИЙ И ГОРОДОВ, В КОТОРЫЕ ОСУЩЕСТВЛЯЮТСЯ РЕГУЛЯРНЫЕ МЕЖДУНАРОДНЫЕ ПЕРЕВОЗКИ — 1985<sup>1</sup>



LEGEND LÉGENDE CLAVE УСЛОВНЫЕ ОБОЗНАЧЕНИЯ

1) CITIES UNDERLINED ARE SERVED BY WIDE-BODY AIRCRAFT.  
 2) IN THE JOINT DECLARATION BETWEEN THE GOVERNMENT OF CHINA AND THE GOVERNMENT OF THE UNITED KINGDOM ON THE QUESTION OF HONG KONG SIGNED ON 19 DECEMBER 1984, THE GOVERNMENT OF THE PEOPLE'S REPUBLIC OF CHINA DECLARES THAT IT HAD DECIDED TO RESUME THE EXERCISE OF SOVEREIGNTY OVER HONG KONG WITH EFFECT FROM 1 JULY 1997, AND THE GOVERNMENT OF THE UNITED KINGDOM DECLARES THAT IT WILL RESTORE HONG KONG TO THE PEOPLE'S REPUBLIC OF CHINA WITH EFFECT FROM 1 JULY 1997.

1) LES VILLES DONT LE NOM EST SOULIGNÉ SONT DESSERVIES PAR DES AVIONS À LARGE FUSELAGE.  
 2) DANS LA DÉCLARATION CONJOINTE AU SUJET DE LA QUESTION DE HONG KONG QUE LE GOUVERNEMENT DE LA CHINE ET LE GOUVERNEMENT DU ROYAUME UNI ONT SIGNÉE LE 19 DÉCEMBRE 1984, LE GOUVERNEMENT DE LA RÉPUBLIQUE POPULAIRE DE CHINE DÉCLARE QU'IL A DÉCIDÉ DE REPRENDRE L'EXERCICE DE LA SOUVERAINÉTÉ SUR HONG KONG À COMPTER DU 1<sup>er</sup> JUILLET 1997 ET LE GOUVERNEMENT DU ROYAUME UNI DÉCLARE QU'IL RESTITUERA HONG KONG À LA RÉPUBLIQUE POPULAIRE DE CHINE À COMPTER DU 1<sup>er</sup> JUILLET 1997.

1) LAS CIUDADES CUYO NOMBRE SE SUBRAYA ESTAN SERVIDAS POR AVIONES DE FUSELAGE ANCHO.  
 2) EN LA DECLARACION CONJUNTA HECHA POR EL GOBIERNO DE CHINA Y EL GOBIERNO DEL REINO UNIDO SOBRE LA CUESTION DE HONG KONG, FIRMADA EL 19 DE DICIEMBRE DE 1984, EL GOBIERNO DE LA REPUBLICA POPULAR DE CHINA DECLARA HABER DECIDIDO REANUDAR EL EJERCICIO DE SU SOBERANIA SOBRE HONG KONG A PARTIR DEL 1<sup>o</sup> DE JULIO DE 1997, Y EL GOBIERNO DEL REINO UNIDO DECLARA QUE DEVOLVERA HONG KONG A LA REPUBLICA POPULAR DE CHINA A PARTIR DEL 1<sup>o</sup> DE JULIO DE 1997.

1) В ПОДЧЕРКНУТЫЕ ГОРОДА ПЕРЕВОЗКИ ОСУЩЕСТВЛЯЮТСЯ НА ШИРОКО-ФУЗЕЛЯЖНЫХ ВОЗДУШНЫХ СУДАХ.  
 2) В СОВМЕСТИМОН ДЕКЛАРАЦИИ ПРАВИТЕЛЬСТВА КИТАЯ И ПРАВИТЕЛЬСТВА СОЕДИНЕННОГО КОРОЛЕВСТВА ПО ВОПРОСУ ГОНГКОНГА, ПОДПИСАННОЙ 19 ДЕКАБРЯ 1984 ГОДА, ПРАВИТЕЛЬСТВО КИТАЙСКОЙ НАРОДНОЙ РЕСПУБЛИКИ ЗАЯВЛЯЕТ, ЧТО ОНО ПРИНЯЛО РЕШЕНИЕ НАЧАТЬ С 1 ИЮЛЯ 1997 ГОДА ВОЗОБНОВИТЬ ОСУЩЕСТВЛЕНИЕ СВОЕГО ПРАВА СУВЕРЕНИТЕТА НАД ГОНГКОНГОМ, А ПРАВИТЕЛЬСТВО СОЕДИНЕННОГО КОРОЛЕВСТВА ЗАЯВЛЯЕТ, ЧТО ОНО ВОЗВРАЩАЕТ ГОНГКОНГ КИТАЙСКОЙ НАРОДНОЙ РЕСПУБЛИКЕ С 1 ИЮЛЯ 1997 ГОДА.

INTERNATIONAL BOUNDARIES SHOWN ON THIS MAP DO NOT IMPLY OFFICIAL RECOGNITION OR ACCEPTANCE BY ICAO. LINES INDICATING THE SEPARATION BETWEEN TERRITORIES ARE POINTS OF INTEREST AND HAVE NO OFFICIAL STATUS.

LES FRONTIÈRES INTERNATIONALES REPRÉSENTÉES SUR CETTE CARTE N'IMPLIQUENT AUCUNE RECONNAISSANCE OFFICIELLE OU ACCEPTATION PAR LA FAO. LES LIGNES DE SÉPARATION ENTRE LES TERRITOIRES ONT UN CARACTÈRE PUREMENT INDICATIF ET N'ONT PAS DE STATUT OFFICIEL.

Las fronteras internacionales representadas en este mapa no implican reconocimiento oficial ni aceptación por parte de la OACI. Las líneas de separación entre las regiones solo se muestran para fines de referencia y no tienen estatus oficial.

Границы между странами показаны на этом плане не означают признания или принятия со стороны ИКАО. Линии, разделяющие территории, являются объектами интереса и не имеют официального статуса.

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# Chapter 1

## Background to Air Transport in Asia and the Pacific

1. The Asia/Pacific region has over half the world's population and extends over half the circumference of the globe. States in the region range from some of the least developed countries to some of the most advanced and pursue a variety of economic development strategies. As a whole, the region has emerged as the fastest growing in the world in terms of economic performance and foreign trade, factors which have contributed to its higher than average growth in air transport and the marked increase in its relative share of world traffic. Part A discusses these characteristics as well as co-operative arrangements in both the economic and air transport fields. Part B goes on to examine those developments in international surface transport, principally of freight, that may influence the competitive relationship between air and surface transport modes.

### A — CHARACTERISTICS OF THE REGION

#### *Definition and relative position*

2. The Asia/Pacific region (see Map), comprises 34 States (of which 30 are Contracting States of ICAO), as well as territories of Australia, France, New Zealand, Portugal, the United Kingdom and the United States. Since the previous study of air transport in this region (Circular 160) was published in 1980, Brunei Darussalam and Vanuatu (formerly New Hebrides) have become independent and have joined ICAO. For the purposes of this review of civil aviation in Asia and the Pacific, the States and territories of the region have been grouped into four sub-regions: Western, Central, North-Eastern and South-Eastern (see Appendix 1).

3. The Asia/Pacific region accounts for over one-fifth of the world's land surface with 2 580 million inhabitants or 55 per cent of the world's total population. The combined gross national products of the nations of the region amounted to some \$2 285 000 million in 1983, or about 22 per cent of the world's total. The region accounts for slightly less than one-fifth of total world trade by value. The position of the region relative to other regions of the world in terms of demographic and economic indicators is shown in Table 1.1 and data for individual countries are given in Appendix 2.

4. In 1984, the airlines of Asia and the Pacific collectively accounted for 25.6 per cent of the passenger-kilometres (20.8 per cent in 1979) and 28.5 per cent of the freight tonne-kilometres performed (22.6 per cent in 1979) on the world's international scheduled services. Despite these relatively large and increasing shares of world international air traffic, the region's per capita volumes of this traffic were only about 55 international passenger-kilometres per inhabitant of the region (less than half the world average of 119), and only 3.2 tonne-kilometres of international air freight per capita (compared to 6.2 for the world). The figures on shares emphasize the growing relative importance of international air transport in the region while those on traffic per inhabitant underline the developing status of the region, viewed as a whole.



Table 1.1

Regional<sup>1</sup> comparison of selected economic indicators  
1983 and 1984

Indicator	Units								World	Asia and Pacific Share (%)
			Asia and Pacific	Africa	Europe <sup>2</sup>	Latin America and Caribbean	Middle East	North America		
Population	(1983)	Millions	2 579	524	809	368	102	259	4 641	55.5
Area		Mill. sq. km.	30.0	30.3	30.3	20.6	5.4	19.3	135.9	22.1
Population density		Pop. sq. km.	86	17	27	18	19	13	34	-
Gross national product		Thous. mill. U.S.\$	2 285 <sup>3</sup>	374 <sup>4</sup>	3 227 <sup>5</sup>	715 <sup>6</sup>	248 <sup>7</sup>	3 593	10 442	21.9
GNP per capita		U.S.\$	925	754	7 438	1 912	5 911	13 873	-	-
International trade	(1983)									
— Imports		Mill. U.S.\$	351 628 <sup>8</sup>	88 462	916 223	86 243	113 428	331 211	1 887 189	18.6
— Exports		Mill. U.S.\$	355 488 <sup>8</sup>	70 563	885 150	106 411	121 274	274 051	1 812 930	19.6
Air freight — total	(1984)	Mill. TKP	9 152	1 153	14 013	2 008	2 074	11 079	39 479	23.2
		TKP/capita	3.5	2.2	17.3	5.5	20.3	42.8	8.5	-
— International		Mill. TKP	8 227	1 057	11 242	1 467	1 991	4 921	28 905	28.5
		TKP/capita	3.2	2.0	13.9	4.0	19.5	19.0	6.2	-
— Domestic		Mill. TKP	925	96	2 771	541	83	6 158	10 574	8.7
		TKP/capita	0.4	0.2	3.4	1.5	0.8	23.8	2.3	-
Air Passengers — total	(1984)	Mill. pax-km	207 932	35 961	407 711	64 003	41 222	513 700	1 270 529	16.4
		Pax-km/capita	81	69	504	174	404	1 983	274	-
— International		Mill. pax-km	141 606	27 610	199 944	34 406	32 562	118 064	554 192	25.6
		Pax-km/capita	55	53	247	93	319	456	119	-
— Domestic		Mill. pax-km	66 326	8 351	207 767	29 597	8 660	395 636	716 337	9.3
		Pax-km/capita	26	16	257	80	85	1 528	154	-

1. Regional groupings are those adopted by ICAO for statistical purposes.

2. Includes USSR.

3. GNP and GNP per capita excludes data for Afghanistan, Bhutan, Cook Islands, Democratic Kampuchea, Democratic People's Republic of Korea, Lao People's Democratic Republic, Maldives, Mongolia, Niue, Tokelau, Tuvalu, Vanuatu, Viet Nam, Wallis and Futuna, and Western Samoa.

4. GNP and GNP per capita excludes data for Angola, Chad, Comoros, Djibouti, Equatorial Guinea and Mozambique.

5. GNP and GNP per capita excludes data for Albania, Bulgaria, Czechoslovakia, German Democratic Republic, Poland, Romania and Union of Soviet Socialist Republics.

6. GNP and GNP per capita excludes data for Cuba, French Guiana, Guadeloupe and Netherlands Antilles.

7. GNP and GNP per capita excludes data for the Islamic Republic of Iran, Iraq and Lebanon.

8. Figures differ from those in Appendix 2 due to inclusion here of estimates for non-reporting States.

Sources.— International Bank for Reconstruction and Development, *World Bank Atlas*, (Population and GNP).

United Nations, *Monthly Bulletin of Statistics*, December 1985, (International Trade).

ICAO, *Civil Aviation Statistics of the World*, (Air Freight and Air Passenger).

### *Geographic factors influencing the demand for air transport*

5. The most striking feature of the geography of the region is its great extent, covering over half the circumference of the globe. The distance from Kabul in the north-west to Papeete in the south-east, for example, is about 16 000 km, while 7 800 km separate Tokyo in the north from Sydney in the south. Sixty per cent of all city-pairs within the region receiving through-plane service involve cities more than 2 000 km apart. The distances between the region and its main extra-regional markets in Europe and North America are even greater. From a central point such as Singapore it is 10 900 km to London and 13 600 km to San Francisco.
6. By virtue of being land-locked or of being islands, a large number of developing States and territories in the region face additional transport problems which hinder their economic development and their foreign trade relations. The particular difficulties faced by land-locked and island developing countries are the subject of continuing concern within the international community, and air transport has an important role to play in assisting to alleviate these difficulties where feasible and economic.
7. Five States in the region (Afghanistan, Bhutan, Lao People's Democratic Republic, Mongolia and Nepal) are without direct access to the sea. The disadvantages to those land-locked countries of having to route surface shipments through neighbouring transit States include:
  - a) increased shipping costs due to transit charges, delays and losses while in transit;
  - b) absence of control over transport tariffs; and
  - c) priority of movement possibly being subordinated to the needs of the transit country or its transport firms.
8. Almost half of the States and almost all of the territories in the region are islands or archipelago States, such as Indonesia and the Philippines. Many are highly fragmented, being made up of many small islands, with small populations. Fiji, for example, is made up of 332 islands, of which 106 are inhabited, while the Cook Islands comprise 15 islands spread over 2.2 million square kilometres of ocean. Many islands are relatively isolated and receive only infrequent and irregular shipping services. Of particular relevance to the transport difficulties facing small island developing countries is Resolution A24-12 adopted by the ICAO Assembly at its 24th Session in 1983, which was formulated to assist airlines of one State belonging to a regional economic grouping to exercise the traffic rights of another State in the same grouping under mutually acceptable terms and conditions.

### *Demographic factors influencing the development of air transport*

9. Between 1970 and 1983, the region's population grew from almost 2 000 million to about 2 600 million, increasing at 2.2 per cent a year. It is projected to continue to grow at 1.5 per cent a year to 3 340 million in the year 2000, remaining at 55 per cent of the world's population. The North-Eastern sub-region is the most populous with 47 per cent of the total, followed by the Western (39 per cent), the Central (13 per cent) and the South-Eastern with only 1 per cent. In 1983, the largest States in terms of population were China (1 021 million), India (733 million), Indonesia (156 million), Japan (119 million), Bangladesh (95 million) and Pakistan (89 million). Conversely, ten States and all the island territories had populations of less than one million.
10. The urban populations of the region represented 26 per cent of the total, lower than that of any other region in the world. Only in the industrialized countries and in Singapore, Hong Kong, Mongolia and the Republic of Korea does the degree of urbanization exceed the world average of 41 per cent. Nevertheless, the large cities of the region have experienced rapid growth. In 1970, eight of the 25 most populous cities in the world were located in the region. By 1980, this had risen to 11 and by the year 2000 there will be 14, each with a population greater than 10 million. These cities are Shanghai, Tokyo/Yokohama, Beijing, Greater Bombay, Calcutta, Jakarta, Seoul, Madras, Karachi, Delhi, Osaka-Kobe, Manila, Dhaka and Bangkok/Thonburi.

11. Air transport in Asia and the Pacific has been influenced to varying degrees by changes in the volume and pattern of migration to, from and within the region. The two main countries of net immigration in the region are Australia and New Zealand, where approximately one in five and one in seven persons respectively are foreign-born. Emigration after 1945 to Australia from Europe (notably the United Kingdom, Yugoslavia, Italy and Greece) assures a strong demand for travel on the so-called "Kangaroo route" to Europe; however, changes in the pattern of immigration to both Australia and New Zealand since the early 1970s have important implications for other route developments to and from these countries. In recent years, approximately 30-40 per cent of Australian immigrants have come from elsewhere in the region (e.g. Viet Nam, Philippines, Malaysia, India, Hong Kong and China); while in the case of New Zealand, immigration from the South Pacific has become increasingly important (e.g. from the Cook Islands, Niue, Samoa and Fiji).

12. Large ethnic communities also exist within the region as a result of past movements of population. The largest communities of overseas Chinese in the region are located in Thailand, Malaysia, Singapore and Indonesia. Migrations for employment purposes have also resulted in important traffic flows between Indonesia, Malaysia and Singapore, and between Japan and the Republic of Korea. Expatriate business communities also generate substantial traffic, despite their relatively small size (e.g. Hong Kong 45 000, Singapore 15 000 and Indonesia 10 000 resident foreign businessmen).

13. Travel between the region and countries outside the region is also influenced by long-term emigration from the region. Changes in United States and Canadian immigration policies have resulted in a sharp increase since the early 1970s in the number of immigrants to those countries from the Philippines, the Republic of Korea, Hong Kong, India, Pakistan, Viet Nam and Japan. Between 1980 and 1985, the number of Asians resident in the United States rose from 3.5 to 5.1 million. Japanese immigration to Brazil in the 1950s and 1960s was also important enough to assist the eventual development of air services between the two countries.

14. In Europe, important Asian immigrant communities in Europe are found in the United Kingdom (from India, Pakistan, Bangladesh and Hong Kong), in the Federal Republic of Germany (from India and Pakistan), Scandinavia (from Pakistan) and France (from Viet Nam and Democratic Kampuchea).

15. One of the most important demographic developments affecting air transport in the region in recent years, has been the movement of Asian contract migrant workers (also known as "guest workers") to the Gulf States and Libyan Arab Jamahiriya. The increase in oil prices in 1974 and 1979 enabled oil-producing States to engage in large-scale construction and development projects which created a demand for construction and service personnel that could no longer be met from within the Middle East or North Africa, and which led to the recruitment of contract workers from Pakistan, Bangladesh and India. However, in the mid-1970s there was a sharp rise in the number of contract workers recruited in the Philippines, Thailand and the Republic of Korea. Estimates for the years 1982-1983 for some of the countries involved include about 2 million workers from Pakistan engaged in the Middle East, 800 000 from India, 400 000 from the Philippines, 280 000 from Thailand, about 200 000 from Sri Lanka and 170 000 from the Republic of Korea. With the decline in oil prices since 1984, the number of guest workers employed in the Middle East has fallen.

#### *Economic factors influencing the development of air transport*

16. From an economic standpoint, the Asia/Pacific region shows extreme contrasts. Taken as a whole, it is one of the least developed in the world, with an average per capita Gross National Product (GNP) in 1983 of \$925, in contrast to \$13 873 for North America and comparable to \$754 for Africa (see Table 1.2). The seven "least developed countries" (LDCs) of the region (Afghanistan, Bangladesh, Bhutan, Lao People's Republic, Maldives, Nepal and Samoa), together with Burma, Democratic Kampuchea and Viet Nam are among the poorest countries in the world. The region's newly industrialized countries play an increasingly important and dynamic role in world economic development and trade, which is reflected in the sustained high rate of growth in international air passenger and freight traffic during the past two decades.

**Table 1.2**  
**Demographic and economic characteristics**  
**of the Asia/Pacific sub-regions (1983)**

Sub-region	Population (Millions)	Area (000 km <sup>2</sup> )	Population density (per km <sup>2</sup> )	Gross national product (U.S.\$)	
				Total (000 millions)	Per capita (U.S.\$)
Western sub-region	1 003.6	5 814	173	252 540	256 <sup>1</sup>
Central sub-region	344.1	3 926	88	215 660	784 <sup>2</sup>
North-Eastern sub-region	1 207.5	11 755	103	1 619 100	1 365 <sup>3</sup>
South-Eastern sub-region	23.9	8 510	3	197 570	8 400 <sup>4</sup>
Total for region	2 579.1	30 005	86	2 284 870	925

1. GNP per capita excludes Afghanistan, Bhutan and Maldives.

2. GNP per capita excludes Democratic Kampuchea, Lao People's Democratic Republic and Viet Nam.

3. GNP per capita excludes Democratic People's Republic of Korea and Mongolia.

4. GNP per capita excludes Nauru, Samoa, Tuvalu, Vanuatu, Cook Islands, Wallis and Futuna, Johnston Island, Midway Island, Niue, Norfolk Island, Tokelau and Wake Island.

Source.— Appendix 1.

17. In terms of the level of development and the development strategies pursued, the following groups of countries and territories can be distinguished:

- a) the three developed market economies: Australia, Japan and New Zealand;
- b) the semi-industrialized market economies (Brunei Darussalam, Hong Kong, Indonesia, Malaysia, Philippines, the Republic of Korea, Singapore and Thailand);
- c) the developing market economies of the Western sub-region, among which India and Pakistan are the most important;
- d) the developing socialist economies (Afghanistan, China, Democratic Kampuchea, Lao People's Democratic Republic, Mongolia and Viet Nam);
- e) the developing island economies of the South-Eastern sub-region, which differ greatly among themselves in their economic circumstances.

Furthermore, although China and India are considered as developing countries, their aggregate resources in human and economic terms are such that they play major roles in world affairs and engage in industrial and commercial activities on a scale comparable to that of many developed economies.

18. The aggregate wealth of the region is concentrated to an exceptionally high degree in only four countries: Japan, China, India and Australia, which together accounted for 82 per cent of the GNP of the Asia/Pacific region, Japan alone representing over half of the total. There are wide variations in the level of economic development achieved

by individual countries as measured by the level of per capita GNP. The countries and territories with the highest per capita incomes in 1983 were Brunei Darussalam (\$21 140), Australia (\$10 780), Japan (\$10 100), French Polynesia (\$8 190), New Caledonia (\$7 790), New Zealand (\$7 410), Nauru (\$7 410), Singapore (\$6 620), Guam (\$6 070) and Hong Kong (\$6 000). In contrast, the per capita levels in countries such as Bangladesh, Bhutan and the Lao People's Republic was between \$100 and \$150, among the lowest in the world.

19. During the 1974-1984 period, total GNP (in constant dollar terms) for the Asia/Pacific region increased at an average rate of 5 per cent per year. This compares with target growth rates set for developing countries during the Second and Third Development Decades, covering the 1970s and 1980s respectively, of 6 and 7 per cent a year. Growth during the second half of the period actually increased from 4.9 to 5.1 per cent, despite slow world growth during the early 1980s. Between 1979 and 1984, the Western, Central and North-Eastern sub-regions all grew at about 5.3 per cent a year, while the South-Eastern sub-region recorded an average annual growth of 3 per cent. The fastest growing economies during this period were those of Brunei Darussalam (16.8 per cent), Singapore (8.4 per cent), Hong Kong (7.6 per cent), Pakistan (6.4 per cent) and Malaysia (6.3 per cent). By contrast, Japan's economy grew at 4.2 per cent and Australia's at 3 per cent.

20. High economic growth in many developing countries in the region has been influenced to a great degree by the growing importance of the industrial and service sectors. Of particular importance to international air transport in the region has been the emphasis placed by an increasing number of countries on an export-led strategy of industrialization. Even though such a strategy is less relevant to some of the larger countries, economic development in certain areas within these countries has been influenced by the rapid development of export-oriented industries. Air transport has played an important role in enabling developing countries to gain a large and growing share of international markets for such manufactured goods as consumer electronic products, semiconductor devices, textiles and clothing, electrical appliances, watches, optical equipment, leather goods, footwear, toys and sporting goods.

21. Between 1975 and 1983, the foreign trade of developing countries (in current dollars) in the region grew at about 17 per cent per year compared to an average annual rate of 11 per cent for the world as a whole. Despite the recession in world trade during the early 1980s, many countries in the region continued to enjoy export-led growth, primarily due to the rapid increase in North American demand for consumer goods produced in the region. However, as of early 1986, it appears that the future rate of growth in exports to North America and Western Europe could be reduced as developed countries in these areas take measures to curb import-caused unemployment and to reduce trading deficits. These include the application of non-tariff barriers to imports of certain manufactured products from countries in the Asia/Pacific region, as evidenced by the Multi-Fibre Agreement, the Jenkins Textiles Quota Bill in the United States, and by voluntary export controls adopted by countries in the region to safeguard their markets in Europe and North America.

22. Other important features of the economic development of the region are the emergence of Japan as the world's third largest economy and largest creditor nation, the change in development strategies adopted in recent years by certain States and the growing importance of intraregional trade.

### ***Regional co-operation***

23. The aims and objectives of air transport development in the Asia/Pacific region must be considered in relation to the over-all economic and trade development objectives of the region. The principal international governmental organizations in this connexion are the Economic and Social Commission for Asia and the Pacific (ESCAP), which is an organ of the United Nations Economic and Social Commission (ECOSOC), and the United Nations Conference on Trade and Development (UNCTAD). Both bodies have an important role to play in assisting in the implementation of the International Development Strategy (IDS) for the Third United Nations Development Decade, pursuant to General Assembly Resolution 35/56 which aims at raising the share of world industrial production of the developing countries to 25 per cent by the year 2000. UNCTAD is also instrumental in co-ordinating measures to assist land-locked and island developing countries, for whose development improved transport services are of particular importance.

24. Regional co-operation in the field of civil aviation is achieved through a number of bodies. ICAO, with a regional office in Bangkok, provides a forum for co-operation in the economic and technical aspects of air transport and acts as the executing agency for the United Nations Development Programme (UNDP) involving civil aviation projects. No formal regional civil aviation commission exists in Asia and the Pacific, as in some other regions, although there are regular informal meetings of Directors of Civil Aviation to discuss matters of common interest. However, there has been growing inter-governmental co-operation in civil aviation at the sub-regional level. The South Pacific Bureau for Economic Co-operation (SPEC) formed a Civil Aviation Advisory Committee in 1976. In the Central sub-region, the Association of South-East Asian Nations (ASEAN) has also shown interest in civil aviation matters in recent years, as has the South-East Asian Agency for Regional Transport and Communications Development (SEATAC). A new regional body, Regional Co-operation in South Asia (RCSA), was established in 1981, comprising seven States of the Western sub-region under the auspices of which *ad hoc* meetings of DCAs have taken place. Under a UNDP/ICAO programme, four regional civil aviation training centres (CATCs) were established in 1978 and 1979 at Bangkok, Curug (Indonesia), Manila and Singapore.

25. The major airline groupings which are active in the region are the International Air Transport Association (IATA), the Orient Airlines Association (OAA) and the Association of South Pacific Airlines (ASPA), which are referred to in Chapter 3.

## B — SURFACE TRANSPORT

26. Air transport in the Asia/Pacific region should be viewed in the broader context of the complementary provision of international transport services by all modes of transport to ensure availability of the most timely and cost-efficient means of communication and to support the growth of national economies, particularly among the developing countries of the region. To support the aims set out in the International Development Strategy for the Third United Nations Development Decade, ESCAP proclaimed, in April 1984, the period 1985-1994 as the Transport and Communications Decade for Asia and the Pacific (Resolution 236 (XL)). Six immediate objectives have been identified for the Decade under the following headings:

- a) integrated transport and communications planning;
- b) policies for increased transport and communications efficiency;
- c) facilitation of international traffic and communications;
- d) transport and communications for improved rural and urban living conditions;
- e) rationalization of energy use in transport and communications; and
- f) development of transport and communications technology.

The following paragraphs contain a brief discussion of developments in surface transport which have a bearing on intermodal transport and the competitive situation of air transport, especially with reference to the carriage of freight.

### *Maritime transport*

27. The principal development affecting the competitive relationship between air and sea transport of freight during the past decade has been the conversion of liner shipping from general cargo break-bulk carriers to container vessels, particularly on medium and long-distance routes. This trend commenced in the Asia/Pacific region in the early 1970s and by 1984 approximately four-fifths of general cargo suitable for shipment in containers moving to, from and

within the region was being carried on container vessels. While containerization of general cargo shipments has reduced costs through improved efficiency and shorter transit times, the full benefit of door-to-door shipment of containers has yet to be achieved in many developing countries in the region. In order to reduce port time, container services tend to call at fewer ports than the traditional liner services they replaced, resulting in the need for feeder services to secondary ports as well as to ports located off the main shipping lanes to the Middle East and Europe on the one hand, and to North America on the other. During this period Hong Kong and Singapore have emerged as the primary trans-shipment centers on the main intercontinental routes.

28. Since the late 1970s, world sea-borne trade has declined steadily while the world fleet has continued to increase in capacity. Excess shipping capacity has slowed the rate of increase in the total freight charges of many liner Conferences serving the region, the over-all average increase between 1978 and 1984 being only 16 per cent. However, Conference rates on a number of liner routes to Europe declined by 10 to 20 per cent between 1978 and 1984. An important factor affecting both rates and profitability of shipping services has been the growing importance of shipping lines operating outside the Conference system. Of possible future importance in this connexion was the adoption of the United Nations Convention on a Code of Conduct for Liner Conferences in October 1983. Over-all, shippers in the region have benefitted from greater speed, regularity and frequency of shipping services and from more competitive freight rates. However, shippers of high-value goods, who formerly benefitted from the "freight-all-kinds" (FAK) container rate structure, have seen these benefits eroded with the introduction of the so-called "commodity box rates" system in recent years, a system which allows for a degree of differentiation between various types of cargo.

29. The introduction of eastbound round-the-world container services in 1985-1986 by four major shipping lines is a development which is expected to have a major impact on existing shipping services between the region and North America/Europe. By reducing transit times and lowering costs, the new services provide increased competition for air cargo. Third generation, high-capacity container ships have been built for these services and are operated by crews half the size of those on earlier vessels. By sailing eastbound, these vessels take advantage of prevailing winds and currents in the Atlantic, Indian and Pacific Oceans, and of otherwise empty legs caused by imbalances in directional trade flows involving the region. Circumnavigation on some services is achieved in 63 days, with transit times of about 21 days between New York and Singapore.

30. Shippers in the region have made increasing use in recent years of air/sea intermodal services for the transport of goods such as textiles, clothing, and electrical and electronic consumer products. Goods are shipped part way by sea, off-loaded at a convenient port near an international airport, and flown from there to their final destination: in some cases air services are used first, then sea. Air/sea services aim to reduce transit times by between 50 and 65 per cent compared with through transport by ship, while reducing the cost of carriage by between 35 and 50 per cent compared with using only air transport. Such services generally seek to take advantage of surplus air capacity resulting from an imbalance in trade flows. Examples of air/sea intermodal services include the following:

- a) from Japan, the Republic of Korea and Hong Kong to Europe and the east coast of North America, by sea to west coast ports in North America and onward by air (chiefly using Air Canada, Cargolux, Flying Tigers and KLM);
- b) from Hong Kong, Singapore and India to Europe, first via ship to the United Arab Emirates, then by air to Europe from Dubai or Sharjah (chiefly using Cargolux, German Cargo, Martinair and Trans Mediterranean Airways);
- c) from Japan, the Republic of Korea, and Hong Kong to Europe, first by sea to Nakhodka (USSR) and then onward by Aeroflot from nearby Vladivostok; and
- d) from Europe to Australia first by air to Hong Kong and then onward by sea.

### *Road transport*

31. Road transport developments in the region have only limited implications for air transport. The main area of direct competition for international passenger traffic between the two modes is in pleasure travel between Singapore, Malaysia and Thailand, where road transport has benefitted from the presence of good highways and accommodation and increased car ownership. In the case of travel between Hong Kong and China, air transport has gained from the increase in the number of tourists combining a visit to Hong Kong with an overland tour in southern China. The opening in 1978 of the Karakorum Highway through the Himalayas linking northern Pakistan and Xingiang in China, and the completion of the Khunjarab Pass portion of the highway in 1982, may also in the long term generate tourism combining air and road travel.

32. The land-locked countries of the region (Afghanistan, Bhutan, Lao People's Democratic Republic, Mongolia and Nepal) rely on road transport for access to railheads in neighbouring countries for onward carriage to ports or, in the cases of Afghanistan and Mongolia, for through carriage by rail using the Trans-Siberian railway to points in Europe. The overland trucking route from Afghanistan and Pakistan to Europe via the Middle East was closed in 1983. In the case of land-locked countries, and when suitable air cargo capacity exists, air transport may be favoured in view of the lengthy transit times and costs incurred by overland and sea shipment. As examples of the surface transit times involved, that between Kathmandu and Calcutta has been estimated at between three weeks and two months, while average surface transit times between Kabul and Europe via Karachi were 113 days for imports to Afghanistan and 83 days for its exports when estimated in 1976.

### *Rail transport*

33. Apart from the importance to land-locked countries of access to railways in adjoining countries for the movement of their international trade, as noted above, rail transport is of little competitive importance to international air transport within the region. Rail transport does, however, permit shorter surface transport times in connexion with the sea-land movement of some of the region's foreign trade to Europe and the Middle East via the Soviet Union and to the east coast of the United States from Pacific ports.

34. Since 1971, the Siberian land-bridge has emerged as an important route for through container traffic between Japan, the Republic of Korea, Hong Kong and the Philippines on the one hand, and Europe and the Middle East on the other. This international overland route offers comparable or better transit times than alternative all-sea routes, taking 20-25 days by sea and rail, against an average sea-only transit time of 25-30 days for a container vessel sailing between Kobe and Rotterdam. Container traffic is shipped to Nakhodka/Vladivostok and transported across the Soviet Union by rail. Onward movement to destinations in Europe or the Middle East may be by sea from the Baltic or Black Sea ports, by rail from border rail stations, or by road from border trans-shipment points. The opening of the more direct Baykal-Amur Mainline Railway (BAM) in 1984, running to the south of the Trans-Siberian Railway, may be expected to further reduce transit times.

35. The development of routes involving similar use of North American rail services has enabled intermodal carriers to reduce transit times between points in Asia and Atlantic coast cities by 8 to 14 days over the all-sea route via the Panama Canal. As a result, Sea-Land, one of the major users of this route, moved an average of 3 000 containers a week across the United States in 1984 compared with only 100 a week in 1974. So-called "double-stack" trains, carrying eight-foot high containers stacked two high, were introduced for international shipments in 1984 and may eventually permit cost savings of 20-25 per cent, which could affect the continued development of sea/air routes using ports on the west coast of North America.



## Chapter 2

### Airports

1. The most striking feature of airport development in the Asia/Pacific region since 1978 is the large volume of construction activity undertaken, in progress, or planned, to accommodate the region's substantial growth in international passenger and cargo traffic. From 1978 through 1985, major construction work on terminals or runways was completed at over one-third of the region's international airports. That period also saw the opening of more new international airports in this region than in any other, including large new airports at Singapore, Jakarta and Dhaka and smaller airports at Malé (Maldives), Xiamen (China) and Paro (Bhutan). Work continues on a new airport to serve Brisbane and site preparation has recently begun on a major new offshore airport at Kansai near Osaka. This chapter provides details about the infrastructure of the 109 airports in the Asia/Pacific region (see Map) which received international scheduled air services in 1985 (Part A) and the management and finances of this region's airports and route facilities (Part B).

#### A — AIRPORT INFRASTRUCTURE

2. Two trends in the development of the region's airports are particularly noteworthy. One is the opening by many States of more regional airports (i.e. airports at points other than the principal city of the country involved) to international services. While these new operations serve mainly to link neighbouring countries, the recent introduction of new long-range wide-body medium-capacity aircraft (e.g., B-767-300, A-300-600 and A-310), ideal for longer distances and lower volume, may enable developing markets to increase international services at regional airports, particularly tourism destination airports. Examples of regional airports having become international airports may be found in Australia, China, Indonesia, Malaysia, the Republic of Korea and Thailand. This trend may lead to shifts in national priorities from concentration on the development of primary international gateway airports to more emphasis on the development of regional airports, which would assist economic development in the areas surrounding such regional airports. During the 1979-1985 period, this trend was most marked in Australia and China.

3. Another noteworthy trend in this region, as in other developing regions of the world, is the provision of longer runways to handle long-haul services. A comparison of the Asia/Pacific region airports by the lengths of their main runways in 1978 and 1985 (see Table 2.1) shows that the number of international airports with main runways of 3 000 m or more rose from 40 (39 per cent of all international airports) in 1978 to 53 (49 per cent) in 1985. Improvements to handle wide-body aircraft have also been made at a growing number of airports. During the 1979-1985 period, the number of airports receiving wide-body aircraft in international scheduled service increased by half from 42 to 62.

4. Financial factors, land shortages and in some cases environmental and other considerations have delayed the expansion of capacity at a number of major airports in the region. These delays could have adverse effects on traffic growth on some routes involving these airports, with consequent repercussions for other airports and airlines both in the region and outside. Airports currently experiencing capacity difficulties include the Japanese airports at Tokyo/Narita, Tokyo/Haneda and Osaka/Itami. Other airports that may experience capacity problems in the long term, pending development of alternative sites, are Bangkok, Hong Kong and Sydney.

Table 2.1

**Airports receiving international scheduled services distinguished  
by length of main runway and by sub-region in 1978 and 1985**

Sub-region		Airports by length of main runway				Served by wide-body aircraft
		Less than 2 000 m	1 999 to 3 000 m	3 000 m and over	Total	
Western	1978	4	11	7	22	10
	1985	5	8	9	22	15
Central	1978	5	5	12	22	8
	1985	3	5	14	22	13
North-Eastern	1978	2	9	12	23	11
	1985	0	8	21	29	16
South-Eastern	1978	15	11	9	35	13
	1985	10	17	9	36	18
Total	1978	26	36	40	102	42
	1985	18	38	53	109	62

Sources.— ICAO *Airport Characteristics Data Bank*, 1985; *Official Airline Guide*, June 1985; and *ABC World Airways Guide*, June 1985.

5. During the past decade, the region has emerged as the most active in the world in terms of spending on airport development, superseding the Middle Eastern region in that role following completion of large-scale construction programmes there during the latter part of the 1970s. Estimates of expenditures in Asia and the Pacific through the year 2000 range from \$20-30 000 million. These estimates may be conservative considering that some \$15 800 million in spending is projected for three Japanese airports alone (Tokyo/Narita, Tokyo/Haneda and Osaka/Kansai). For comparison, IATA has estimated that total world-wide expenditures between 1985 and 1995 on airport projects will be about \$80 000 million.

#### *Western sub-region*

6. Twenty-two airports in the Western sub-region received international services in 1985, the same total number as in 1979. Services were suspended at Jaffna (Sri Lanka) and Dhaka/Tezgoan (Bangladesh), in the latter case following full transfer of international services to the new Dhaka International Airport in 1979-80. During the same period, Paro (Bhutan) and Gwadar (Pakistan) began receiving international services. International wide-body operations were introduced at Dhaka, Kathmandu, Malé, Peshawar and Rangoon, bringing to 15 the number of airports in this sub-region so served.

7. Three new international airports have been opened to traffic since 1979; at Dhaka (1979-80), at Paro (1981-82) and at Malé (1981). Major construction of new terminal facilities at existing airports took place at Bombay, Colombo, Islamabad, Karachi, Kathmandu and New Delhi. Runway extensions were completed at Bombay, Chittagong, Kathmandu, Malé and Trivandrum.

8. In addition to continuing improvements at most major airports in the sub-region, four projects in particular are noteworthy. Work commenced in 1985 on major redevelopment of the airport serving Rangoon, including construction of a new terminal and extension of the runway. In Pakistan, contracts have been awarded for the construction of a new airport to service Islamabad and Rawalpindi to be located at Pindi Ranja (operational problems hamper the future development of Chaklala, the existing joint-use civil/military airport). In the Maldives, the development of a former military airbase on Gan Island to handle wide-body flights from Europe is expected to assist the expansion of tourism in the southern part of the archipelago. Finally, feasibility studies have been completed regarding the construction of a new airport at Trincomalee on the east coast of Sri Lanka.

#### *Central sub-region*

9. The Central sub-region has 22 airports served by international scheduled services, the same number as in 1979. The number of airports receiving international wide-body services increased from 8 to 13, with wide-body services having commenced at Chiang Mai, Kota Kinabalu, Kuching, Medan and Penang.

10. A new international airport was opened in mid-1981 at Changi to serve Singapore, replacing the airport at Paya Lebar. Planning for the new airport began in 1975 and by late 1985, \$1 700 million had been spent on the development of Changi, including the completion of a second parallel runway in October 1984. Work is underway on a second passenger terminal to be completed in 1989, doubling the airport's total capacity to 20 million passengers per year. Automated vehicles have been considered for use in linking the two passenger terminals. A third cargo terminal will also be built at Changi.

11. In Indonesia, Jakarta's new Sukarno-Hatta International airport, initially known as Cengkareng, was inaugurated in April 1985 consolidating international services formerly at Halim airport and domestic flights formerly at Kemayoran airport. Initial capacity of Sukarno-Hatta, which has two parallel runways, is 9 million passengers a year.

12. Major construction of new terminal facilities was completed at Bangkok, Brunei, Chiang Mai, Hanoi, Kota Kinabalu, Kuala Lumpur, Kuching and Manila. Runways were extended or new runways built at Bangkok, Chiang Mai, Hanoi, Hat Yai, Kota Kinabalu, Medan and Phuket.

13. Bangkok, Kuala Lumpur and Manila, despite recent expansion programmes, face serious difficulties in providing additional capacity on the sites of their existing airports to accommodate long-term traffic growth. At Bangkok, a new international passenger terminal is planned for completion in 1987. A site at Nong Ngu Hao has been selected for the possible construction of a second Bangkok international airport, but projected high costs and other practical considerations continue to delay the project. Kuala Lumpur's Subang airport is expected to reach its design capacity by 1989 and plans for a second airport are under consideration. A site selection study for a new airport to serve Manila was conducted in 1982.

#### *North-Eastern sub-region*

14. The North-Eastern sub-region was served by 27 international airports in 1985, compared with 23 in 1978. This increase was due to the inauguration of international services at six airports in China (Guangzhou, Hangzhou, Shenyang, Tianjin, Urumqi and Xiamen) and at Sapporo in Japan. During the same period, international service at Nanning was suspended. Wide-body aircraft were introduced in international service at Beijing, Cheju, Guangzhou, Sapporo and Shanghai, raising the number of airports receiving such service from 11 in 1978 to 16 in 1985.

15. Apart from Xiamen in China, which was opened in 1983, no other international airports were built during this period. However, major new terminal construction was completed at Beijing, Seoul, Taipei, Tokyo/Narita and Ulan Bator (Mongolia) and runways extended or built at Beijing, Cheju, Kagoshima, Okinawa, Seoul and Taipei.

16. Major improvements are either in progress or planned at a number of international airports in the sub-region, the largest projects involving the Tokyo airports of Narita and Haneda. Stage II expansion of Narita to handle 40-50 million passengers per year is expected to cost \$2 500-\$2 900 million and entails the construction of two new runways and a passenger terminal. Redevelopment of Tokyo/Haneda began in 1984 and Stages I and II are expected to be completed by 1993 at an estimated cost of \$5 350 million. Haneda's stage III will provide capacity to handle forecast annual traffic of 85 million passengers in 2010. The new facilities, which will include three runways and two major terminal complexes, will be built on reclaimed land and will eventually triple the size of the airport to 1 269 hectares.

17. Extensive improvements are also being made at Gaoxiong, Guangzhou, Hong Kong, Seoul and Shanghai. Of these, the expansion of Hong Kong/Kai Tak raised serious problems due to shortage of land in the area. After studying the feasibility of building a new airport, Hong Kong authorities decided to expand existing facilities at Kai Tak. Annual capacity to be provided under Kai Tak's Stage V expansion programme scheduled for completion in 1988, limited by the inability of the single runway to handle more than 30 movements per hour, is 18 million passengers. This capacity is expected to be adequate until the mid-1990s.

18. At least five new airports are planned for the sub-region, of which three will be built in China. The three will serve Chongqing (the first stage to be ready by 1988), Xian and Shenzhen in the Special Economic Zone (SEZ) adjacent to Hong Kong. Shenzhen airport is expected to be in operation in 1989 and could relieve Hong Kong's Kai Tak airport. The feasibility of building an airport in the Zhuhai SEZ to serve Macau is also under study.

19. The two other major new airports also planned are at Kansai for Osaka and at Cheongju for Seoul. Construction of the new Osaka airport at Kansai was approved in 1984 to replace Osaka/Itami where noise restrictions have limited aircraft movements to 370 a day. Work on the Kansai site, located 5 km offshore, began in 1985 and Phase I is scheduled for completion in 1992-1993 at a cost of \$3 400 million. Kansai is designed to handle 30 million passengers per year by the year 2000. Upon completion of Phase II later in the decade, it is estimated that Kansai's total cost will have reached \$8 500 million. In the Republic of Korea, construction is scheduled to begin in 1987 on a new reliever airport at Cheongju, 125 km south of Seoul, for opening in 1991-1992. Upon completion of its Stage III, forecast for 2011, Cheongju will provide capacity for 25-30 million passengers at a total project cost of \$1 380 million.

### *South-Eastern sub-region*

20. The number of airports in the South-Eastern sub-region with international scheduled services rose from 35 in 1978 to 36 in 1985. International services were suspended at Johnston Atoll, Ponape, Truk and Yap in the Trust Territory of the Pacific Islands, and services introduced at Adelaide, Hobart, Kiritimati Island (Kiribati), Port Hedland and Townsville. The main development in the sub-region during this period has been the trend in Australia towards the provision of international services at regional points. The number of airports in the sub-region as a whole receiving wide-body aircraft service increased from 13 to 18, with such services having commenced at Adelaide, Cairns, Saipan, Townsville and Wellington.

21. No new international airports were built in the sub-region between 1978 and 1985, but passenger or cargo terminals were built or expanded at Adelaide, Apia, Auckland, Cairns, Christchurch, Guam, Noumea, Pago Pago, Saipan, Tahiti, Townsville and Wellington. In addition, runways were extended or strengthened at Adelaide, Apia, Auckland, Cairns, Christchurch, Guam, Noumea, Pago Pago, Saipan, Tahiti and Townsville.

22. In Australia a new international airport is currently under construction at Brisbane on a site adjacent to the existing airport, and is scheduled for completion in 1987. After extensive site selection studies, Badgery's Creek was chosen as the site of a new airport to serve Sydney where Kingsford-Smith is expected to reach its capacity before the year 2000. Other airports in the sub-region at which improvements are planned or being studied include Auckland, Honiara (Solomon Is.), Nauru, Perth and Tarawa (Kiribati).

**B — MANAGEMENT AND FINANCES: AIRPORTS AND ROUTE FACILITIES**

23. In this part, important facets of airport operations, including type of management, development of aeronautical and non-aeronautical sources of revenue and airports' expenses and investment funding sources are considered, as well as the management and financing of route facilities and services.

*Airport management*

24. In the Asia/Pacific region, as in other regions, the organizational arrangements under which airports are operated vary from State to State. The management of airports by national civil aviation administrations predominates but the trend continues toward establishment of autonomous airport authorities (i.e. entities that are outside the usual governmental ministry or department, such as government-owned corporations). Indonesia now has two airport authorities, a new State enterprise to manage the Sukarno-Hatta International Airport and the Angkasa Pura Authority which operates international airports at Medan, Surabaya and Denpasar. In Singapore a division of the largely autonomous Civil Aviation Authority of Singapore (CAAS), formed in 1984, is responsible for the management of Changi airport. The management role of Thailand's airport authority has been expanded to include the three main provincial airports at Chiang Mai, Phuket and Hat Yai, as well as Bangkok's Don Muang International airport. In Australia, plans call for the formation, in that country's fiscal year 1986/87, of a Federal Airports Corporation to manage six of the country's international airports (Sydney, Melbourne, Brisbane, Perth, Adelaide and Hobart) and 11 domestic airports. Other new authorities have been created in India, Japan, the Philippines and the Republic of Korea.

25. The institution of autonomous airport authorities is most common where traffic volumes are high and there is promise of economic self-sufficiency. At such airports, the need is more easily and immediately seen for independent management to develop both aeronautical and non-aeronautical revenues and to control costs.

26. A lack of authority to make decisions at the airport level may be an obstacle to improved economics for small international airports under direct government control. An example of attempts to overcome this potential problem may be found in New Zealand, where the airports at Auckland, Christchurch, and Wellington are operated under joint venture agreements with local governments. Under these agreements, management and costs are shared, the national government setting the landing charges and cross-subsidizing among airports. A further development has been proposed involving the restructuring of these three airports as public companies with national and local board members and free to set their own charges.

*Airport revenues and expenses*

27. Available financial data for airports operating in the Asia/Pacific region are limited. From what information is available, however, some general observations can be made regarding airport revenues derived from air traffic operations (i.e. landing, parking, hangar and passenger service charges), non-aeronautical revenues (i.e. concession fees and rental income), and airport expenses.

28. The average combined landing and passenger charges in the region for representative DC-9 type aircraft were about 11 per cent below the world average level in 1981, but reached that level in 1984. For representative B-747 type aircraft the average charges in the region were at the world average level in 1981, but about 6 per cent above it in 1984. However, significant variations from these averages may be observed among sub-regions, with charges in the North-Eastern and South-Eastern sub-regions remaining significantly above world averages. Average charges in the Central and Western sub-regions have increased since 1981 relative to the world averages but still remain below these averages in most cases.

29. The ability of an airport to develop non-aeronautical revenue sources depends very much on its level of traffic, particularly international traffic. Airports with large numbers of international passengers represent an attractive business environment for concessionaires in general and for duty free sales in particular. This relationship is well-illustrated in the Asia/Pacific region where large-volume, independently managed airports, such as Tokyo/Narita, Singapore/Changi and Seoul/Kimpo all reported 1984 annual revenues from non-aeronautical sources to be between 30 and 60 per cent of their total revenues. In contrast, airports with lower traffic volumes such as at Kathmandu (Nepal) and Zia (Bangladesh), reported 1984 revenues from non-aeronautical sources to be less than 10 per cent of their total revenues.

30. As with revenues, insufficient data are available to permit a broad regional analysis of airport expenses. Based on existing information, however, the difference must again be noted between the region's high and low traffic volume airports. The high levels of capacity utilization at large airports such as Tokyo/Narita and Hong Kong tend to keep capital and operating costs per unit of traffic low. Conversely, the lower traffic volumes experienced at the region's smaller airports mean higher operating costs per unit of traffic served.

31. In summary, the large independently managed airports in the Asia/Pacific region appear to have achieved a good measure of success in attaining financial self-sufficiency. The region's more numerous lower traffic volume airports, particularly those in developing States, have published considerably less financial data and their situation is much less clear but can generally be assumed to be unsatisfactory, as is the case for most other small airports in the world.

#### *Sources of airport investment funds*

32. As noted in paragraph 5 above, a high level of investment is required in airport development in the region as a result of the vigorous growth which has occurred in air traffic during the last 10 years and the continued growth expected in the future.

33. The sources of capital for airport development can be quite varied. Government funds are the most common source in the region but other sources may be important in some cases. Relatively few airports generate a surplus of revenues over expenses that may be applied towards financing capital expenditures. For long-term investment, airport authorities in this situation can secure loans, generally with government approval. Procedures vary among States, but in general the government's role in these transactions is a more limited one which may include underwriting of the authority's debt, and annual overseeing or reviewing of the authority's financial performance.

34. For airports in less favourable financial positions, guaranteed loans from foreign governments at below-market interest rates are another source of financing for airport projects. This occurred in the recent construction of Jakarta's Sukarno-Hatta International airport in Indonesia. Financing for this project was secured through a "soft loan" from the Government of France, a consortium of French banks, and a group of 11 European banks. Other airport development aid from governments was received by Burma (from Japan), by Maldives (from Australia) and by Mongolia (from the USSR).

35. Various international organizations and funds provide yet another source of aid for airport projects. China's Xiamen SEZ airport and Solomon Islands' Henderson International airport have been aided by the Kuwait Fund for Arab Economic Development. Kiribati received airport aid from the European Development Fund. The development of Dhaka's new international airport was aided by the Islamic Development Bank and the Organization of Petroleum Exporting Countries (OPEC). The latter and the Asian Development Bank aided development of Kathmandu's Tribhuvan airport.

36. The long-term outlook for the funding of airport development must, therefore, be viewed from two different levels. The substantial traffic growth forecast for the Asia/Pacific region should generally assist large airports in maintaining or developing a relatively strong flow of revenues. This should aid these airports in acquiring necessary development financing through conventional loans, and in some cases through self-generated revenues. For smaller

airports, particularly those in developing States, the availability and cost of capital from foreign governments, international organizations and regional development banks is more influenced by the economic health of developed market economies and other factors particular to such sources. A deterioration in economic conditions affecting these sources could mean fewer or more costly financing arrangements and consequently a slower rate of improvement of airports in the developing States.

#### *Route facilities: management and finances*

37. Route facilities and services within the Asia/Pacific region are generally provided by governments and managed as a function of the civil aviation administrations. As with many airports, such a management structure and associated accounting procedures generally make it difficult to identify revenue and expense flows associated with provision of these services and to analyse cost recovery and other financial facts. However, the very limited historical data available suggest that with the continuing expansion of commercial aircraft movements in the region (12.3 per cent between 1980 and 1984), the costs of operation of route facilities has been growing as well, due primarily to the increased complexity of the facilities required.

38. The region's route facility charging structure has remained essentially unchanged during recent years. Information reported by 21 Asia/Pacific States for 1981 and 1984 shows that seven of these States impose no charge at present for route facilities, down from nine in 1981. For four of these States, this is because the airspace forms part of a flight information region (FIR) which extends over a larger area and is controlled from an area control or flight information centre located in another State. In such instances, the costs of the limited route facilities provided are usually included in the cost base for airport charges. The remaining three States, while providing full route facilities and services, do not maintain separate accounts for these activities. An air navigation facility charge is included, however, within their airport landing charges. In 1984, nine States imposed route facility charges based on formulae using distance flown and aircraft weight, with weight generally taken into account less than proportionately. Five States imposed a flat fee regardless of aircraft weight or distance flown. For the five territories for which information was available during this time period, four did not impose route facility charges in 1984, unchanged from 1981.

## Chapter 3

# Air Transport Operators and Their Fleets

1. One-quarter of the world's 1984 international scheduled air transport capacity (tonne-kilometres available) was produced by the 43 international scheduled airlines of the Asia/Pacific region using only 9 per cent of the total world commercial fleet of large aircraft<sup>1</sup>. Strong traffic growth and generally profitable operations in recent years have enabled many of the region's airlines to modernize their fleets at a rapid rate, thus reducing unit operating costs and permitting them to take advantage of the much improved operating characteristics of the latest generation of jet aircraft. Two important recent developments are the interest shown by some States in the multiple designation of airlines for international services, and the steps taken by certain other States towards some privatization of their State-owned airlines. This chapter provides details about the air carriers of the region (Part A) and their aircraft fleets (Part B).

### A — AIR TRANSPORT OPERATORS

2. Scheduled international air services are provided to the Asia/Pacific region by 89 airlines — 43 based in the region and 46 based outside. In 1979, such services had been offered by 81 airlines — 43 based in the region and 38 based outside. Since 1979, African airlines serving destinations in Asia and the Pacific increased from seven to nine, European airlines from 15 to 16, Middle Eastern airlines from 9 to 10, and North American airlines from five to nine, with Latin American/Caribbean airlines remaining at two (see Tables 3.1, 3.2 and 3.3). International non-scheduled services are also provided by some of these airlines as well as by 10 non-scheduled operators based in the region and other carriers, based primarily in Europe and North America.

#### *Western sub-region*

3. Eight of the nine countries of this sub-region each have one international airline, while India has two. The international services of six of the ten, Bakhtar Afghan (formerly Ariana Afghan), Burma Airways, Druk-Air (Bhutan), Indian Airlines, Maldives Airways and Royal Nepal Airlines, are confined to points within the Asia/Pacific region. In addition to serving such points, Air Lanka and Bangladesh Biman also serve Europe and the Middle East, while Air India and Pakistan International also operate to North America and Africa as well as to Europe and the Middle East. No Western sub-region airlines serve Latin America and the Caribbean.

4. All ten of the Western sub-region's international airlines provide combined passenger and cargo services. In addition, all-cargo services are provided by Air India and Pakistan International and main-deck cargo capacity is offered on combi aircraft by Royal Nepal Airlines. The ten airlines, which collectively employ about 68 000 persons, are all wholly owned by their respective governments, except for Air Lanka, a mixed ownership company. Four of the ten, Air India, Bakhtar Afghan, Indian Airlines and Pakistan International, are members of the International

1. Aircraft of more than 9 tonnes maximum take-off weight.



Air Transport Association (IATA) (see Appendix 3 for membership in airline associations). None of the ten are members of the Orient Airlines Association (OAA), whose members are based in the other three sub-regions of the Asia/Pacific region. Airlines which began service or which were reorganized since 1979 are Druk-Air, which commenced operations in 1983, Air Lanka, which was established in 1979 to replace Air Ceylon, and Maldives Airways, which replaced Maldives International Airlines in 1984. Ariana Afghan Airlines merged in 1985 with the domestic airline, Bakhtar, to become Bakhtar Afghan Airlines.

5. The only international non-scheduled operators now based in the Western sub-region are Air India Charters and Helitours, a Sri Lankan carrier. Air India Charters is a wholly-owned subsidiary of Air India and uses the latter's equipment. Helitours, which serves points in Sri Lanka and the Maldives, is a commercial carrier using aircraft of the Sri Lankan Air Force. Air Works and Huns Air, two Indian non-scheduled operators mentioned in the 1979 ICAO regional study, have suspended international operations.

6. Eight of the nine countries in the Western sub-region (the exception being Bhutan) receive scheduled services from 30 airlines based outside the Asia/Pacific region, five based in Africa, 13 in Europe, nine in the Middle East and three in North America. Five airlines have commenced service to the region since 1978: two from the Middle East (Trans Mediterranean Airways and Yemen Airways), two from North America (Air Canada and TWA) and one from Africa (Libyan Arab). One European airline (LOT) ceased service during this period. Non-scheduled passenger operations mainly involve inclusive tour charter flights from Europe to the Maldives, Nepal and Sri Lanka, the principal carriers being Condor Flugdienst and LTU of the Federal Republic of Germany and Balair of Switzerland. Few non-scheduled cargo operations are flown by carriers from outside the region.

#### ***Central sub-region***

7. Each of the nine States in this sub-region have at least one of the sub-region's 13 international airlines. In Indonesia, Malaysia and Thailand, the need to provide provincial cities with intra-regional and transborder services has also led to the development of limited international services by some primarily domestic airlines. In addition to performing intra-regional services, five airlines of the Central sub-region also operate to cities in other regions, Philippine Air Lines, Singapore Airlines and Thai International flying to points in Europe, the Middle East and North America, and Garuda and Malaysian Airlines operating to points in Europe and the Middle East.

8. All-cargo services are provided by Hang Khong Viet Nam, the only airline of the Central sub-region to do so, although all scheduled airlines provide combined passenger and cargo services. Among the Central sub-region's 13 international airlines, which employ in total an estimated 52 000 persons, ten are government-owned carriers, or predominantly so, while two, Malaysia Air Charter and Bouraq, are privately owned, and Merpati Nusantara Airlines is a subsidiary of the Indonesian national carrier, Garuda. In late 1985, the governments of Malaysia and Singapore reduced the level of State ownership by selling shares in their national airlines to the public to raise additional equity capital, a measure which is also under consideration in Thailand. Among the 13 international airlines in the sub-region, only two, Garuda and Philippine Airlines, are IATA members, while six airlines are members of the Orient Airlines Association (see Appendix 3). The only changes since 1979 to the list of scheduled international airlines of the Central sub-region are the additions of Bouraq and Malaysia Air Charter.

9. Seven out of ten non-scheduled operators in the Asia/Pacific region are based in the Central sub-region. Aero Filipinas engages in passenger charters between the Philippines and Japan, Hong Kong, and the Middle East, while Bayu Indonesia is mainly engaged in "Fifth Freedom" cargo charters. The principal activity of the other five non-scheduled operators of the Central sub-region is performing flights for the petroleum industries of Indonesia, Malaysia and Singapore. Of the seven, only Bayu, Sempati and Tradewinds were operating international charters in 1979. Three operators listed in 1979, Air Manila, Kris Air and Sterling have ceased operations, while another, Malaysia Air Charter, became a scheduled airline.

10. A total of 27 airlines from outside the Asia/Pacific region provide scheduled services to the central sub-region: 15 European, 6 Middle Eastern, 5 North American and 1 African airline. Six of these airlines have inaugurated their

Table 3.1

**International commercial air carriers registered in  
the Asia/Pacific region and their fleets — June 1985**

Sub-region/State or Territory Name of operator — full name (abbreviated name)	Type of inter- national operation	Number of commercial transport aircraft by type			Total number
		Jet	Turbo-prop	Piston	
<b>WESTERN SUB-REGION</b>					
Afghanistan Bakhtar Afghan Airlines	S	2 B-727	-	-	2
Bangladesh Bangladesh Biman Airlines	S	3 DC-10, 5 B-707, 2 F-28	3 F-27	-	13
Bhutan DRUK-AIR Corp.	S	-	-	-	-
Burma Burma Airways, Corp.	S	3 F-28	7 F-27	-	10
India Air India	S/MAC	9 B-747, 3 A-300, 5 B-707, 2 DC-8	-	-	19
Air India Charters	NS	(Use aircraft of Air India)			
Indian Airlines	S	10 A-300, 27 B-737	12 BAe HS-748, 8 F-27	-	57
Maldives Maldives Airways	S	3 DC-8	1 F-27	-	4
Nepal Royal Nepal Airlines Corporation	S	2 B-727	3 BAe HS-748	-	5
Pakistan Pakistan International Airlines (PIA)	S/MAC	4 B-747, 4 DC-10, 7 A-300, 7 B-707, 6 B-737	9 F-27	-	37
Sri Lanka Air Lanka	S	1 B-747, 3 L-1011, 1 B-737	-	-	5
Helitours	NS/MAC	-	1 BAe HS-748	2 DC-3	3
Sub-total 12 Carriers (10 scheduled, 2 non-scheduled)		109	44	2	155
<b>CENTRAL SUB-REGION</b>					
Brunei Darussalam Royal Brunei Airlines, Ltd. (RBA)	S	3 B-737	1 BAe HS-748	-	4
Democratic Kampuchea Air Kampuchea	S	-	2 AN-24	-	2
Indonesia Airfast Services Indonesia (AIRFAST)	NS/MAC	-	3 BAe HS-748, 1 F-27	2 DC-3	6

Sub-region/State or Territory Name of operator — full name (abbreviated name)	Type of international operation	Number of commercial transport aircraft by type			
		Jet	Turbo-prop	Piston	Total number
Bali International Air Service (BALI AIR)	NS/MAC	-	1 BAe HS-748	1 DC-3	2
Bayu Indonesia Air (BAYU)	NS/AC	-	2 CL-44	2 DC-6	4
Bouraq Indonesia Airlines (BOURAQ)	S	-	4 VC-800, 15 BAe HS-748	3 DC-3	22
Garuda Indonesian Airways (GARUDA)	S	6 B-747, 6 DC-10, 9 A-300, 19 DC-9, 34 F-28	-	-	74
Merpati Nusantara Airlines (NUSANTARA)	S	-	2 VC-800, 2 BAe HS-748, 14 F-27	-	18
Sempati Air Transport (SEMPATI)	NS/MAC	-	5 F-27	1 DC-3	6
Lao People's Democratic Republic Lao Aviation (Air Lao)	S	1 YAK-40	6 AN-24, 1 VC-800	1 DC-4	9
Malaysia Malaysian Airline System BHD (MAS)	S	2 B-747, 3 DC-10, 4 A-300, 10 B-737	11 F-27	-	30
Malaysia Air Charter (MAC)	S	-	1 Shorts 360	-	1
Philippines Aero Filipinas	NS	2 B-707	-	1 DC-3	3
Philippine Airlines Inc. (PAL)	S	4 B-747, 2 DC-10, 5 A-300, 11 BAC-111	9 BAe HS-748	-	31
Singapore Seletar Air Service (SAS)	NS/AC	-	-	3 C-46	3
Singapore Airlines Ltd. (SIA)	S	19 B-747, 6 A-310, 4 B-757	-	-	29
Tradewinds Private Ltd.	NS	(Use aircraft of SIA and Malaysia Air Charter)	-	-	-
Thailand Thai Airways Co. Ltd.	S	5 B-737	2 BAe HS-748, 4 Shorts SD3-30	-	11
Thai Airways International Ltd.	S	6 B-747, 2 DC-10, 12 A-300, 1 DC-8	-	-	21
Viet Nam Hang Khong Viet Nam	S/MAC	3 B-707, 5 TU-134, 3 YAK-40	11 AN-24, 3 IL-18	3 DC-6, 2 DC-4, 1 DC-3, 1 IL-14	32
Sub-total 20 Carriers (13 scheduled, 7 non-scheduled)		187	100	21	308

Sub-region/State or Territory Name of operator — full name (abbreviated name)	Type of inter- national operation	Number of commercial transport aircraft by type			Total number
		Jet	Turbo-prop	Piston	
<b>NORTH-EASTERN SUB-REGION</b>					
China Civil Aviation Administration of China (CAAC)	S/MAC	5 B-747, 5 IL-62, 10 B-707, 32 BAe HS-121, 5 B-737, 2 MD-82	13 IL-18, 2 AN-12, 2 BAe V-800, 2 AN-24	-	78
Democratic People's Republic of Korea Civil Aviation Administration of the Democratic People's Republic of Korea Choson Minhang (CAAK)	S	3 IL-62, 3 TU-154	8 AN-24, 4 IL-18	5 IL-14	23
Japan Japan Air Lines (JAL)	S/MAC	49 B-747, 20 DC-10, 10 DC-8, 2 B-727	-	-	81
Japan Asia Airways	S/MAC	2 B-747, 5 DC-8	-	-	7
Nippon Cargo Airlines (NCA)	S/AC	2 B-747	-	-	2
Mongolia Air Mongol - MIAT (Department of Civil Aviation of the Mongolian People's Republic)	S/MAC	-	18 AN-24, 1 AN-26	-	19
Republic of Korea Korean Air	S/MAC	16 B-747, 4 DC-10, 8 A-300, 6 B-707, 5 B-727, 2 F-28	2 F-27	-	43
<i>Territories</i>					
Hong Kong Cathay Pacific Airways Ltd. (CPA)	S/MAC	10 B-747, 9 L-1011	-	-	19
Dragon Airways	NS	1 B-737	-	-	1
Macao -					
Sub-total 9 Carriers (8 scheduled, 1 non-scheduled)		216	52	5	273
<b>SOUTH-EASTERN SUB-REGION</b>					
Australia Qantas Airways Ltd. (QANTAS)	S	26 B-747	-	-	26
Fiji Air Pacific Ltd.	S	1 B-737 (Joint B-747 services with QANTAS)	-	-	1
Kiribati Air Tungaru Corp.	S	1 B-727	-	-	1
Nauru Air Nauru	S	2 B-727, 4 B-737	-	-	6

Sub-region/State or Territory Name of operator — full name (abbreviated name)	Type of inter- national operation	Number of commercial transport aircraft by type			Total number
		Jet	Turbo-prop	Piston	
New Zealand Air New Zealand Ltd.	S/MAC	5 B-747, 1 DC-8, 10 B-737	15 F-27	-	31
Papua New Guinea Air Niugini	S/MAC	1 A-300, 4 F-28	3 DHC-7, 4 F-27	-	12
Samoa Polynesian Airlines	S	1 B-737	-	-	1
Solomon Islands Solomon Islands Airways, Ltd. (SOLAIR)	S	(Joint B-737 operation with Air Pacific)			
Tonga -					
Tuvalu -					
Vanuatu Air Vanuatu	S	1 B-737	-	-	1
<i>Territories</i>					
American Samoa South Pacific Island Airways (SPIA)	S	4 B-707	-	-	4
French Polynesia -					
New Caledonia Air Caledonie International	S	1 B-737 (Joint B-747 operations with QANTAS)	-	-	1
Trust Territory of the Pacific Islands Air Micronesia	S	4 B-737	-	-	4
Sub-total 12 Carriers (12 scheduled, 0 non-scheduled)		66	22	-	88
<b>TOTAL</b>  53 Carriers (43 scheduled, 10 non-scheduled)		578	218	28	824

## Symbols—

- S — Scheduled airline operating mixed (passenger/freight) services.  
S/MAC — Scheduled airline operating both mixed (passenger/freight) services and all-cargo services.  
S/AC — Scheduled airline operating all-cargo services only.  
NS/MAC — Non-scheduled air transport operator operating both mixed and all-cargo services.  
NS/AC — Non-scheduled air transport operator operating all-cargo services only.

**Table 3.2**  
**Number of international air carriers based in the region**  
**by type of operation and by sub-region**  
**(as of June 1985)**

Type of air carrier	Western		Central		North-Eastern		South-Eastern		Total for region	
	1979	1985	1979	1985	1979	1985	1979	1985	1979	1985
Scheduled airline	11	10	11	13	7	8	14	12	43	43
- Passenger	8	8	9	12	5	1	14	10	36	31
- Passenger and all-cargo	3	2	2	1	2	6	-	2	7	11
- All-cargo	-	-	-	-	-	1	-	-	-	1
Non-scheduled operator	4	2	7	7	1	1	-	-	12	10
- Passenger	1	1	5	2	-	1	-	-	6	4
- Passenger and all-cargo	3	1	-	3	-	-	-	-	3	4
- All-cargo	-	-	2	2	1	-	-	-	3	2
Total	15	12	18	20	8	9	14	12	55	53

scheduled services to the sub-region since 1978; three from the Middle East (Gulf Air, Kuwait Airways and Trans Mediterranean Airways) and three from North America (Air Canada, Continental Airlines and Flying Tigers). Non-scheduled carriers based outside the Asia/Pacific region operating to the central sub-region include Condor Flugdienst and LTU of the Federal Republic of Germany, both of which fly frequent passenger charters to Bangkok, and Cargolux (Luxembourg), Heavylift Cargo Airlines (United Kingdom) and Martinair (Kingdom of the Netherlands) which operate cargo charters to Bangkok and Singapore.

#### *North-Eastern sub-region*

11. Eight international scheduled airlines are based in the North-Eastern sub-region, one in each of the seven States and territories except Macau which has none, and Japan, with three (Japan Air Lines, Japan Asia Airways and Nippon Cargo Airlines). With the exception of Nippon Cargo Airlines, which only flies to North America, all operate within the Asia/Pacific region and to points in Europe. In addition, four airlines, CAAC, Cathay Pacific, Japan Air Lines and Korean Air serve cities in the Middle East and North America, while CAAC also flies to Africa and Japan Air Lines to South America.

12. All-cargo services are provided by six of the North-Eastern sub-region's scheduled airlines, while CAAK of the Democratic People's Republic of Korea provides only combination services and Nippon Cargo Airlines only all-cargo services. Although employment figures are not available for Air Mongol (MIAT), CAAC and CAAK, the number of people employed by the other airlines based in the North-Eastern sub-region is estimated at 37 500. Airline ownership is more varied in this sub-region than elsewhere in the Asia/Pacific region, Air Mongol, CAAC and CAAK being wholly owned by their respective governments, Japan Air Lines being a mixed enterprise and the remaining four companies being privately owned. Membership in airline associations is limited, Japan Air Lines being the only IATA-member and Cathay Pacific, Japan Air Lines and Korean Air the only members of the OAA (see Appendix 3).

13. A trend emerged in 1985 towards multiple designation of international airlines in some States. Designation of Nippon Cargo Airlines as an international scheduled airline (services began in May 1985) was followed in late 1985 by the Japanese Government's decision to change its earlier grant of sole flag carrier status to Japan Air Lines and its subsidiary, Japan Asia. Developments in Hong Kong also suggest that other airlines might be designated in addition to Cathay Pacific. As of mid-1985, two new operators had requested licensing as airlines of Hong Kong: Dragon Airways and Orient Pearl, with Dragon Airways having received an operator's certificate. Consideration has also been given by China to a reorganization of CAAC which might result in international services being operated by a primary national flag carrier supplemented by services to neighbouring countries operated by a number of new airlines based at major regional centres.

14. Dragon Airways is the only non-scheduled operator in the North-Eastern sub-region, although it seeks to become a scheduled service operator. All Nippon Airways, the Japanese domestic scheduled airline, is also an important operator of international non-scheduled services, flying inclusive tour charters to Hong Kong, Honolulu, Guam, Manila, Saipan and Seoul.

15. Seven airlines from outside the region commenced scheduled service to the North-Eastern sub-region between 1978 and 1985, four being based in the Middle East (Gulf Air, Kuwait Airways, Saudia and Trans Mediterranean), two in North America (Flying Tiger and United Air Lines) and one in Europe (British Caledonian). The 28 extra-regional airlines serving the North-Eastern sub-region include 12 from Europe, six from the Middle East, six from North America, three from Africa and one from Latin America and the Caribbean. Non-scheduled operators from outside the region concentrate almost exclusively on the Hong Kong air cargo market, the principal carriers being Cargolux (Luxembourg), Heavylift Cargo Airlines (United Kingdom) and Martinair (Kingdom of the Netherlands).

#### *South-Eastern sub-region*

16. Of the 11 States in the South-Eastern sub-region only Tonga and Tuvalu do not have international airlines. In addition, the territories of American Samoa, New Caledonia and the Trust Territory of the Pacific Islands have one international airline each. Only three of the 12 airlines operate to points outside the region, Qantas flying to Africa, Europe, the Middle East and North America; Air New Zealand to Europe and North America; and Air Tungaru (Kiribati) to Hawaii. South Pacific Island Airways ceased operating to Hawaii in 1984, while Polynesian Airlines and Air Pacific are reportedly planning North American services in the future. In addition, New Zealand has a new all-cargo scheduled airline called Pacific Air Freight which has been designated for service to the United States but was not yet operating at the end of 1985.

17. All-cargo services are performed by two airlines, Air New Zealand and Air Niugini, and B-747 combi services are operated by Qantas. Employment in the international airlines of the sub-region is estimated at 22 000 persons. Most of the South-Eastern sub-region's airlines are wholly or partly owned by governments, South Pacific Island Airways being the only private airline in operation. Four airlines are also partly owned by other carriers, Ansett Airlines holding shares in Air Vanuatu and Polynesian Airlines; Talair (New Guinea) in Solomon Island Airways; and Continental Airlines and Aloha Airlines (United States) in Air Micronesia. Membership in trade associations (see Appendix 3) is more widespread among the airlines of this sub-region than elsewhere in the region. Eight airlines are members of IATA, two airlines are members of the Orient Airlines Association and eight are members of the Association of South Pacific Airlines (ASPA), Qantas and Air Niugini being members of all three organizations.

18. The number of extra-regional airlines providing scheduled service to points in the South-Eastern sub-region increased from ten in 1978 to 14 in 1985, service having been commenced by Air Zimbabwe, Continental Airlines, Hawaiian Air and Northwest Orient. Services are performed at present by six airlines from Europe, five from North America, two from Africa and one from Latin America and the Caribbean. No significant non-scheduled operations take place in the sub-region.

Table 3.3

**Scheduled airlines from other regions serving Asia and the Pacific<sup>1</sup>**  
(as of June 1985)

Sub-region/ Airline State of Registry	Airline	States served in 1985				Total	States served in 1979
		Western	Central	North-Eastern	South-Eastern		
<b>AFRICA</b>							
Egypt, Arab Republic of	Egyptair	2	2	1	-	5	4
Ethiopia	Ethiopian Airlines	1	-	1	-	2	3
Kenya	Kenya Airways	1	-	-	-	1	2
Libyan Arab Jamahiriya	Libyan Arab Airways	1	-	-	-	1	-
Mauritius	Air Mauritius	1	-	-	-	1	1
Morocco	Royal Air Maroc	-	-	-	-	-	1
Nigeria	Nigeria Airways	-	-	-	-	-	2
South Africa	South African Airways	-	-	1	1	2	2
Zimbabwe	Air Zimbabwe	-	-	-	1	1	-
Number of airlines (Total: 9)							
<b>EUROPE</b>							
Belgium	SABENA	1	4	1	-	6	7
Czechoslovak Socialist Republic	Ceskoslovenski Aerolinie (CSA)	1	3	-	-	4	4
France	Air France	1	3	4	-	8	9
	UTA	1	2	1	5	9	10
German Democratic Republic	Interflug	1	1	-	-	2	2
Germany, Federal Republic of	Lufthansa	2	5	4	1	12	8
Italy	Alitalia	1	2	2	1	6	6
Netherlands, Kingdom of the	KLM	3	5	4	1	13	12
Poland	LOT	-	1	-	-	1	2
Romania	TAROM	1	2	1	-	4	4
Scandinavia	SAS	2	2	1	-	5	6
Switzerland	Swissair	3	4	3	-	10	9
Union of Soviet Socialist Republics	Aeroflot	6	6	5	-	17	16
United Kingdom	British Airways	4	5	3	2	14	12
	British Caledonian	-	-	1	-	1	-
Yugoslavia	JAT	-	1	-	1	2	2
Number of airlines (Total: 16)							
<b>LATIN AMERICA AND THE CARIBBEAN</b>							
Brazil	Varig	-	-	1	-	1	1
Chile	LAN Chile	-	-	-	1	1	1
Number of airlines (Total: 2)							



Sub-region/ Airline State of Registry	Airline	States served in 1985					States served in 1979
		Western	Central	North-Eastern	South-Eastern	Total	
<b>MIDDLE EAST</b>							
Democratic Yemen	ALYEMDA	1	-	-	-	1	1
Gulf States <sup>2</sup>	Gulf Air	4	2	1	-	7	2
Iran, Islamic Republic of	Iran National Airlines	2	-	2	-	4	5
Iraq	Iraqi Airways	3	1	2	-	6	5
Jordan	ALIA	1	2	-	-	3	2
Kuwait	Kuwait Airways	4	2	2	-	8	2
Lebanon	Trans Mediterranean Airways (TMA)	1	3	2	-	6	8
Saudi Arabia	Saudi Arabian Airlines	4	3	1	-	8	3
Syrian Arab Republic	Syrian Arab Airlines	2	-	-	-	2	2
Yemen	Yemen Airways	2	-	-	-	2	-
Number of airlines (Total: 10)							
<b>NORTH AMERICA</b>							
Canada	Air Canada	1	1	-	-	2	-
	CP Air	-	-	2	2	4	3
United States	Continental Airlines	-	1	3	4	7	1
	Flying Tiger	-	3	4	1	8	6
	Hawaiian Air	-	-	-	2	2	-
	Northwest Orient Airlines	-	2	4	1	7	4
	Pan American Airways	2	3	4	2	11	13
	Trans World Airlines	1	-	-	-	1	-
	United Airlines	-	-	2	-	2	-
Number of airlines (Total: 9)							
NUMBER OF AIRLINES (TOTAL: 46)							

1. See also Appendix 5.

2. Bahrain, Oman, Qatar and United Arab Emirates.

Source.— *ABC World Airways Guide*.

## B — COMMERCIAL TRANSPORT FLEETS

19. The fleets of many Asia/Pacific international airlines are among the most modern in the world, as a result of a programme of continuing re-equipment. The number of wide-body aircraft (principally Boeing B-747s and Airbus A-300s) in use by the region's carriers more than doubled since 1979 from 130 to 287 (Table 3.4 and Figure 3.1). Wide-body aircraft also accounted for 94 of the 179 new aircraft on order in the region in the latter half of 1985, including 30 B-747s, 20 B-767s, 19 A-320s, 14 A-300s, and 11 A-310s, and 27 of the 45 on option (2 B-747s, 12 A-320s, 5 A-300s, and 8 A-310s) (Table 3.5).

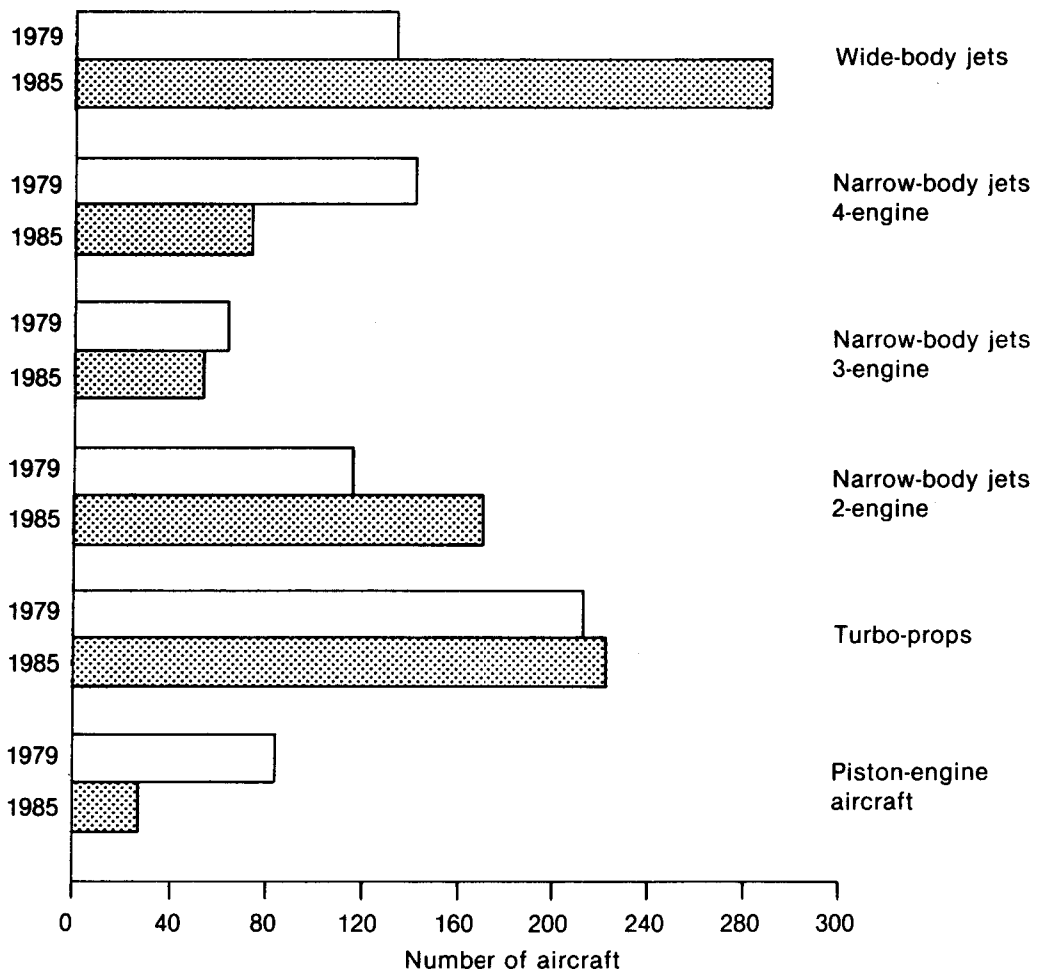
Table 3.4

**Commercial air transport aircraft operated by  
international carriers of the Asia/Pacific region  
(as of mid-year)**

Aircraft category	Western sub-region		Central sub-region		North-Eastern sub-region		South-Eastern sub-region		Total	
	1979	1985	1979	1985	1979	1985	1979	1985	1979	1985
<b>JET</b>										
Wide-body:										
Airbus A-300	5	20	6	30	7	8	-	1	18	59
A-310	-	-	-	6	-	-	-	-	-	6
Boeing B-747	8	14	7	37	33	84	17	31	65	166
Douglas DC-10	4	7	15	13	13	24	7	-	39	44
Lockheed L-1011	-	3	-	-	8	9	-	-	8	12
Total wide-body	17	44	28	86	61	125	24	32	130	287
Narrow-body:										
4-engine										
Boeing B-707	22	17	19	5	26	16	2	4	69	42
Boeing B-720	8	-	-	-	-	-	-	-	8	-
Convair CV-880	-	-	2	-	-	-	-	-	2	-
Douglas DC-8	1	5	12	1	42	15	3	1	58	22
Ilyushin IL-62	-	-	-	-	5	8	-	-	5	8
Total 4-engine	31	22	33	6	73	39	5	5	142	72
3-engine										
BAe HS-121	1	-	-	-	38	32	-	-	39	32
Boeing B-727	4	4	6	-	7	7	2	3	19	14
Tupolev TU-154	-	-	-	-	3	3	-	-	3	3
Yakovlev Yak-40	-	-	2	4	-	-	-	-	2	4
Total 3-engine	5	4	8	4	48	42	2	3	63	53
2-engine										
BAC-111	-	-	10	11	-	-	3	-	13	11
Boeing B-737	13	34	17	18	-	6	11	22	41	80
Boeing B-757	-	-	-	4	-	-	-	-	-	4
Caravelle SE-210	2	-	2	-	-	-	-	-	4	-
Douglas DC-9	-	-	18	19	-	-	-	-	18	19
Fokker F-28	3	5	29	34	-	2	3	4	35	45
MD-82	-	-	-	-	-	2	-	-	-	2
Tupolev TU-134	-	-	2	5	-	-	-	-	2	5
Total 2-engine	18	39	78	91	-	10	17	26	113	166
Total narrow-body	54	65	119	101	121	91	24	34	318	291
TOTAL JET	71	109	147	187	182	216	48	66	448	578
<b>TURBO PROP</b>										
4-engine	4	-	15	12	25	21	-	3	44	36
2-engine	48	44	58	88	27	31	33	19	166	182
Total turbo-prop	52	44	73	100	52	52	33	22	210	218
<b>PISTON-ENGINED</b>										
4-engine	2	-	9	8	-	-	-	-	11	8
2-engine	5	2	9	13	58	5	1	-	73	20
Total piston-engined	7	2	18	21	58	5	1	-	84	28
TOTAL OF ALL TYPES	130	155	238	308	292	273	82	88	742	824

Figure 3.1

Comparison of commercial transport aircraft types operated by international carriers of the Asia & Pacific Region in 1979 and 1985



**Table 3.5**  
**Jet aircraft on order and on option with**  
**airlines based in Asia and the Pacific**  
**(as of mid-1985)**

Aircraft Airline	Wide-body aircraft						Narrow-body aircraft						Grand total
	A-300	A-310	A-320	B-747	B-767	Total	BAe-146	B-757	B-737	MD-82	TU-154	Total	
<b>Western sub-region</b>													
Air India	-	6/6	-	-	-	6/6	-	-	-	-	-	-	6/6
Indian Airlines	-	-	19/12	-	-	19/12	-	-	-	-	-	-	19/12
Pakistan International	1	-	-	1	-	2	-	-	6	-	-	6	8
Sub-total	1	6/6	19/12	1	-	27/18	-	-	6	-	-	6	33/18
<b>Central sub-region</b>													
Malaysian Airlines	-	-	-	1	-	1	-	-	-	-	-	-	1
Royal Brunei	-	-	-	-	-	-	-	3	-	-	-	3	3
Singapore Airlines	-	-	-	5	-	5	-	-	-	-	-	-	5
Thai Airways	-	2	-	-	-	2	-	-	-	-	-	-	2
Thai International	8	-	-	2/1	-	10/1	-	-	-	-	-	-	10/1
Sub-total	8	2	-	8/1	-	18/1	-	3	-	-	-	3	21/1
<b>North-Eastern sub-region</b>													
CAAC	-	3/2	-	1	2	6/2	10	-	7	30/15	17	64/15	70/17
Cathay Pacific	-	-	-	3/1	-	3/1	-	-	-	-	-	-	3/1
Japan Air Lines	-	-	-	12	9	21	-	-	-	-	-	-	21
Korean Air	5/5	-	-	2	-	7/5	-	-	-	6/3	-	6/3	13/8
Nippon Cargo Airlines	-	-	-	1	-	1	-	-	-	-	-	-	-
Sub-total	5/5	3/2	-	19/1	11	38/8	10	-	7	36/18	17	70/18	108/26
<b>South-Eastern sub-region</b>													
Air New Zealand	-	-	-	1	3	4	-	-	6	-	-	6	10
Qantas	-	-	-	1	6	7	-	-	-	-	-	-	7
Sub-total	-	-	-	2	9	11	-	-	6	-	-	6	17
<b>REGIONAL TOTAL</b>	<b>14/5</b>	<b>11/8</b>	<b>19/12</b>	<b>30/2</b>	<b>20</b>	<b>94/27</b>	<b>10</b>	<b>3</b>	<b>19</b>	<b>36/18</b>	<b>17</b>	<b>85/18</b>	<b>179/45</b>

Note.— Orders/Options.

20. The most commonly operated wide body is the B-747 flown by 18 airlines of the region mainly on inter-continental trunk routes. Most of these aircraft are of the Series 200. In addition, Special Performance (SP) and Short-Range (SR) models are also in service and the Series 300, also known as the Stretched Upper Deck (SUD) version, has entered service with or will be delivered to six airlines, while the new Series 400 was under consideration in late 1985. Multi-sector services to Europe and within the region are typically performed with wide-body tri-jets, the DC-10 being operated by eight and the L-1011 by two international airlines in the region. The A-300B4-200 is operated by nine airlines of the region and has become the preferred aircraft for trunk route services within the region and to the Middle East. Other wide-body aircraft now entering regional service are the A-310 and the B-767ER (Extended Range).

21. The narrow-body jet fleet has grown chiefly by the addition of new two-engine aircraft (principally the B-737 and the Fokker F-28) while four-engine narrow-body aircraft have declined in number. In all, the number of jet aircraft operated increased by 29 per cent from 448 in 1979 to 578 in 1985 and these now account for over two-thirds of the total commercial fleet of the region (Table 3.4 and Figure 3.1). Numerically, the most commonly operated types of jet aircraft are: Boeing 747 (166), Boeing 737 (80), Airbus A-300 (59), Fokker F-28 (45) and DC-10 (44). The number of turbo-prop aircraft increased only slightly from 210 in 1979 to 218 units in 1985 (27 per cent of the total), while the number of piston-engined aircraft declined by two-thirds from 84 in 1979 to 27 in 1985 (3 per cent of the total).

22. The market environment and the generally profitable operations of the larger airlines in the region have made it possible for several to be among the first in the world to select from the latest improvements in aircraft technology to provide better service at reduced costs. Such improvements include twin-engine advanced technology aircraft which offer more seats with lower operating costs (e.g., B-767-300, A-300-600 and A-310); extended-range versions of many types (e.g., B-747-300/400, A-310-300, B-767-300ER); and aircraft designed for two-pilot operation (e.g., B-747-400, B-767, B-757, A-310 and A-320). Some airlines have also reduced costs by adopting a single basic engine type for different jet aircraft (e.g., Rolls-Royce RB-211 for Cathay Pacific, Pratt & Whitney JT9D for Singapore Airlines and the General Electric CF6 for Thai International).

23. Modernization contributed significantly to the fact that although the total fleet of 824 large aircraft operated by these carriers increased by only 11 per cent from the 1979 total of 742, the productivity of the fleet, measured in tonne-kilometres available, rose by 56 per cent. Aircraft operated by the international carriers of the Asia/Pacific region accounted for about 9 per cent of the world commercial transport fleet<sup>2</sup> of about 9 250 aircraft, as it did in 1979.

24. In the air cargo field, as of mid-1985, 10 scheduled international airlines based in the Asia/Pacific region operated 38 jet all-cargo or combi aircraft, compared to 12 airlines operating 31 such aircraft in 1979. The present combined fleets of these carriers include 23 B-747 freighters and combis, compared with only six in 1979. Most of the region's 15 DC-8 and B-707 freighters are expected to be withdrawn in coming years, but this will have little effect on cargo capacity in the region, which will continue to increase with the introduction of more B-747 freighters and combis, as well as with the belly-hold capacity of wide-body aircraft now on order. A new development for air cargo transport in the region is the emergence of the A-300 freighter, with an order being placed by Korean Air for two A-300F4-200 freighters and the decision by Thai International to convert one of its older A-300B4-200 aircraft to an all-cargo configuration. The all-cargo version of the A-300 can carry a maximum payload of 46 tonnes, compared to about 36 tonnes for the B-707 and 100-120 tonnes for different models of the B-747.

### *Western sub-region*

25. The total number of large aircraft operated by the 12 international carriers registered in the Western sub-region increased by 19 per cent from 130 in 1979 to 155 in 1985, representing almost one-fifth of the total regional fleet. The largest numbers of aircraft are operated by Indian Airlines (57), Pakistan International Airlines (37), Air India (19) and Bangladesh Biman (13).

2. Aircraft operated by China and the USSR are not included.

26. The number of jet aircraft operated by the 12 Western sub-region carriers increased from 71 in 1979 to 109 in 1985, while their wide-body aircraft more than doubled from 17 to 44. Wide-body aircraft are operated by Pakistan International Airlines (4 B-747s, 4 DC-10s, 7 A-300s), Air India (9 B-747s, 3 A-300s), Indian Airlines (10 A-300s), Air Lanka (1 B-747, 3 L-1011s) and Bangladesh Biman (3 DC-10s). Four-engined narrow-bodies declined from 31 to 22 aircraft in service with four carriers, comprising 17 B-707s and five DC-8s. Other jet aircraft include four B-727s, 34 B-737s and five F-28s.

27. Six freighter aircraft are used by Air India (2 DC-8s), Pakistan International Airlines (2 B-707s), and Helitours (2 DC-3s). In addition, two of Pakistan International's four B-747s are combis, providing main-deck cargo capability.

28. Present fleet plans include the acquisition of 33 new aircraft (with another 18 on option) by Air India, Indian Airlines and Pakistan International (see Table 3.5). Most of these aircraft (i.e. Indian Airlines' 19 A-320s and Pakistan International's 6 B-737s) will be used primarily in domestic service. Air India has ordered six extended-range A-310-300s for delivery in 1986 to replace its B-707s on services to Africa, the Middle East and within the region. Pakistan International is to take delivery of a B-747-200 and an A-300 for its international operations, and will retire three of its seven B-707s at the end of 1985.

### *Central sub-region*

29. The total number of large aircraft operated by the 20 international carriers of the Central sub-region increased by almost a third from 238 in 1979 to 308 in 1985, accounting for 37 per cent of the region's over-all fleet, up from 32 per cent in 1979. The largest number of aircraft are operated by Garuda (74), Hang Khong Vietnam (32), Philippine Airlines (31), Malaysian Airlines (30), Singapore Airlines (29) and Thai International (21). The seven non-scheduled carriers operate 24 aircraft, only two of which are jets.

30. While the number of jet aircraft in service rose by a quarter, from 147 in 1979 to 187 in 1985, that of wide-body aircraft more than tripled from 28 to 86. The largest fleet of wide-bodies is operated by Singapore Airlines, with 25 aircraft (19 B-747s, 6 A-300s), followed by Garuda with 21 (6 B-747s, 6 DC-10s and 9 A-300s), Thai International with 20 (6 B-747s, 2 DC-10s and 12 A-300s), Philippine Airlines with 11 (4 B-747s, 2 DC-10s and 5 A-300s) and Malaysian Airlines with 9 (2 B-747s, 3 DC-10s and 4 A-300s). The number of four-engined narrow-body jets fell sharply from 33 to the 6 aircraft in service with Aero Filipinas, Hang Khong Vietnam and Thai International. Similarly, the number of three-engined jets declined from 8 to 4, all four being Yak-40s. The number of twin-engined narrow-bodied jets increased from 78 to 91, including 4 B-757s, the principal types being the F-28 (34), DC-9 (19) and B-737 (18).

31. One scheduled airline (Hang Khong Viet Nam) and five non-scheduled carriers fly 12 all-cargo aircraft, comprising 1 Il-18, 2 CL-44s, 2 DC-6s and 7 DC-3/C-46s. Since 1979 both Singapore Airlines and Thai International have withdrawn their jet freighters from service and at present rely exclusively on the belly-hold capacity of wide-body aircraft.

32. Due to the deliveries of many new aircraft to airlines of the Central sub-region in the early to mid-1980s, outstanding orders now account for only 20 aircraft. Malaysian Airlines has one B-747-300 combi on order for delivery in 1986, and Royal Brunei three B-757-200s to be delivered in 1986, the latter with extended-range features similar to those of the B-767ER, giving the aircraft the capability to fly non-stop to Europe. Singapore Airlines anticipates delivery through 1988 of five more B-747-300s, three of which are combis, replacing Series 200 aircraft. Modernization of its regional fleet was completed in mid-1985, with A-310 and B-757 aircraft replacing A-300s and B-727s. Thai International also has two B-747-300s on order and an option for one, as well as eight A-300-600s, which provide higher capacity than the Series 200. Upon delivery of Thai International's fifth A-300-600 in 1986, an A-300B4-200 will be reconfigured as an all-cargo aircraft. The trend among the larger airlines of the sub-region is towards greater reliance on the B-747-300 for long-haul services to Europe and North America, supplemented by combi versions for additional cargo capacity, replacing the DC-10-30 and earlier models of B-747. The new aircraft apparently preferred by the Central sub-region carriers for services within the region and to the Middle East are the A-300-600, the A-310 and the B-757.

***North-Eastern sub-region***

33. The nine international carriers based in the North-Eastern sub-region operated 273 large aircraft compared with 292 in 1979. This represents one-third of the regional fleet, down from 39 per cent in 1979. The largest number of large aircraft are operated by Japan Air Lines (81), CAAC (78) and Korean Air (43).

34. The number of jet aircraft increased by one-fifth from 182 to 216, of which almost 60 per cent are wide-body aircraft. Of the total of 125 wide-body aircraft, Japan Air Lines operates 69 (49 B-747s, 20 DC-10s), Korean Air 28 (16 B-747s, 4 DC-10s, 8 A-300s), Cathay Pacific 19 (10 B-747s, 9 L-1011s), CAAC 5 B-747s, Japan Asia Airways 2 DC-10s and Nippon Cargo Airlines 2 B-747s. Four-engined narrow-bodies fell from 73 to 49 aircraft, comprising 16 B-707s, 15 DC-8s and 8 IL-62s in service with five airlines. As opposed to the situation in the other three sub-regions, the carriers of the North-Eastern sub-region operate a large number of three-engined narrow-bodies (mainly on domestic routes) and relatively few twin-engined aircraft. The number of three-engined narrow-bodied jets fell slightly from 48 to 42 in 1985, the majority being operated by CAAC (32 BAe HS-121s), and the remainder by Korean Air, CAAC and Japan Air Lines. Twin-engined narrow-bodies number ten in operation with CAAC, Korean Air and Dragon Airways.

35. A distinctive feature of the sub-region is the large number of aircraft used to carry main-deck cargo in international service. Between 1979 and 1985 their number doubled from 15 to 31, with that of B-747 freighter and combi aircraft increasing from 4 to 18, and that of B-707 and DC-8 freighters falling from 11 to 10. In addition, an AN-24 cargo aircraft is operated by Air Mongol. Boeing 747 freighters are operated by Japan Air Lines (8 compared with 2 in 1979), Korean Air (6 compared with 2 in 1979), Nippon Cargo Airlines (2) and Cathay Pacific (1), while CAAC operates a B-747 combi. Narrow-body freighters include 6 B-707s in service with CAAC, 3 B-707s with Korean Air and one DC-8 with Japan Air Lines (down from 7 in 1979).

36. As of mid-1985, airlines of the North-Eastern sub-region had 108 aircraft on order and options for 26, representing approximately 60 per cent of the regional totals. CAAC and its affiliated companies alone had orders for seven different types totalling 70 aircraft with options on 17. The majority of these aircraft will be used to develop domestic services. Aircraft ordered by CAAC to expand international services include a B-747-200 combi, two B-767-200ERs and three A-310-200s. Japan Air Lines, with 21 aircraft, had the largest number of aircraft on order for international services. Its orders include 12 B-747s (1 Series 300, 5 Series 200, 3 short-range versions and 3 freighters) for delivery through 1989, and nine B-767s (1 Series 200 and 8 Series 300) for delivery through 1988. The new aircraft will enable JAL to retire 12 DC-8s and lease two DC-10s to Japan Asia. Korean Air had 13 aircraft on order, comprising two B-747-300s, five A-300s and six MD-82s. Three of the A-300s are Series 600 and two are A-300F4-200 freighters. The MD-82s will replace B-707s and B-727s in domestic service. Cathay Pacific had three B-747-300s on order which may replace some L-1011s currently on lease and Nippon Cargo Airlines had a third B-747 freighter on order.

***South-Eastern sub-region***

37. Total aircraft operated by the 12 airlines of the South-Eastern sub-region increased only slightly from 82 in 1979 to 88 in 1985, accounting for about 11 per cent of the region's over-all fleet. The largest number of aircraft are operated by Air New Zealand (31), Qantas (26) and Air Niugini (12).

38. Jet aircraft in service rose by 38 per cent from 48 in 1979 to 66 in 1985. Wide-bodies accounted for almost half the total, Qantas operating 26 B-747s, Air New Zealand 5 B-747s and Air Niugini one A-300. In addition, Air Pacific leases a Qantas B-747 for its Nadi-Sydney services. There are only eight four-engined and three-engined narrow-bodies in the sub-region's fleet, four B-707s being operated by South Pacific Island Airways, one DC-8 by Air New Zealand, two B-727s by Air Nauru and one B-727 by Air Tungaru. Twin-engined jets number 26 in service with seven airlines, of which 22 are B-737s and four are F-28s.

39. Aircraft with main-deck cargo capability are in service with Qantas (3 B-747 combis), Air New Zealand (1 DC-8), and Air Niugini (1 DHC-7).

40. Air New Zealand and Qantas had 17 new aircraft on order in September 1985. Air New Zealand's order included one B-747-200, three B-767-200 ERs and six B-737-200s, the latter for domestic use. Qantas had seven aircraft on order, comprising a B-747-300 and six B-767-200 ERs, reversing that airline's previous policy of standardizing its fleet on a single type, the B-747, and permitting it to dispose of some older B-747-200s.



## **Chapter 4**

# **Regulation and Route Networks**

1. In the Asia/Pacific region, as in other regions of the world, significant changes are taking place in international air transport regulatory policies of States. This Chapter first examines in broad terms various such approaches and policy developments in the region (Part A) and then considers associated recent developments in the region's air route network (Part B).

### **A — REGULATION**

2. The diversity of the levels of development of international air transport among States in this region is reflected in national approaches to policy about, and regulation of international air transport. The approaches to important matters such as the role of the national carrier, the degree of competition to be permitted and the kinds of bilateral arrangements to be sought differ considerably among States.

#### *General developments in national approaches to policy and to regulation*

3. By and large, changes in approaches to policy and regulation within the region are in the direction of greater liberalization and lessening of controls to permit more operational and commercial flexibility for airlines; however, the pace of change varies among States. For example, Japan and Singapore, two leading aviation States, both lie at the crossroads of major trunk routes and have experienced rapid economic and air traffic growth in recent decades. However, each is moving at an entirely different pace towards change in its international air transport policies and regulation.

4. Japan maintains close regulatory control over all aspects of international aviation. In its bilateral relations it has sought "order in the air" through the balancing of economic benefits in the exchange of traffic rights, a careful monitoring of or controls over capacity, the multilateral establishment of tariffs through IATA and a general acceptance of airline co-operative practices such as pooling. However, Japan has recently ended its policy of designating only one carrier, JAL, for international scheduled operations with probable consequences for increased competition in its domestic network as well. Similarly, Japan is now considering "privatization" of Japan Air Lines with a probable lessening of its public utility role in international services.

5. In contrast, Singapore has emphasized expansion of its international air transport links. To this end, Singapore has signed many bilateral air agreements, under some of which services are planned but not yet operated or under which services are carried out by a partner State's carrier without any reciprocal service by Singapore Airlines. Wherever possible, Singapore seeks to conclude liberal bilateral agreements through exchanges of rights based on opportunities rather than seeking absolute reciprocity in traffic or operational terms, although in pursuit of these objectives it has found flexibility and compromise necessary and in many of its agreements has accepted some restrictions on route access, traffic rights, capacity and tariffs. National policy towards Singapore Airlines has stressed commercial objectives and criteria, has not required it to undertake a public utility role in any of its operations, and has encouraged "privatization" efforts.

6. The pace of change by most other States in the region falls between the two examples cited. The majority continue to favour fairly tight regulation or monitoring of capacity and tariffs, to seek reciprocity in their bilateral arrangements and route access, at times to require the operation and development by their national airline of routes that have little or no prospect of being economically viable, and to maintain general government control over a single national carrier.

7. A competitive environment has been developing on a number of trunk routes such as along the eastern rim of Asia, on the North Pacific and between Australia, South East Asia and Europe. The competition on these routes, which is mainly in terms of quality of airline service, has come about primarily through the access by a large number of carriers to Fifth Freedom and so-called "Sixth Freedom" traffic. But the competitive situation and the presence of many carriers can also lessen the willingness, especially of the traffic-generating States on these routes, to grant access.

#### *Specific policy changes — scheduled services*

8. Most international carriers in the region are wholly or partially owned by their governments, but recently a number of States have considered reducing their level of ownership, although not necessarily of control. Partial so-called "privatization" has already taken place in Malaysia and Singapore and is either pending or under examination in Japan, Pakistan, Papua New Guinea and Thailand. Although such action may have minimal impact on the actual regulatory arrangements between authorities and carrier, the result for the carrier is usually greater exposure to commercial criteria and objectives.

9. Another significant development concerns designation of carriers under bilateral agreements. States in the region have hitherto chosen to designate only one carrier as their international operator, with minor exceptions for certain short distance routes within sub-regions. However, several States have domestic carriers that aspire to an international role and in Japan and India the long-standing practice has been changed to permit designation of a domestic carrier as an international operator, usually on routes not served by the established national carrier. In India, the domestic carrier Indian Airlines was recently authorized to serve Bangkok in addition to several points already served in neighbouring countries. In Japan, All Nippon Airways is in the process of establishing services to Guam, Los Angeles and Washington, D.C. Toa Domestic Airlines reportedly also seeks international routes. The Hong Kong authorities have authorized operations by a second carrier, Dragon Airways, and have received other applications.

10. In States with sizeable domestic air operations there is increasing recognition of a need of the exclusive or dominant international operator, for example in Australia or Japan, to enter into or expand domestic operations, either to offset the effects of new domestic carrier entry into international markets or to provide on-line domestic "feed" to their international routes. This trend may receive added impetus from the recent entry into the transpacific market by United Air Lines, which serves all 50 U.S. States. The entry of United Air Lines is also likely to lead to co-operative arrangements on scheduling, joint marketing, etc., between Asia/Pacific airlines and U.S. domestic airlines which compete with United Air Lines.

11. China has also been reviewing its regulatory arrangements and has indicated an intent to separate the administrative/regulatory functions of the Civil Aviation Administration of China (CAAC) from its airline operations. Of added significance is the emergence or expected emergence of several new domestic regional airlines, some of which might at some time operate internationally. Xiamen Airlines, Xinjiang Airlines and Shanghai Airways have been approved and other local airlines may also be established.

12. Among other States in the region, New Zealand recently announced a desire to liberalize its bilateral agreements where possible, to provide additional new routes and a greater operational flexibility for operators. It is willing to authorize, both for domestic service and to an extent international, other New Zealand airlines to compete with Air New Zealand. Papua New Guinea undertook the most radical redirection of policy by recently declaring its intention to adopt an "open skies" policy.

**Non-scheduled services policy developments**

13. Although passenger charter markets in the region are few and the traffic of decreasing relative importance, most Asian and a few Pacific States have promulgated some form of non-scheduled regulation or policy. As with scheduled services, national policies differ considerably among States. The role of tourism often has an impact on a particular national approach. States with a sizeable tourism industry, such as Sri Lanka, Maldives and Thailand, have generally taken a more open approach. More recently, Malaysia and Indonesia have also allowed greater entry of “programmed” charters as a means to increase tourism. Other States, those whose concerns for protecting scheduled services and the viability of their national carrier override considerations of mass tourism, are less receptive and apply regulatory criteria such as the “right of first refusal”.

14. Somewhere between these positions is the approach taken by Hong Kong authorities. Hong Kong authorities will normally approve applications for non-scheduled air services if they are “satisfied that the applicant has reasonably demonstrated that corresponding scheduled services cannot satisfy a genuine demand by providing the service or capacity required at the price offered” and, in the case of applications by airlines based outside Hong Kong, “that the government of the country in which the airline is based would afford no less favourable treatment to a Hong Kong-based airline making a similar application”. Under these criteria Hong Kong, which is a generator of charters (mainly to the Philippines), has also become a regular recipient of passenger charters, primarily from Japan.

15. In some instances non-scheduled operations are governed by the terms of bilateral agreements. For example, since 1982 charters between Japan and the United States have been regulated by an amendment to the air service agreement permitting 300 one-way charter flights per year for the airlines of each country to be operated in accordance with country of origin rules.

16. Apart from *ad hoc* charter flights, which are widely accepted by States in the region, and smaller transborder-type operations found among ASEAN States, the major kinds of charters accepted are inclusive tours (ITCs); incentive charters, which are a single entity or own-use type of operation; and affinity charters. Advance Booking Charters (ABCs) are not commonly found. An important outbound charter operation is the seasonal movement of Hadj traffic to Saudi Arabia.

17. One potentially significant destination for intra-regional passenger charters, Australia, has indicated an increasing willingness to accept charters, especially to tourist destination points that have limited scheduled service access or high fare structures. Approval has been given to some limited programmes of passenger charters from Japan. In addition, Australia has changed its cargo charter policy to facilitate the operation of split charters to and from points not served by scheduled services.

**Bilateral agreements and relations**

18. The rapid growth of air transport in the region has meant considerable bilateral agreement activity. The competition situation on many routes to and from States in the region has also led to a number of disagreements involving States from the region.

19. An overview of how bilateral agreements have treated regulatory elements such as capacity and designation can be obtained from an analysis of 326 bilateral agreements registered with ICAO and involving States in the region. On capacity these agreements are evenly divided between the Bermuda I formula and the predetermination method of control with a handful of agreements having incorporated the “free determination” provision. Many States in the region have negotiated approximately equal numbers of Bermuda I and predetermination agreements. Nevertheless, the dominant practice is for capacity to be controlled by authorities and very few routes in the region do not equally share Third and Fourth Freedom frequencies between the partner carriers. This anomaly can be explained by the fact that many agreements that are ostensibly Bermuda I are often circumscribed by confidential memoranda of understanding that specify reciprocity or precise levels of capacity.

20. With respect to designation, a distinction can be drawn between intraregional agreements and those involving a State outside the region. In the former case, for which 73 agreements are available, there is a clear preference for single over multiple designation, whereas agreements involving a State outside the region are evenly divided between those allowing single and those allowing multiple designation.
21. Recent developments in two bilateral relationships are likely to have future implications for other bilateral arrangements involving the region. The first concerns China and the United Kingdom. Section IX, Annex I of the 1984 Joint Declaration of these countries on the Question of Hong Kong contains provisions concerning the regulation of civil aviation matters as from 1 July 1997 (see Appendix 15).
22. Another bilateral relationship of pivotal importance to the region is that between Japan and the United States. It is a complex and difficult relationship based on an agreement signed in 1952 but revised in minor ways many times since then. Among the issues involved are designation, routes, beyond Fifth Freedom rights, scheduled cargo services, pricing, airport access and so-called "doing business" problems. Attempts at major revision of the agreement have failed mainly because of the fundamentally different positions of the parties. Japan has a basic objective of redressing a purported imbalance in the economic benefits conferred by the agreement. For its part, the United States believes no such imbalance exists and has emphasized instead a widening of aviation opportunities between the partners. As a consequence of these basic differences of objectives and approach, revisions to the agreement have been limited, *ad hoc* responses to changing circumstances and the resolution of specific problems raised by each side. It is probable that changes in Japan's policies on issues such as designation, together with the takeover of Pan American's Pacific operations by United Air Lines at increased frequency levels, will have a considerable impact on the already competitive environment on North Pacific routes and in associated bilateral relationships.
23. Bilateral relationships are subject to many pressures and the need to adjust to changing circumstances. Many disputes, however, centre on Fifth Freedom rights and on the role of Fifth, and sometimes "Sixth Freedom" traffic, in capacity determinations. A prominent example of the latter problem in recent years concerned the bilateral relations between the United Kingdom and several South-East Asian States: Malaysia, the Philippines and Singapore. At the heart of the problem was the assessment by the respective partners of "reasonable levels" of traffic picked up in third countries when determining the need for additional frequencies between the partner States.
24. An example of a dispute arising from changed circumstances, yet again involving the exchange of Fifth Freedom rights, was that between Singapore and Sri Lanka. The dispute centred on an alleged imbalance of benefits accruing from the exchange of Fifth Freedom rights in an unratified 1979 memorandum of understanding. In 1984, a failure to resolve the differences led to a termination of services between the two countries until a new agreement was negotiated in 1985 which restructured the exchange of beyond-traffic rights and took account of the respective airlines', plans for future expansion.
25. Although Fifth Freedom traffic rights are a contentious bilateral issue and are usually granted only after hard bargaining, they may, on some routes, become less important as end-to-end traffic volumes and advances in long-range aircraft technology make overflight possible where long-haul operations had previously required Fifth Freedom traffic rights for viability. Routes where such a development has either begun or is likely to take place are those between Japan and Europe, the North-Eastern sub-region and North America, South-East Asian points and Europe, and Australia and North America.
26. A special regulatory situation exists in the South Pacific where a number of small island States have attained independence in recent years. For geographic reasons these States have unique air transport problems and, apart from tourism, limited economic potential. This predicament has made air links and arrangements vitally important foreign policy and economic issues for the various governments.
27. The island States have sought to improve their air transport links through the establishment of their own airlines and by means of different co-operative arrangements. At the airline level such arrangements as wet-leases, blocked-space agreements and management links have been employed, particularly with outside operators. For example, joint ventures involving financial, managerial and equipment ties have been entered into by island carriers from Vanuatu

and Western Samoa with an Australian domestic carrier, Ansett Airlines, thereby creating, through interlining of equipment and co-ordination of schedules, island links through to Australia in which the same aircraft may be used to carry traffic in various bilateral markets.

28. Another potentially useful approach for island States to take within bilateral agreements lies in the implementation of ICAO Assembly Resolution A24-12. That Resolution was adopted with the special problems of such States in mind and promotes the concept of "community of interest" within regional economic groupings as a valid basis for the designation by one developing country in that grouping of an associated country's airline. The Resolution further urges the acceptance of such designation in the exercise of rights under bilateral arrangements.

#### ***Multilateral co-ordination and co-operation***

29. Without a regional intergovernmental civil aviation organization in the Asia/Pacific region, multilateral co-ordination of policy in the region has not been formalized. Nevertheless, some informal co-ordination and consultation does take place regionally and, more formally, on a sub-regional basis. An annual meeting of Directors-General of Air Transport from nearly all States in the region provides the forum and an opportunity for the exchange of views on air transport problems at a senior level, but the meeting does not take formal decisions or make recommendations.

30. At the sub-regional level, regular meetings take place between civil aviation authorities of State members of the South Asia Regional Co-operation group. In the South Pacific, under the auspices of the South Pacific Bureau for Economic Co-operation (SPEC) a South Pacific Regional Civil Aviation Council meets annually to promote sub-regional co-ordination and co-operation.

## **B — ROUTE NETWORKS**

#### ***Route network developments***

31. The level of development of a region's route network can be measured by the number of country-pairs between which through-plane services, i.e. services that do not involve a change of plane, are provided. In September 1985, 326 country-pairs in the Asia/Pacific region were linked by through-plane services (Appendix 6).

32. The table shows that relatively extensive route networks exist within the Western, Central and North-Eastern sub-regions and, to a much lesser degree, in the South-Eastern sub-region. Links between most sub-regions are not so well developed and could be described as ranging from fair to poor.

33. Since 1978 there has been some improvement in the region's route network with the addition of 21 country-pairs. However, with the exception of the Central sub-region, most intra- and inter- sub-regional links increased only marginally. The modesty of the over-all improvement is due mainly to much of the region's route network development having taken place in the 1970s — the number of country-pairs nearly doubled between 1970 and 1978. Furthermore, insufficient traffic flows and the difficulty of obtaining Fifth Freedom traffic rights, which are often an important factor in route planning, have probably prevented the opening of a number of new routes in recent years.

34. Where the route network development is poor, such as between the South-Eastern and Western sub-regions which had only three country-pair links between them in 1985, a question arises as to whether air transport needs between these areas are being adequately served in qualitative terms. The adequacy of airline services may be indicated not only by the number of through-plane services but also by the availability and convenience of connexions. On this

basis, combinations of flights through appropriate points, for example points in Australia and Singapore, can provide reasonably good services for passengers and freight between many points in these two sub-regions that would not realistically expect to be connected by through-plane flights. Nevertheless, the availability of connexions at certain hubs does not eliminate all need for additional direct links, particularly where indirect routings and the unavailability of reasonable connexions are presently the case.

35. The route network between points in the region and points in other regions is nearly as fully developed as the intra-regional route system. In September 1985 there were 301 through-plane scheduled service links to countries outside the Asia/Pacific region, up from 267 in 1978 (Appendix 7). As of September 1985 five States in the region, namely Bhutan, Brunei Darussalam, Samoa, Tuvalu and Vanuatu, still did not have any direct links to other regions.

36. The best developed links are to North America, followed by those to Europe and the Middle East; however, links to Africa and to the Latin American/Caribbean regions remain sparse. Only a few States have a reasonable number of direct air links with States in Africa. Between 1978 and 1985 there were improvements particularly in services between the Western sub-region and the Middle East and from the North-Eastern sub-region to the Middle East and Europe.

### **Regional hubs**

37. The region's route system is characterized by the establishment of several important hubs, namely Tokyo, Hong Kong, Singapore and to a lesser extent Bangkok, which are able to take advantage of their geographic location in relation to major traffic flows. These hubs operate as interchange points between different airlines, particularly on long-haul routes within the region or to other regions. For the airlines based at those hubs, hub-and-spoke route networks also permit traffic feed within their own systems.

38. An additional feature at Tokyo and Singapore is the use of these hubs by carriers based in the United States and Australia, which transfer on-line passengers between various points in their home continents and countries other than Japan and Singapore respectively. These arrangements have allowed such carriers to make more efficient use of their wide-bodied aircraft and have permitted increases in frequencies into the hub. Where change-of-gauge activity occurs, bilateral agreement for it is normally required. The strategic placement and use of these hubs have mitigated some of the weaknesses in the region's route network development.

## **Chapter 5**

# **Passenger and Freight Markets**

1. Between 1979 and 1984, international tourist movements in Asia and the Pacific, which were predominantly by air, grew more rapidly than in the world as a whole. By 1984 the total annual arrivals of foreign tourists in States of the region reached almost 23 million. Data on these movements, which include business travellers and people travelling to visit friends and relatives as well as travellers on vacation, are important indicators of traffic sources for airlines. Import/export data on products or commodities are also useful sources of information on air freight markets. This chapter presents tourism data about international passenger markets (Part A) and trade data about international air freight markets (Part B).

### **A — PASSENGER TRAVEL MARKETS**

2. The total receipts earned from international tourism in Asia and the Pacific in 1984 were about \$12 200 million, according to World Tourism Organization (WTO) estimates, or about 12 per cent of total world tourism receipts. For a number of countries tourism is an important source of foreign exchange. Compared to exports of individual commodities (based on the 3-digit Standard International Trade Classification commodity grouping), international tourism is the most important source of foreign currency in Fiji, French Polynesia, Macao, Maldives, Nepal, Thailand and Tonga, the second largest source in Hong Kong, India, Philippines, Samoa and Singapore and the third largest in Sri Lanka. Tourism probably ranks among the first three sources of foreign exchange for a number of other countries for which complete data are not available.

3. During the period 1979-1984, the number of annual foreign visitor arrivals to States in the region increased by one-third from 16.7 million to 22.7 million, an average annual increase of 6.4 per cent, compared to 2.3 per cent for the world (see Table 5.1 and Appendix 8). Growth was highest in the North-Eastern sub-region (9.2 per cent a year), followed by the Central sub-region (5.6 per cent), the South-Eastern (4.9 per cent) and the Western (2.1 per cent).

4. Air transport was used by 17.9 million visitors to countries in the region, representing almost four-fifths of total arrivals by all modes of transport. The proportion of visitors arriving by air was highest in the Western sub-region (99 per cent). Six destinations in the region received more than one million visitors by air in 1984: Hong Kong (2.7 million), Singapore (2.6 million), Japan (2.2 million), Thailand (1.7 million), the Republic of Korea (1.2 million), and Australia (1.0 million).

5. Intra-regional tourist travel represents 62 per cent of total arrivals by all modes in Asia and the Pacific, a higher proportion than that of any other developing region. Extra-regional traffic is dominated by Europeans (18 per cent), followed by nationals of the Americas (15 per cent), while the rest of the world accounts for 5 per cent.

**Table 5.1**  
**International tourist arrivals in Asia/Pacific countries**  
**(1979-1984)**

Sub-region totals	Number of tourist arrivals — all modes ('000)		Percentage distribution		Annual growth rate (%) 1979-1984	Arrivals by air 1984	Air share
	1979	1984	1979	1984			
Western	2 106	2 340	12.6	10.3	2.1	1 725	74
Central	6 988	9 198	41.9	40.5	5.6	6 597	72
North-Eastern	5 458	8 493	32.7	37.3	9.2	6 243	88
South-Eastern	2 141	2 714	12.8	11.9	4.9	2 686	99
Total, Asia/Pacific	16 693	22 745	100.0	100.0	6.4	17 251	79

Note.— Tourist arrivals are defined by the World Tourism Organization as temporary visitors staying at least 24 hours in the country visited.

Source.— World Tourism Organization, *World Travel and Tourism Statistics*, 1985.

### Sub-regional travel markets

#### *Western sub-region*

6. In 1984 there were approximately 2.3 million tourist arrivals in States in the Western sub-region or about 10 per cent of the regional total, almost three-quarters of whom arrived by air. The countries with the largest number of arrivals by air were India (836 000), Sri Lanka (305 000), Pakistan (240 000) and Nepal (150 000). While the sub-region's tourist arrivals grew between 1979 and 1984 at an average annual rate of only 2.1 per cent, the lowest rate of any of the sub-regions, arrivals in Maldives and Bangladesh were significantly higher at 20.5 and 12.6 per cent respectively.

7. Although tourists from other countries in the Asia/Pacific region accounted for 46 per cent of all foreign travellers to States in the Western sub-region, this proportion was lower than that of any other sub-region. Tourists from Europe constituted the second most important category of arrivals (36 per cent), approximately twice the proportion found in the other sub-regions. The Americas accounted for 9 per cent and other regions collectively for 9 per cent.

8. For the sub-region as a whole, approximately 85 per cent of tourist arrivals involved travel for personal reasons or pleasure and 15 per cent for business. Business travel was most important in the case of Bangladesh (59 per cent) and Pakistan (22 per cent), while pleasure travel predominated in Burma, Maldives, Nepal and Sri Lanka. Visiting friends and relatives was particularly important as a reason for travelling to India and Pakistan.

9. No data are readily available on the size and characteristics of the market for foreign travel by nationals or residents of countries in the sub-region.



**Central sub-region**

10. With an estimated 9.2 million tourist arrivals in 1984, the countries of the Central sub-region comprise the largest single tourist destination market in the Asia/Pacific region, accounting for 41 per cent of the regional total. Arrivals by air represented 72 per cent of this total. Countries with the largest number of tourist arrivals by air were Singapore (2.6 million), Thailand (1.7 million), Philippines (792 000), Malaysia (713 000) and Indonesia (701 000). Surface transport was the principal means of transport for tourists visiting Malaysia and Brunei Darussalam.

11. Between 1979 and 1984, total arrivals grew at an average annual rate of 5.6 per cent, the second highest rate of the four sub-regions. Growth in the main tourist destination countries was close to the sub-regional average, except in the Philippines which registered an average fall of 3.3 per cent per year. At 72 per cent of arrivals, tourists from within the Asia/Pacific region constituted a larger proportion of 1984 arrivals at States in the Central sub-region than they did in any other sub-region. Tourists from Europe comprised 16 per cent, from the Americas 9 per cent and other regions 4 per cent.

12. About 85 per cent of travel to the Central sub-region was for personal reasons or pleasure and 15 per cent for business. Indonesia at 22 per cent and Singapore at 21 per cent had the highest proportions of travellers for business.

13. Data available on the number of nationals travelling abroad from four countries in the sub-region indicate the growing importance of sub-regional originating travel. Departures of nationals from Malaysia numbered 1.5 million, Philippines 703 000, Singapore 482 000 and Brunei Darussalam 119 000; departure rates per thousand inhabitants ranged from a low of 18 for the Philippines to a high of 570 for Brunei Darussalam. Travel was mainly to other countries in the Central or North-Eastern sub-regions.

**North-Eastern sub-region**

14. Total tourist arrivals in 1984 in countries of the North-Eastern sub-region were 8.5 million, or 37 per cent of the total for the Asia/Pacific region. This includes 1.2 million foreign tourist arrivals in China, but does not include arrivals by 11.7 million Chinese visitors, mainly from Hong Kong and Macau, an unknown number of whom were excursionists staying for less than 24 hours. Air transport was used by an estimated 81 per cent of the 8.5 million tourist arrivals in the sub-region. Places with the largest number of tourist arrivals by air were Hong Kong (2.7 million), Japan (2.2 million), the Republic of Korea (1.2 million) and China (688 000). The sub-region recorded the highest rate of growth in total tourist arrivals, which grew at 9.2 per cent a year between 1979 and 1984. The fastest-growing destinations were China (27 per cent per year), Japan (14 per cent) and Hong Kong (7 per cent).

15. The rapid growth of tourist travel to China since 1978 has been one of the most important developments affecting travel in the region. As noted above, arrivals of visitors from places other than Hong Kong and Macau represented only about 9 per cent of total 1984 arrivals in China, a proportion which has changed little over the past five years. Total arrivals in China have grown from 1.8 million in 1978, when entry restrictions were eased, to 12.9 million in 1984. On the basis of these figures, China receives substantially more visitors than any other country in the region.

16. For the sub-region as a whole, arrivals from other countries in the region represented 57 per cent, followed by 22 per cent from the Americas, 16 per cent from Europe and 5 per cent from other regions.

17. At 18 per cent of the total, business travel accounted for a larger proportion of total arrivals in the North-Eastern sub-region than in any other, being most important in Japan and Hong Kong where it represented 22 per cent of the total in each case.

18. Japan is the largest single originating market in the sub-region, and in the Asia/Pacific region as a whole. In 1984, about 4.7 million Japanese nationals travelled abroad, a departure rate of 39 per thousand inhabitants. Of these, 47 per cent travelled within the region, 34 per cent to the United States, 11 per cent to Europe and 8 per cent to other destinations. Hong Kong generated 1.1 million departures of its residents, as many as 215 per thousand,

80 per cent of whom travelled within the region, 9 per cent to Europe, 7 per cent to the United States and 4 per cent to other destinations. The Republic of Korea generated 12 departures per thousand inhabitants, for a total of 493 000 nationals travelling abroad. Of these, 47 per cent travelled within the region, 22 per cent to the Middle East (primarily on guest worker contracts), 20 per cent to the United States, 6 per cent to Europe and 5 per cent to other destinations.

### *South-Eastern sub-region*

19. Countries in the South-Eastern sub-region received an estimated 2.7 million tourists in 1984 representing some 12 per cent of the regional total. Air transport was used by 99 per cent. Countries with the largest number of arrivals by air were Australia (1 million), New Zealand (568 000), Guam (361 000), Fiji (230 000), the Trust Territory of the Pacific Islands (132 000) and French Polynesia (100 000). The growth in the number of arrivals for the sub-region as a whole was 4.9 per cent per year between 1979 and 1984, the highest average annual growth rates being reported by New Caledonia (10.8 per cent), New Zealand (6.5 per cent), Guam (6.5 per cent), Tonga (5.5 per cent), Cook Islands (5.5 per cent) and Australia (5.1 per cent).

20. The distribution of arrivals in countries in the sub-region by region of origin is closely comparable to the figures for the Asia/Pacific region as a whole. Visitor arrivals from other countries in the sub-region accounted for 62 per cent of the total, from the Americas 19 per cent, Europe 16 per cent and other areas 3 per cent. Only in the cases of Australia and French Polynesia was the proportion of visitors from other countries in the region less than half of the respective totals.

21. The distribution of arrivals by reason for travel varies to a greater extent in this sub-region than in any other. Business travel to Australia and New Zealand represented about 12 per cent, slightly higher than the sub-regional average of 11 per cent, but this proportion ranges from 6 per cent in Fiji and the Cook Islands to 30 per cent in Tonga and 39 per cent in Papua New Guinea. Destinations where travel for pleasure was most important were the Cook Islands, Vanuatu, French Polynesia and Fiji.

22. Among countries in the sub-region, Australia generated 1.4 million departures of residents in 1984 (92 departures per thousand inhabitants), New Zealand 380 000 (117 per thousand) and French Polynesia 24 000 (153 departures per thousand). The percentage breakdown by destination differs considerably for the three countries. Travel within the region, much of which is travel within the South-Eastern sub-region itself, accounted for 70 per cent of New Zealand resident departures, 56 per cent of Australian and 30 per cent of French Polynesian. Travel to Europe is important in the cases of Australia and French Polynesia (both 27 per cent), but not in that of New Zealand (12 per cent), while travel to North America represents 43 per cent of resident departures from French Polynesia, 10 per cent of those from Australia and 9 per cent from New Zealand.

## **B — AIR FREIGHT MARKETS**

23. In 1984, airports in the Asia/Pacific region handled some 3.4 million tonnes of international air freight. While this represents only a small proportion of the region's foreign trade in terms of weight, air transport plays an important and growing role when viewed in terms of the value of goods carried by air. Although there is only partial data available on the value of air trade, estimates based on these sources suggest that the total value of goods moved by air amounted to approximately \$115 000 million in 1984, or about 16.5 per cent of the region's total trade. One-quarter of the region's trade in manufactured goods by value (i.e. Standard International Trade Categories 5 to 8) is now estimated to move by air, a figure which dramatically underlines the importance of international air transport to the economy of the region. Further information is given below regarding the importance of air trade to the economy of Hong Kong and to trade relations between the region and the United States.

24. The situation of Hong Kong exemplifies the importance of air transport in the conduct of its international trade. In 1984, 28 per cent (\$5 000 million) of Hong Kong's total exports were shipped by air, as was 28 per cent (\$2 300 million) of re-exports and 21 per cent (\$6 051 million) of total imports. Goods were exported to North America (54 per cent), Europe (27 per cent), Asia/Pacific (15 per cent) and other regions (4 per cent), while imports originated from Asia/Pacific (47 per cent), Europe (26 per cent), North America (23 per cent) and other regions of the world (4 per cent). Five commodity groups accounted for almost 70 per cent of all exports by air by value: textiles and clothing, watches and clocks, computer parts, gold and silver jewelry and cathode tubes and transistors. Imports by air were similarly concentrated among the five most important commodity groups representing 57 per cent of the total by value: cathode tubes and transistors, watches and clocks, pearls and precious or semi-precious stones, electronic parts and components and automatic data processing machines and equipment. Three of the five commodity groups figure under both exports and imports, demonstrating an important feature of air trade characteristic of several newly industrialized countries in the region, namely the import of parts and components for assembly and eventual re-export.

25. Approximately one-third of the Asia/Pacific region's foreign trade by air is exchanged with the United States, making the transpacific routes the world's most important air freight market. Total trade by air between the region and the United States was valued at \$38 800 million in 1984, while in terms of weight, exports from the region amounted to 545 000 tonnes and imports to 239 000 tonnes. As may be seen from Table 5.2, which summarizes the weight and value of trade by air by sub-region and by country and which also shows the relative share of total trade carried by air, 20 per cent of the region's total exports by value to the United States moved by air, as did 28 per cent of its imports by value. The air share of total trade with the United States by all modes was highest in the Central sub-region, where 34 per cent of exports by value and 47 per cent of imports by value were shipped by air. These figures clearly demonstrate the importance of air transport in international trade relations. Exports from the region had an average value of \$42 per kilogramme, compared with \$67 per kilogramme for imports. The total weighted average of \$50 per kilogramme compares with \$13 in 1972, established in a previous ICAO survey of air freight in the Asia/Pacific region (Circular 124).

26. An important objective in connexion with the economic development of developing countries is the promotion of non-traditional exports. Examination of the 50 most important categories of goods exported by the world's developing countries indicates that 30 can be broadly classified as traditional exports of resource-based products (e.g. mineral and agricultural products) and 20 as non-traditional exports of manufactured goods. A second observation is that as a general rule, non-traditional exports have grown at a faster rate since 1970 than traditional exports. The valuable role that air transport plays in the development of export markets is evident from the fact that while only five of the 30 resource-based products (e.g. fresh fruit, vegetables, fish and meat) may be effectively marketed by employing air transport, 15 of the 20 most important manufactured goods (e.g. clothing, telecommunications equipment, electronic items, watches and toys) are frequently shipped by air.

#### ***Factors influencing the decision to ship by air***

27. Shippers are generally attracted to air rather than surface transport because of its higher speed, greater security against loss or damage, and often more direct movement. As a result, air transport tends to be used for shipments of products: (a) with high time sensitivity, such as goods only in demand when still in fashion or in season; (b) with a relatively high value-to-weight ratio, such as watches, jewelry, perfume, electronic components; or (c) which are perishable, such as flowers, fruits and newspapers. Emergency situations may also create a need to move by air items that would not normally be so shipped, regardless of the higher cost of air shipment.

28. Although air cargo rates are significantly higher than the corresponding rates for surface transport, rates are only one component of the total cost of distribution. Other cost components that must be established to arrive at the total cost include the costs of packaging, handling, insurance and delivery, as well as allowances for breakage and pilferage, and capital costs related to time in transit. These ancillary costs tend to be lower for air than for surface transport. Thus a comparison of the total cost for air and surface modes, particularly over long distances, often shows little cost difference between the two modes. Such comparisons are made in the case studies shown in Appendix 9,

Table 5.2

## Trade by air between the Asia/Pacific region and the United States in 1984

Sub-region State/Territory	Exports <sup>1</sup> by air			Air share of total exports (%)	Imports <sup>1</sup> by air			Air share of total imports (%)
	Air value \$ ('000)	Air weight ('000 kg)	Value/kg (\$)		Air value \$ ('000)	Air weight ('000 kg)	Value/kg (\$)	
<b>WESTERN SUB-REGION</b>								
<i>States</i>								
Afghanistan	1 908	114	17	14.8	3 184	25	127	43.9
Bangladesh	11 900	1 165	10	9.0	7 371	131	56	2.4
Burma	1 767	38	47	13.0	3 658	64	57	23.0
India	1 064 398	28 330	38	41.7	405 620	7 535	54	26.2
Nepal	5 935	369	16	87.4	1 975	61	32	54.0
Pakistan	65 623	3 004	22	26.9	106 989	1 513	71	9.8
Sri Lanka	63 918	4 047	16	23.5	12 049	364	33	13.1
Sub-total	1 215 449	37 067	33	37.6	540 846	9 693	56	17.7
<b>CENTRAL SUB-REGION</b>								
<i>States</i>								
Brunei Darussalam	1 825	6	304	18.1	14 485	362	40	42.2
Democratic Kampuchea	27	1	30	23.0	8	-	-	0.7
Indonesia	142 710	3 516	41	2.6	180 448	2 003	90	14.9
Lao People's Democratic Republic	623	3	208	29.1	123	2	62	71.3
Malaysia	1 712 894	18 703	92	63.0	1 380 969	12 886	107	75.0
Philippines	1 110 066	15 700	71	45.7	904 246	8 601	105	51.6
Singapore	1 978 671	24 636	80	49.7	1 697 616	24 947	68	47.1
Thailand	408 718	6 970	59	30.8	322 542	2 798	115	29.2
Viet Nam	65	0	120	91.1	21 855	1 617	14	98.3
Southern Asia	1 947	135	14	24.1	110	2	55	4.4
Sub-total	5 357 546	69 670	77	33.6	4 522 402	53 218	85	47.2
<b>NORTH-EASTERN SUB-REGION</b>								
<i>States</i>								
China	271 129	14 428	19	8.8	384 568	4 446	87	12.9
— Taiwan, Province of China	1 713 879	83 038	21	11.6	991 790	15 579	64	20.5
Democratic People's Rep. of Korea	0	-	-	2.2	-	-	-	-
Japan	9 020 449	183 283	49	15.8	5 302 551	82 832	64	23.0
Mongolia	1	-	-	0	60	1	133	51.9
Republic of Korea	1 835 442	45 670	40	19.6	1 432 160	18 416	78	24.2
<i>Territories</i>								
Hong Kong	2 943 139	94 009	31	354.6	1 238 772	22 278	56	42.9
Macao	35 691	2 467	14	11.5	394	6	66	22.8
Sub-total	15 819 730	422 895	37	17.0	9 350 295	143 558	65	23.5

Sub-region State/Territory	Exports <sup>1</sup> by air			Air share of total exports (%)	Imports <sup>1</sup> by air			Air share of total imports (%)
	Air value \$ ('000)	Air weight ('000 kg.)	Value/kg. (\$)		Air value \$ ('000)	Air weight ('000 kg.)	Value/kg. (\$)	
<b>SOUTH-EASTERN SUB-REGION</b>								
<i>States</i>								
Australia	219 701	6 264	35	8.2	1 404 965	27 191	52	29.6
Kiribati	357	69	5	71.6	-	-	-	-
New Zealand	93 680	7 402	13	11.9	218 718	4 435	49	31.3
Papua New Guinea	1 739	31	56	6.4	8 203	160	51	17.9
Samoa	234	300	1	3.9	190	13	15	5.3
Other Pacific Islands	1 716	792	2	7.4	8 168	196	42	45.9
<i>Territories</i>								
British Pacific Islands	-	-	-	-	1 446	103	14	23.7
French Pacific Islands	3 930	45	87	21.5	6 950	393	18	9.0
Trust Territory of the Pacific Islands	4 790	195	25	21.0	5 222	210	25	6.3
Sub-total	326 147	15 098	22	9.2	1 653 862	32 701	51	29.2
GRAND TOTAL	22 718 872	544 730	42	19.6	16 067 405	239 170	67	27.7

1. Exports from the region to the United States and imports to the region from the United States.

Source.— U.S. Department of Commerce.

each of which compares the total costs and elapsed time of shipping a consignment of typewriters between 12 city-pairs by air and by surface. In seven out of 12 cases, the total cost of carriage by air was actually cheaper than by surface.

29. The total distribution cost concept emphasizes the monetary value of time in the distribution process. Some indication of the time advantage to be gained in shipping by air as opposed to surface transport was also derived from these case studies. The time advantage in shipping by air tends to be about 3 to 6 weeks between Europe and the region, between 2 and 3 weeks to the western part of North America, 5 weeks to East Africa, 3 to 4 weeks to the Middle East and about 6 weeks to South America. Where island or land-locked countries are involved, transit times are considerably longer. Surface transit times of 2 to 5 months may in such cases encourage the use of air transport for relatively low-value goods, as illustrated by Nepal's trade with the United States (see Table 5.2). Although their average value per kilogramme is lower than that of most other countries in the region, 87 per cent of Nepal's exports to the United States by value and 54 per cent of its imports from the United States by value moved by air.

30. While the air transport industry in the region has benefitted from growing awareness of the advantages of shipping by air, it has also played a part in influencing the production strategies adopted by industries which are prime users of air freight in the region, notably those involved in the production of high-technology items and consumer products such as garments and fashion goods. There has been a growing trend among vertically integrated companies in these industries to decentralize the manufacturing process, with production and assembly of components and parts taking place in different countries, their rapid transfer between plants being dependent upon air transport. High interest rates in the past decade have also led companies to examine ways of reducing the cost of financing work in progress and inventory carrying costs. Computerized inventory control systems and air transport have allowed companies to reduce inventories and compress production cycles. Manufacturing companies have thus been able to optimize total production and distribution costs by offsetting higher transport costs against lower costs for other factors of production, such as labour, capital and inventory. This trend has served to broaden the demand for air transport.

31. In response to a question asked in the preparation of this study, various States cited certain obstacles to the further development of air freight in the region. Air transport obstacles include a general perception by shippers that freight rates are too high, a lack of commodity rates on some routes, the existence of government-ordered rates (generally considered unprofitable by airlines), inadequate capacity on certain routes, a lack of specialized facilities (such as cold storage) at certain airports and a lack of awareness among many shippers of the advantages of air transport. Non-air transport factors cited as obstacles include a growth in trade protectionism, currency conversion problems, fluctuations in exchange rates and burdensome customs regulations.

#### *Commodities shipped by air*

32. Some indication of the relative importance of the different commodities shipped by air to and from countries in the Asia/Pacific region may be gained by analysis of the region's trade with the United States, which is not substantially unlike the region's trade with Europe. Table 5.3 identifies the 15 most valuable commodities, which together account for 80 per cent of the total commodities by value that countries in the region imported by air from the United States in 1984. This table also shows the proportion of total shipments which moved by air, once again emphasizing the substantial reliance on air transport for the shipment of key manufactured goods. Table 5.4 also ranks by value the 25 most important commodities which together represent 81 per cent of the total, exported by air from countries of the region to the United States.

**Table 5.3**

**Main commodities imported by air to the region from the United States — 1984**

Code	Commodity description	Value (000\$)	Percent of total exports shipped by air
776	Electronic tubes and circuits	3 659 030	99
751-759	Data processing & office equipment parts	3 107 860	93
875	Measuring & controlling instruments	1 272 522	82
792	Aircraft and parts	1 195 570	36
728	Specialized industrial machinery	840 090	80
764	Telecommunications equipment	591 610	69
541	Drugs and pharmaceuticals	523 186	66
771-773	Electrical power equipment & circuits	484 525	68
714	Aircraft and non-piston engines & parts	420 180	65
778	Electrical machinery & equipment	357 990	71
898	Musical instruments	140 530	61
723	Construction & mining machinery	103 520	14
774	Medical equipment	65 640	84
667	Precious & semi-precious stones	49 300	56
525	Inorganic acids & compounds	46 130	15
	<b>TOTAL</b>	<b>16 067 400</b>	<b>28</b>

Source.— U.S. Department of Commerce, *U.S. Exports — World Area and Country by Schedule E Commodity Groupings*, FT 455/1984 December and Annual.

Table 5.4

## Main commodities exported by air from the region to the United States — 1984

Code	Commodity description	Value (000\$)	Percent of total exports shipped by air
776.2-777.8	Integrated circuits & transistors*	6 555 687	96
842-848	Textiles & garments	2 676 043	26
751-759	Data processing & office equipment & parts*	1 717 677	60
764	Telecommunications equipment	1 507 566	30
667	Pearls, diamonds & precious & semi-precious stones	969 096	91
771-773	Electrical equipment & parts*	728 958	39
778	Electrical machinery & apparatus*	721 518	40
885	Clocks and watches	689 629	72
896-897.5	Artworks and jewelry	566 702	79
931	Special transactions	516 696	57
881	Photographic apparatus & equipment	438 170	59
894.2	Toys	241 801	12
874.7	Electric instruments, non-medical*	199 769	57
884	Optical goods	193 546	59
652-656	Fabrics	170 170	15
792	Aircraft, spacecraft & associated equipment	103 773	89
851	Footwear	99 539	4
611-612	Leather goods	96 282	49
517	Organic chemicals & related products	77 417	15
034-037	Fish (incl. shellfish)	52 369	7
659	Carpets	41 195	52
742	Pumps for liquids & parts	31 870	74
872	Medical instruments & appliances	19 030	90
831	Luggage	12 290	12
541	Medicinal & pharmaceutical products	9 941	95
	Total exports by air	22 718 873	20

Note.— (\*) Commodities referred to in paragraph 33.

Source.— U.S. Department of Commerce, *U.S. General Imports — World Area and Country of Origin by Schedule A Commodity Groupings*, FT 155/1984 December and Annual.

33. The electronics, electrical and telecommunications manufacturers form the largest category of users of air freight in the Asia/Pacific region in terms of the value of goods shipped. The six commodity groups produced by these industries, which are identified by an asterisk in Table 5.4, alone represented half of the \$22 719 million worth of goods exported by air to the United States in 1984. Evidencing the reliance of these industries on air transport is the fact that 61 per cent by value of the six commodity groups shipped by all modes moved by air. The principal exporters are in the North-Eastern sub-region (Japan, Hong Kong and the Republic of Korea) and the Central sub-region (Malaysia, Philippines, Singapore and Thailand).

34. Clothing, leather goods and footwear represent the second largest category of goods exported by air from the region as a whole. In 1984, one-quarter of the region's total exports of clothing to the United States moved by air (\$2 676 million), representing 12 per cent by value of all commodities so shipped. The major exporters in the region

are Hong Kong, the Republic of Korea, India and China. This category is also the most important air cargo item in other countries in the Western sub-region. A growing proportion of textile goods shipped from the region are fashion garments which are better able to support higher transport costs. These are highly time-sensitive, because one weekend lost through transport delays may represent a loss of 10 per cent of their selling time. For these reasons, high-volume buyers in Europe and North America now rely to a great extent on air shipment. Significant savings in total costs of production and distribution are also achieved by shipping garments on hangers (so-called GOH shipments) in igloos, permitting easier verification and requiring no handling prior to display.

35. The relative importance of agricultural products in the region's air trade has declined since the early 1970s with the expansion of exports of manufactured goods. Nevertheless, air transport has enabled producers in the region to establish and develop new markets in the region, as well as in Europe, North America and the Middle East, primarily for luxury foodstuffs. Important developments in recent years have included the growing demand for such products on the part of luxury hotels and the emergence of Japan, Hong Kong and Singapore as major importers of fresh meat, seafood and horticultural produce. While the value of agricultural exports by air is often modest and dependent on preferential rates and limited capacity, their importance from the standpoint of economic development lies in the creation of international markets for produce originating in outlying regions (e.g., mangoes from Multan in Pakistan, orchids from Chiang Mai in Thailand, fresh mutton from Queensland in Australia).

36. Horticultural produce shipments by air developed first among the ASEAN countries, in particular Thailand, Singapore and Malaysia. In the case of Thailand, horticultural produce represents approximately one-third of export air cargo. More recently, exports have developed from the Philippines, Pakistan, Sri Lanka, China, New Zealand, Fiji and French Polynesia. Tropical orchids and cut flowers form an important category. Orchids are exported by Thailand, Singapore and Malaysia mainly to the Federal Republic of Germany, the Kingdom of the Netherlands and Switzerland and more recently to Japan, Australia and Hong Kong. Malaysia also exports chrysanthemums to Europe, while Japan has emerged as an importer of gladioli and chrysanthemums from China, Singapore and Thailand.

37. Several countries also export fresh fruit and vegetables. Tropical fruit (e.g. rambutans, longans, mangoes, lichees) are shipped by the ASEAN countries to points throughout the world. Pakistan ships fruit (e.g. mangoes, grapes, kinos and dried apricots) to the Middle East, while New Zealand exports a variety of fresh produce (e.g. kiwi fruit, strawberries, boysenberries, avocados and melons) to Japan and the United States. Exports of melons, papaws and oranges to Japan have also begun recently from some South Pacific countries. Japan, Hong Kong and Singapore have emerged in recent years as major markets for a variety of fruit and vegetables, including such an unusual item as cut potatoes for use in fast-food restaurants. The main suppliers for regional markets are Thailand, Malaysia and more recently, China.

38. Live tropical fish and seafood are also important in certain markets. Ornamental tropical fish have long been exported by air to Europe and North America from the ASEAN countries and modest shipments have also commenced from some South Pacific countries. Luxury seafood (e.g. lobster, shrimp, prawns and crabs) is flown to destinations in Europe and North America, and to Japan, Hong Kong and Singapore from such countries as Thailand, the Philippines, Indonesia, Sri Lanka and New Zealand.

39. Australia and New Zealand are the major exporters of meat and dairy produce in the region. The principal commodity is chilled lamb (84 per cent of Australia's shipments of meat by air). Although the 13 600 tonnes of meat exported by Australia in 1984 accounted for only 2.1 per cent of total exports of meat, air-freighted exports are important in certain markets, representing 52 per cent of total lamb shipments to the Middle East and 34 per cent of shipments to the United States. Since the early 1980s, shipments of livestock from Australia and New Zealand to countries such as the Republic of Korea, Saudi Arabia, the Philippines and Pakistan have also grown in importance. Pakistan has also in recent years developed a market in the Middle East for poultry and day-old chicks.



## Chapter 6

# Passenger Traffic

1. In 1984, the airlines of the Asia/Pacific region produced just over one-quarter of the world's international scheduled passenger-kilometres. This was less than the 36 per cent produced by the European carriers, but was about one-fifth more than the production of North American-based airlines and half again as much as the combined totals for the carriers of Africa, Latin America and the Caribbean, and the Middle East. The Asia/Pacific airlines' average annual passenger traffic growth rate was nearly 13 per cent compared to just over 8 per cent for the world's airlines as a whole over the period 1974-1984. During the same period the Asia/Pacific airlines as a group consistently achieved the world's longest average stage lengths, highest average numbers of seats available per aircraft, highest average passenger load factors and longest average distances flown per passenger. About 2½ times as many international passengers were embarked and disembarked at Asia/Pacific airports in 1984 as ten years earlier. This chapter presents information about scheduled international passenger traffic transported to, from and within the region by all airlines involved (Part A), about scheduled and non-scheduled international and domestic passenger traffic carried solely by airlines based in the region (Part B), and about international passenger traffic at the principal airports of the region (Part C).

### **A — SCHEDULED INTERNATIONAL PASSENGER TRAFFIC TO, FROM AND WITHIN THE ASIA/PACIFIC REGION CARRIED BY ALL AIRLINES**

2. The main scheduled international passenger flows to, from and within the Asia/Pacific region carried by all airlines serving the region are shown in Table 6.1 and in Figure 6.1. More detailed information is given for intra-regional traffic in Table 6.2 and for interregional flows in Table 6.3.

#### *Main passenger traffic flows*

3. Table 6.1 shows that the total number of international passengers carried increased at an average annual rate of 8 per cent from 1979 to 1984 (31.4 million to 46.3 million), and that the largest single component of this traffic over the five-year period was traffic entirely within the respective sub-regions (33.3 per cent in 1984, down from 38.3 per cent in 1979). Over the same five-year period, passenger traffic between the four sub-regions grew at 11.5 per cent per annum, increasing from 20.0 to 23.4 per cent of the total. Thus in 1984, international passenger traffic entirely within the Asia/Pacific region amounted to nearly 57 per cent of the region's total as against just over 43 per cent moving between the Asia/Pacific region and other regions.

#### *Passenger flows within and between sub-regions*

4. The totals for intraregional passenger traffic flows on international scheduled services given in the first part of Table 6.1 are broken down in Table 6.2 to show the distribution and development of this traffic within and between the four sub-regions. Table 6.2 shows that in 1984 the Central and North-Eastern sub-regions together accounted for

Table 6.1

**Main passenger traffic flows to, from and within the Asia/Pacific  
region on all international scheduled services  
(1979 and 1984)**

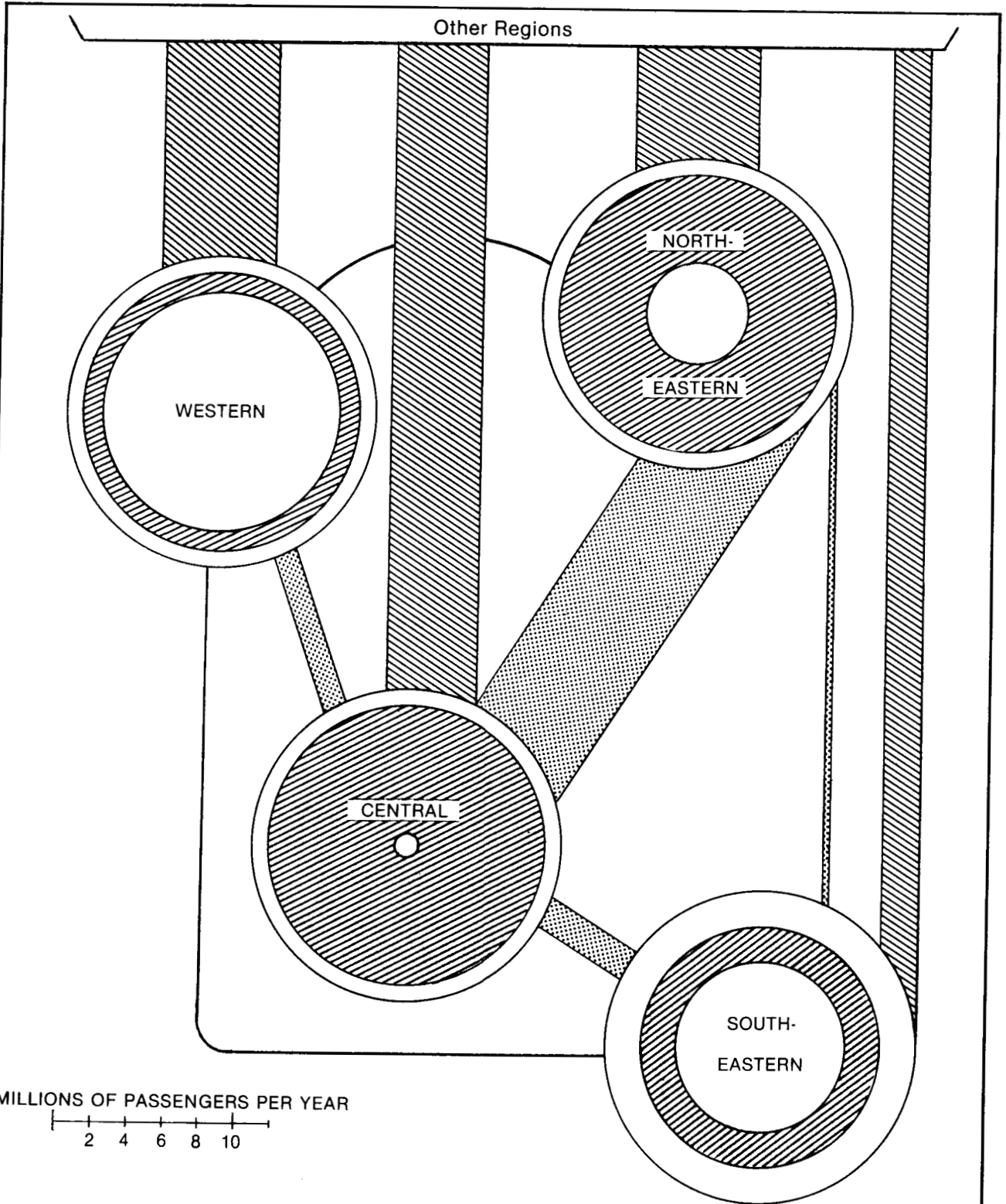
	Number of passengers		Average annual growth rate 1979-1984 (%)	Percentage distribution	
	1979 (000)	1984 (000)		1979	1984
<i>Interregional</i>					
To and from Europe	5 094	6 509	5.0	16.2	14.1
To and from Middle East	2 831	5 869	15.8	9.0	12.7
To and from North America	4 853	7 152	8.0	15.5	15.4
To and from other regions	328	519	9.6	1.0	1.1
Sub-total	13 106	20 049	8.9	41.7	43.3
<i>Intra-Asia/Pacific</i>					
Within sub-regions	12 051	15 424	5.1	38.3	33.3
Between sub-regions	6 273	10 819	11.5	20.0	23.4
Sub-total	18 324	26 243	7.5	58.3	56.7
<b>TOTAL ASIA/PACIFIC</b>	<b>31 430</b>	<b>46 292</b>	<b>8.0</b>	<b>100.0</b>	<b>100.0</b>

Sources. — ICAO, *On-Flight Origin and Destination Statistics*, supplemented by estimates.

over 80 per cent of total intraregional passengers (traffic within each sub-region, plus traffic between these two sub-regions, plus one-half the traffic between these two sub-regions and the South-Eastern and Western sub-regions). On the same basis, the Central sub-region alone accounted for 48.7 per cent of the intraregional passengers.

5. In 1984 approximately 15 per cent of Asia/Pacific international scheduled passengers moved to and from North America, 14 per cent to and from Europe, and 13 per cent to and from the Middle East. Only 1 per cent of the total traffic flow involved Africa and Latin America and the Caribbean (it is likely, however, that connecting movements, were it possible to measure them, would indicate that a higher percentage of travellers moved between the Asia/Pacific region and these two other regions). The highest growth rate over this period (15.8 per cent) was achieved on routes to and from the Middle East, and the lowest (5 per cent) on routes to and from Europe, while travel to and from North America increased at an average rate of 8 per cent per year.

Figure 6.1  
 International scheduled passenger flows  
 to, from and within the Asia/Pacific sub-region  
 1984



MILLIONS OF PASSENGERS PER YEAR  
 2 4 6 8 10

The widths of lines between the circles and to other regions indicate relative sizes of passenger flows external to each sub-region. The radii of darkened circles indicate relative sizes of passenger flows within each sub-region.

Sources: Tables 6.1 and 6.3

**Table 6.2**  
**Passengers carried within and between Asia/Pacific sub-regions on all**  
**international scheduled services**  
**(1979 and 1984)**

	Number of passengers		Average annual growth rate 1979-1984 (%)	Percentage distribution	
	1979 (000)	1984 (000)		1979	1984
<i>Within sub-regions</i>					
Western	781	1 163	8.1	4.3	4.4
Central	5 698	7 616	6.0	31.1	29.0
North-Eastern	3 619	4 681	5.3	19.7	17.9
South-Eastern	1 953	1 964	0	10.7	7.5
Sub-total	12 051	15 424	5.1	65.8	58.8
<i>Between sub-regions</i>					
Central — North-Eastern	4 262	7 041	10.6	23.2	26.8
Central — South-Eastern	988	1 858	13.5	5.4	7.1
Central — Western	781	1 407	12.5	4.3	5.4
South-Eastern — North-Eastern	102	312	25.1	0.5	1.2
Western — North-Eastern	104	139	6.0	0.6	0.5
Western — South-Eastern	36	62	11.5	0.2	0.2
Sub-total	6 273	10 819	11.5	34.2	41.2
TOTAL INTRA-ASIA/PACIFIC	18 324	26 243	7.5	100.0	100.0

Sources.— ICAO, *On-Flight Origin and Destination Statistics*, supplemented by estimates.

Table 6.3

**Passengers carried between Asia/Pacific sub-regions  
and the main regions of the world on all  
international scheduled services  
(1979 and 1984)**

BETWEEN (Asia/Pacific sub-regions)	AND (World regions)	Number of passengers		Average annual growth rate 1979-1984 (%)	Percentage distribution	
		1979 (000)	1984 (000)		1979	1984
Western	Europe	1 246	1 641	5.7	9.5	8.2
	Middle East	2 175	4 318	14.7	16.6	21.5
	North America	160	231	7.6	1.2	1.2
	Other	158	240	9.2	1.2	1.2
	Sub-total	3 739	6 430	11.5	28.5	32.1
North-Eastern	Europe	1 148	1 568	6.5	8.8	7.8
	Middle East	245	331	6.2	1.9	1.6
	North America	3 198	4 831	8.6	24.4	24.1
	Other	66	151	18.0	0.5	0.8
	Sub-total	4 657	6 881	8.1	35.6	34.3
Central	Europe	1 739	2 668	9.0	13.2	13.3
	Middle East	395	1 203	25.0	3.0	6.0
	North America	611	1 071	11.9	4.7	5.4
	Other	36	64	12.2	0.3	0.3
	Sub-total	2 781	5 006	12.5	21.2	25.0
South-Eastern	Europe	961	632	-8.0	7.3	3.1
	Middle East	16	17	1.2	0.1	0.1
	North America	884	1 019	3.0	6.8	5.1
	Other	68	64	-1.2	0.5	0.3
	Sub-total	1 929	1 732	-2.1	14.7	8.6
<b>TOTAL INTERREGIONAL</b>		<b>13 106</b>	<b>20 049</b>	<b>8.9</b>	<b>100.0</b>	<b>100.0</b>

Sources.— ICAO, *On-Flight Origin and Destination Statistics*, supplemented by estimates.

*Interregional passenger flows by sub-region*

6. Data for interregional passenger traffic given in the second part of Table 6.1 are expanded in Table 6.3 to show the volume and growth of this traffic between each of the four Asia/Pacific sub-regions and the other regions of the world. In 1984, of the more than 20 million passengers moving between Asia and the Pacific and other regions, the largest number (6.9 million or 34.3 per cent) originated in or were destined for the North-Eastern sub-region. Of these, 4.8 million or 24.1 per cent of the regional total travelled to or from North America. Another large traffic flow (4.3 million or 21.5 per cent) moved between the Western sub-region and the Middle East and a third large flow (2.7 million or 13.3 per cent) occurred between the Central sub-region and Europe. Of the 16 flows measured in Table 6.3, these three flows alone represented almost three-fifths of all Asia/Pacific interregional traffic.

**B — PASSENGER TRAFFIC BY CARRIERS OF THE REGION**

7. The analysis in Section B differs from that in Section A of this chapter in several significant ways: it focuses on traffic carried solely by carriers based in the region, comparing their composite traffic volumes and growth rates to those of carriers of other regions of the world; it separately includes domestic traffic; its basic unit of measurement is passenger-kilometers; and, in its final paragraphs, it discusses non-scheduled traffic data by the scheduled airlines of the region.

*Scheduled passenger traffic: comparisons to other regions*

8. Table 6.4 compares the volumes of and growth rates in scheduled passenger traffic carried by the airlines of the world, according to their region of aircraft registration. It is significant that in 1984 the carriers of the Asia/Pacific region accounted for over a quarter of all international scheduled passenger traffic, compared to slightly over one-fifth five years earlier, and just over one-sixth in 1974. Table 6.4 also shows that while the average annual growth rate achieved by the Asia/Pacific carriers for this international traffic over the first half of the 1974-1984 period, at 16.4 per cent, was well above the world average of 11.9 per cent, over the second half (1979-1984) their rate of increase, at 9.1 per cent, was almost double the world figure of 4.7 per cent and significantly higher than the average achieved by the carriers of any other region.

9. In 1984 the domestic scheduled passenger traffic of the Asia/Pacific carriers as a whole amounted to only 9.3 per cent of the world's total domestic traffic compared to 29.0 per cent for the European carriers and 55.2 per cent for the North American airlines (Table 6.4). Over the 1974-1984 decade the average annual rate of growth achieved by the Asia/Pacific carriers for domestic traffic was 7.4 per cent compared to 20.4 per cent for the Middle East carriers (from a very small base) and the 5.8 per cent world average.

10. Table 6.5 compares selected airline passenger traffic coefficients for international scheduled carriers grouped according to region of registration for 1974, 1979 and 1984. The Asia/Pacific airlines as a group, compared to the carriers of the other five regions of the world, consistently achieved the highest rating for each of the four measurements in each of the three years covered. Specifically, in 1984 the Asia/Pacific airlines were above the world level and the levels of the other world regions in terms of average stage length, seats available per aircraft, average passenger load factor and distance flown per passenger.

*Scheduled passenger traffic by sub-regions*

11. The data given in Table 6.4 on the volume, growth and distribution of international and domestic scheduled passenger traffic carried by the world's airlines according to region of registration are expanded in Table 6.6 to provide a sub-regional breakdown for Asia and the Pacific. Traffic data for each of the airlines registered in the

Table 6.4

**Scheduled passenger-kilometres performed by international and domestic  
scheduled airlines, by region of airline registration  
(1974, 1979 and 1984)**

Region	Passenger-kilometres			Average annual growth rate			Percentage of world		
	1974 (millions)	1979 (millions)	1984 (millions)	1974-79 %	1979-84 %	1974-84 %	1974	1979	1984
Asia/Pacific									
— International	42 868	91 433	141 606	16.4	9.1	12.7	17.1	20.8	25.5
— Domestic	32 445	53 731	66 326	10.6	4.3	7.4	8.0	8.7	9.3
— International percentage of total	57	63	68	—	—	—	—	—	—
Africa									
— International	11 584	20 540	27 610	12.1	6.4	9.2	4.6	4.7	5.0
— Domestic	3 753	6 218	8 351	10.6	6.1	8.3	0.9	1.0	1.2
— International percentage of total	76	77	77	—	—	—	—	—	—
Europe									
— International	113 284	179 367	199 944	9.6	2.2	5.8	45.3	40.7	36.1
— Domestic	124 790	170 920	207 767	6.5	4.0	5.2	30.8	27.6	29.0
— International percentage of total	48	51	49	—	—	—	—	—	—
Latin America and the Caribbean									
— International	16 629	31 188	34 406	13.4	2.0	7.5	6.7	7.1	6.2
— Domestic	13 342	24 001	29 597	12.5	4.3	8.3	3.3	3.9	4.1
— International percentage of total	55	57	54	—	—	—	—	—	—
Middle East									
— International	9 588	22 390	32 562	18.5	7.8	13.0	3.8	5.1	5.9
— Domestic	1 354	5 371	8 660	31.7	10.0	20.4	0.3	0.8	1.2
— International percentage of total	88	81	79	—	—	—	—	—	—
North America									
— International	56 441	95 254	118 064	11.0	4.4	7.7	22.5	21.6	21.3
— Domestic	230 349	359 823	395 636	9.3	1.9	5.6	56.7	58.0	55.2
— International percentage of total	20	21	23	—	—	—	—	—	—
WORLD TOTAL									
— International	250 394	440 172	554 192	11.9	4.7	8.3	100.0	100.0	100.0
— Domestic	406 033	620 064	716 337	8.8	2.9	5.8	100.0	100.0	100.0
— International percentage of total	38	42	44	—	—	—	—	—	—

Sources. — ICAO Digests of Statistics.

region are provided in Appendix 10 which shows that in 1984 only three airlines, one from each of three of the four sub-regions, together accounted for 45 per cent of the 141 606 million international scheduled passenger-kilometres produced by the 43 Asia/Pacific international scheduled airlines (Japan Air Lines 20 per cent, Singapore Airlines 14 per cent and Qantas Airways 11 per cent).

12. In 1984 the ten international scheduled airlines of the Western sub-region produced 18 112 million international scheduled passenger-kilometres or nearly 13 per cent of the total for the Asia/Pacific carriers. Almost three-quarters of the Western sub-regional total was accounted for by two airlines, Air India (45 per cent) and Pakistan International Airlines (29 per cent). Over ten years through 1984 the international scheduled passenger traffic of the carriers of this sub-region increased at an average annual rate of 14.3 per cent, exceeded only by the Central sub-region's 16.4 per cent and exceeding the region's 12.7 per cent level. Domestic traffic of the international airlines in this sub-region, having increased at 12.1 per cent per annum over the decade, constituted about 31 per cent of their passenger-kilometre total in 1984, a higher proportion than for any other sub-region or for the region as a whole.

**Table 6.5**  
**Comparison of selected airline traffic coefficients**  
**by region of airline registration**

**International scheduled services**  
**(1974, 1979 and 1984)**

Coefficients	Region of airline registration							World <sup>1</sup>
	Asia and the Pacific	Africa	Europe <sup>1</sup>	Latin America and the Caribbean	Middle East	North America		
<b>AVERAGES PER AIRCRAFT</b>								
Stage length (km)	1974 2 158	1 385	1 231	1 408	1 372	1 792	1 447	
	1979 2 333	1 550	1 299	1 571	1 630	2 023	1 586	
	1984 2 604	1 629	1 395	1 399	1 737	2 143	1 689	
Seats available	1974 186	142	160	120	118	175	160	
	1979 236	164	192	143	171	225	198	
	1984 289	182	193	175	215	251	221	
Passenger load factor (%)	1974 60	53	56	57	60	53	56	
	1979 66	58	63	62	58	65	63	
	1984 68	58	65	61	60	66	65	
<b>AVERAGES PER PASSENGER</b>								
Distance flown (km)	1974 3 621	2 288	2 163	2 359	2 142	2 661	2 454	
	1979 3 879	2 484	2 436	2 298	2 361	3 195	2 780	
	1984 4 156	2 483	2 539	2 516	2 593	3 504	3 013	

1. Excludes USSR.

Sources.— ICAO Digests of Statistics.



Table 6.6

**Scheduled passenger-kilometres performed by international scheduled airlines  
of the Asia/Pacific region by sub-region of airline registration  
(1974, 1979 and 1984)**

Sub-region	Passenger-kilometres			Average annual growth rate			Percentage of the region		
	1974 (Millions)	1979 (Millions)	1984 (Millions)	1974-79 %	1979-84 %	1974-84 %	1974	1979	1984
<b>ASIA/PACIFIC REGION</b>									
Western sub-region									
— International	4 755	11 151	18 112	18.6	10.2	14.3	11.1	12.2	12.8
— Domestic	2 638	5 413	8 236	15.5	8.8	12.1	21.3	23.3	26.7
— International percentage of total	64	67	69	—	—	—	—	—	—
Central sub-region									
— International	10 069	23 720	45 896	18.7	14.1	16.4	23.5	25.9	32.4
— Domestic	3 236	5 280	6 826	10.3	5.3	7.7	26.2	22.7	22.1
— International percentage of total	76	82	87	—	—	—	—	—	—
North-Eastern sub-region									
— International	15 657	36 074	54 411	18.2	8.6	13.3	36.5	39.5	38.4
— Domestic	6 430	11 074	14 320	11.5	5.3	8.3	52.0	47.6	46.3
— International percentage of total	71	77	79	—	—	—	—	—	—
South-Eastern sub-region									
— International	12 387	20 488	23 187	10.6	2.5	6.5	28.9	22.4	16.4
— Domestic	66	1 485	1 516	86.4	0.4	36.8	0.5	6.4	4.9
— International percentage of total	99	93	94	—	—	—	—	—	—
<b>TOTAL ASIA/PACIFIC REGION</b>									
— International	42 868	91 433	141 606	16.4	9.1	12.7	100.0	100.0	100.0
— Domestic	12 370	23 252	30 898	13.5	5.9	9.6	100.0	100.0	100.0
— International percentage of total	78	80	82	—	—	—	—	—	—

Sources. — ICAO Digests of Statistics.

13. In 1984 the 13 international scheduled airlines of the Central sub-region produced 45 896 million passenger-kilometres or just under one-third of the regional total. Two of these carriers accounted for almost two-thirds of this sub-region's total: Singapore Airlines at 44 per cent and Thai Airways International at 20 per cent. The total volume of international scheduled passenger traffic handled by the carriers of this sub-region increased over the period 1974-1984 at the average annual rate of 16.4 per cent, higher than for any other sub-region, and about double the world figure of 8.3 per cent. The domestic passenger traffic of the Western sub-region's international airlines, comprising just over 22 per cent of the region's total domestic traffic in 1984, increased over the preceding ten-year period at the average annual rate of 7.7 per cent, which was lower than the regional average rate, and in 1984 amounted to only 13 per cent of the sub-region's total scheduled passenger traffic.

14. The North-Eastern sub-region's eight scheduled international airlines produced the region's largest proportions of passenger-kilometres on both international and domestic services. In 1984 they performed 54 411 million international passenger-kilometres (38.4 per cent of the regional total) and 14 320 million domestic passenger-kilometres (46.3 per cent of the region's total). Two of these carriers accounted for almost three-quarters of the sub-region's international total: Japan Air Lines (51 per cent) and Cathay Pacific Airways (21 per cent). Average annual growth rates for the passenger traffic of the North-Eastern sub-region's international carriers were close to the regional average for both international and domestic services. The share of domestic traffic in their total declined from 29 per cent in 1974 to 21 per cent in 1984.

15. In 1984 the twelve scheduled international carriers of the South-Eastern sub-region produced about 23 187 million passenger-kilometres or 16.4 per cent of the regional total on international scheduled services and 1 516 million or 4.9 per cent on domestic services. Two airlines produced 95 per cent of the sub-region's international total: Qantas Airways (70 per cent) and Air New Zealand (25 per cent). Average rates of increase over the 1974-1984 period were 6.5 per cent on international and 36.8 per cent on domestic services of the international airlines, the lowest and highest respectively for the region.

#### *Non-scheduled passenger traffic*

16. The non-scheduled passenger traffic carried by the scheduled airlines of the Asia/Pacific region on their international services is shown in Table 6.7 for the years 1974, 1979 and 1984. The volume of this traffic declined from just under 1 800 million passenger-kilometres in 1974 to a little more than 1 500 million in 1984. These amounts represented a decline in relative importance over the decade from 4 to 1 per cent of the total international passenger traffic of these airlines. The largest single producer of non-scheduled passenger traffic throughout this period was Japan Air Lines. Other major producers included Qantas Airways in 1974, Korean Air in 1979 and Garuda Indonesia in 1984, but, as shown in Table 6.7, the traffic volumes attributed to individual carriers vary widely from year to year.

17. The estimated 1 511 million passenger-kilometres performed on international services represent about 95 per cent of the non-scheduled passenger volume of the region's scheduled carriers, the remaining 5 per cent being carried on their domestic services for a total of about 1 600 million passenger-kilometres. These figures indicate that the scheduled airlines of Asia and the Pacific in 1984 handled about 4 per cent of the world's international and 1 per cent of the world's domestic non-scheduled passenger traffic carried by the world's scheduled carriers. There is insufficient information available regarding the activities of the region's specialized charter operators.

### **C — INTERNATIONAL PASSENGER TRAFFIC AT ASIA/PACIFIC AIRPORTS**

18. The total number of international passengers embarked and disembarked at all airports in the Asia/Pacific region in 1984 is estimated at 75.5 million, about two and a half times as many as in 1974 (see Table 6.8 and Appendix 11). In each of the three years 1974, 1979 and 1984 almost three-quarters of these passengers were embarked or disembarked in two sub-regions, about 45 per cent in the North-Eastern sub-region and 28 per cent in the Central sub-region. Over the 1974-1984 period the percentage embarked or disembarked in the Western sub-region increased from 8.8 to 14.8, and in the South-Eastern decreased from 18.2 to 12.4.

19. Passengers handled at the airports of the four sub-regions in 1984 totalled 33.6 million in the North-Eastern, 21.3 million in the Central, 11.2 million in the Western, and 9.4 million in the South-Eastern sub-regions. The average annual growth rate of international airport passenger traffic was, in all sub-regions, higher in the first five-year period than the second. Over the whole ten-year period the highest rate, 15.6 per cent, was achieved in the Western sub-region and the lowest, 5.6 per cent, in the South-Eastern sub-region. Airport traffic in the other two sub-regions and in the region as a whole increased at an annual average rate of just under 10 per cent.

Table 6.7

**International non-scheduled passenger traffic carried by the  
scheduled airlines of the Asia/Pacific region  
(1974, 1979 and 1984)**

Sub-region/Airline	Non-scheduled passenger-km (millions)			Non-scheduled passenger traffic as a percentage of total international traffic		
	1974	1979	1984	1974	1979	1984
<b>Western sub-region</b>						
Air Ceylon/Air Lanka	2.8	0.4	-	1	2	-
Air India	41.2	52.4	31.2	2	1	-
Bakhtar Afghan Airlines	54.6	9.0	28.9	18	4	21
Bangladesh Biman Airlines	26.2	-	-	11	-	-
Pakistan International	5.9	6.2	3.5	-	-	-
Total	130.7	68.0	63.6	3	1	-
<b>Central sub-region</b>						
Air Siam	1.4	-	-	-	-	-
Garuda Indonesia	-	26.9	684.3	-	1	12
Hang Khong Viet Nam	3.7	-	-	2	-	-
Malaysian Airlines	30.7	191.8	5.9	4	10	-
Merpati Nusantara Airlines	-	0.3	-	-	3	-
Philippine Airlines	20.1	2.7	0.5	1	-	-
Singapore Airlines	2.5	80.7	58.8	-	1	-
Thai Airways International	4.3	3.3	9.1	-	-	-
Total	62.8	305.8	758.6	1	1	2
<b>North-Eastern sub-region</b>						
Cathay Pacific Airways	8.0	6.0	29.9	-	-	-
Japan Air Lines	1 052.4	926.7	592.3	9	4	2
Japan Asia Airways	-	91.1	46.5	-	10	3
Korean Air	232.6	230.4	12.3	9	3	-
Total	1 293.0	1 254.0	681.1	8	3	1
<b>South-Eastern sub-region</b>						
Air New Zealand	13.6	14.8	-	-	-	-
Air Nuigini	-	3.3	6.2	-	1	2
Air Pacific	0.3	-	-	-	-	-
Qantas Airways	291.5	75.9	1.8	3	-	-
Total	305.3	93.9	8.0	2	0	0
<b>TOTAL ASIA/PACIFIC REGION</b>	<b>1 792</b>	<b>1 722</b>	<b>1 511</b>	<b>4</b>	<b>2</b>	<b>1</b>

Note.— Airlines which did not report non-scheduled passenger data are not shown.

Sources. — ICAO Digests of Statistics.

20. The ten cities in the Asia/Pacific region whose airports handled the largest numbers of international passengers in 1984 are listed in Table 6.9, which shows the numbers embarked and disembarked, average annual rates of growth and shares of the regional total. Five are in the North-Eastern sub-region, three in the Central and two in the Western. Of the estimated 75.5 million international passengers handled at all of the region's airports in 1984, about 27 million or almost 36 per cent were embarked and disembarked at the airports of three cities: Hong Kong, Tokyo and Singapore. The average annual rate of growth of international passenger traffic for all the region's airports was almost twice as high in the first five years of the 1974-1984 period as in the second, but over the whole ten-year period it was about 10 per cent over-all. Appreciably high rates were achieved at three airports: Karachi 16.7 per cent, Bombay 16 per cent and Manila 15.5 per cent.

Table 6.8

**Estimated international passenger traffic  
at airports of the Asia/Pacific region  
(1974, 1979 and 1984)**

Items	Year	Asia/Pacific sub-regions				Total, Asia/Pacific region
		North- Eastern	Central	Western	South- Eastern	
Number of passengers embarked or disembarked (000)	1974	13 440	8 340	2 620	5 440	29 840
	1979	24 550	15 550	6 560	7 890	54 550
	1984	33 650	21 300	11 190	9 360	75 550
Sub-regional percentage of total	1974	45.0	28.0	8.8	18.2	100.0
	1979	45.0	28.5	12.0	14.5	100.0
	1984	44.6	28.2	14.8	12.4	100.0
Average annual growth rate (%)	1974-79	12.8	13.3	20.2	7.7	12.8
	1979-84	6.5	6.5	11.3	3.5	6.7
	1974-84	9.6	9.8	15.6	5.6	9.7

Source. — Appendix 11.

Table 6.9

**Passengers embarked and disembarked on international flights  
at the ten busiest airports in the Asia/Pacific region  
(1974, 1979 and 1984)**

City	Passengers	Average annual growth rate			Percentage of regional total 1984
	1984 (000)	1974-79 (%)	1979-84 (%)	1974-84 (%)	
1. Hong Kong	9 539	11.0	8.9	10.0	12.6
2. Tokyo <sup>1</sup>	8 993	13.1	1.6	7.2	11.9
3. Singapore	8 411	12.4	9.0	10.7	11.1
4. Bangkok	5 177	1.6	7.2	9.4	6.9
5. Taipei (estimated)	5 000	8.7	5.6	7.2	6.6
6. Seoul	3 382	18.9	6.1	12.3	4.5
7. Osaka	3 355	14.4	7.6	11.0	4.4
8. Manila	3 203	24.4	7.2	15.5	4.2
9. Bombay	3 105	21.9	10.4	16.0	4.1
10. Karachi	2 507	27.0	7.3	16.7	3.3
Total top ten airports	52 672	13.7	6.6	10.1	69.8
Other airports	22 828	10.8	6.9	8.9	30.2
Total Asia/Pacific region	75 500	12.8	6.7	9.7	100.0

1. New Tokyo International (Narita) plus Tokyo International (Haneda).

Source. — Appendix 11.

## Chapter 7

# Freight Traffic

1. In 1984 the airlines of the Asia/Pacific region produced more than one-quarter of the world's international scheduled freight tonne-kilometres. This was less than the 39 per cent produced by the European carriers, but was two-thirds more than the production of the North American-based airlines and almost double the combined totals for the carriers of Africa, Latin America and Caribbean, and the Middle East. The Asia/Pacific airlines' average annual freight traffic growth rate was 17.3 per cent compared to 10 per cent achieved by the world's airlines as a whole over the period 1974-1984. During 1984 the Asia/Pacific airlines as a group achieved the world's highest over-all freight capacity per aircraft, highest freight loads per aircraft, and highest over-all weight load factors. The Asia/Pacific carriers' share of the world's domestic freight traffic quadrupled from 2.2 per cent in 1974 to 8.8 per cent in 1984. This chapter presents information about scheduled international freight traffic transported to, from and within the region by all airlines involved (Part A), about scheduled and non-scheduled international and domestic freight traffic carried solely by airlines based in the region (Part B), and about international freight traffic at the principal airports of the region (Part C).

### A — SCHEDULED INTERNATIONAL FREIGHT TRAFFIC TO, FROM AND WITHIN THE ASIA/PACIFIC REGION CARRIED BY ALL AIRLINES

2. The main scheduled international freight flows to, from and within the Asia/Pacific region carried by all airlines serving the region are shown in Table 7.1. The directionality of interregional freight flows is shown in Table 7.2.

#### *Main freight traffic flows*

3. Table 7.1 shows that almost 2 million tonnes of freight were carried in 1984 on international scheduled air services to, from and within the Asia/Pacific region. About 42 per cent (approximately 808 000 tonnes) moved within the region, half of that between the four sub-regions and half within each individually. The remaining 58 per cent (approximately 1 122 000 tonnes) moved to and from other regions of the world: between the Asia/Pacific region and North America 30 per cent, Europe 22 per cent, the Middle East 6 per cent, and other regions 0.5 per cent.

#### *Directionality*

4. Table 7.2 shows that there was directional equilibrium in the movement of freight only to and from Europe. The outbound/inbound ratio was about 4 out to 1 in for the Middle East and about 2.4 out to 1 in for North America and other regions.

Table 7.1

Main freight traffic flows to, from and within  
the Asia/Pacific regionInternational scheduled services  
(1984)

	Freight tonnes	Percentage distribution
<i>Interregional</i>		
To and from Europe	426 044	22.1
To and from Middle East	114 537	5.9
To and from North America	571 372	29.6
To and from other regions	10 121	0.5
Total	1 122 074	58.1
<i>Intra-Asia/Pacific</i>		
Within sub-regions	405 493	21.0
Between sub-regions	402 178	20.9
Total	807 671	41.9
Total Asia/Pacific	1 929 745	100.0

Sources.— ICAO, *On-Flight Origin and Destination Statistics*, supplemented by estimates.

Table 7.2

**Directionality of air freight carried  
to and from the Asia/Pacific region  
(1984)**

Interregional	Freight tonnes carried on scheduled services		
	From Asia/ Pacific region	To Asia/ Pacific region	Outbound/ inbound ratio
Europe	213 936	212 108	1.01
Middle East	91 881	22 656	4.06
North America	402 790	168 582	2.39
Other regions	7 166	2 955	2.43
All interregional routes	715 773	406 301	1.76

Sources.— ICAO, *On-Flight Origin and Destination Statistics*, supplemented by estimates.

## B — FREIGHT TRAFFIC BY CARRIERS OF THE REGION

5. The analysis in Section B differs from that in Section A of this chapter in several significant ways: it focuses on traffic carried solely by carriers based in the region, comparing their composite traffic volumes and growth rates to those of carriers of other regions of the world; it separately includes domestic traffic; the basic unit of measurement is freight tonne-kilometers and, in its final paragraphs, it discusses non-scheduled traffic data by the scheduled airlines of the region.

### *Scheduled freight traffic by airlines of the region*

6. Table 7.3 compares the volumes of growth and rates in scheduled freight traffic carried by the airlines of the world, according to their region of aircraft registration. The Asia/Pacific airlines, taken as a group, had an average annual rate of growth over the 1974-1984 period of 17.3 per cent compared to 10.0 per cent for the world's airlines as a whole, and 11.9 per cent for the Middle East carriers, the second ranking group under this heading. With this rate of growth the Asia/Pacific airlines almost doubled their share of the world's scheduled international freight traffic from 14.9 per cent in 1974 to 28.5 per cent in 1984. Over the same period, the European carriers' share declined from 44.4 to 38.9 per cent and the North American carriers' share from 25.1 per cent to 17.0 per cent, while the shares of the remaining three regional groups did not change significantly.



Table 7.3

**Scheduled freight tonne-kilometres performed by international and domestic  
scheduled airlines by region of airline registration  
(1974, 1979 and 1984)**

Region	Freight tonne-kilometres			Average annual growth rate			Percentage of world		
	1974 (Millions)	1979 (Millions)	1984 (Millions)	1974-79 %	1979-84 %	1974-84 %	1974	1979	1984
Asia and Pacific									
— International	1 667.2	4 277.0	8 226.4	20.7	14.0	17.3	14.9	22.6	28.5
— Domestic	158.9	336.8	925.0	16.2	22.4	19.3	2.2	3.9	8.8
— International percentage of total	91	93	90	—	—	—	—	—	—
Africa									
— International	395.3	673.9	1 057.3	11.3	9.4	10.3	3.5	3.5	3.6
— Domestic	53.0	67.5	95.8	5.0	7.3	6.1	0.7	0.8	0.9
— International percentage of total	88	91	92	—	—	—	—	—	—
Europe									
— International	4 952.7	7 902.1	11 242.3	9.8	7.3	8.5	44.4	41.7	38.9
— Domestic	2 176.0	2 381.3	2 770.7	1.8	3.1	2.4	29.7	27.6	26.2
— International percentage of total	69	77	80	—	—	—	—	—	—
Latin America & the Caribbean									
— International	699.5	1 114.0	1 467.2	9.8	5.7	7.7	6.3	5.9	5.1
— Domestic	217.9	223.5	541.4	0.5	19.4	9.5	3.0	2.6	5.1
— International percentage of total	76	83	73	—	—	—	—	—	—
Middle East									
— International	646.9	1 283.5	1 991.0	14.7	9.2	11.9	5.8	6.8	6.9
— Domestic	8.7	25.8	82.5	24.3	26.2	25.2	0.1	0.3	0.8
— International percentage of total	99	98	96	—	—	—	—	—	—
North America									
— International	2 806.1	3 690.9	4 921.3	5.6	5.9	5.8	25.1	19.5	17.0
— Domestic	4 717.9	5 587.1	6 158.2	3.4	2.0	2.7	64.3	64.8	58.2
— International percentage of total	37	40	44	—	—	—	—	—	—
WORLD TOTAL									
— International	11 167.7	18 941.4	28 905.5	11.1	8.8	10.0	100.0	100.0	100.0
— Domestic	7 332.4	8 622.0	10 573.6	3.3	4.2	3.7	100.0	100.0	100.0
— International percentage of total	60	69	73	—	—	—	—	—	—

Sources.— ICAO Digests of Statistics.

**Table 7.4**  
**Comparison of selected airline traffic coefficients**  
**by region of airline registration**

**International scheduled airlines**  
**(1974, 1979 and 1984)**

Coefficients		Region of airline registration						World <sup>1</sup>
		Asia and the Pacific	Africa	Europe <sup>1</sup>	Latin America and the Caribbean	Middle East	North America	
<b>Averages per aircraft</b>								
Over-all capacity (tonnes)	1974	26.7	19.2	22.1	16.6	20.5	29.1	23.6
	1979	34.7	23.3	27.2	20.2	30.0	35.0	29.1
	1984	45.0	30.5	29.2	25.2	37.1	38.6	34.2
Freight load (tonnes)	1974	4.3	2.6	3.9	2.9	4.8	4.6	4.0
	1979	7.3	3.1	5.3	3.1	5.7	5.6	5.4
	1984	11.3	4.0	7.1	4.3	7.9	6.9	7.5
Over-all weight load factor (percentage)	1974	56	49	55	55	55	48	53
	1979	64	51	61	57	49	56	59
	1984	67	45	65	57	54	59	62
<b>Contribution of freight to total scheduled tonne-kilometres</b>								
Freight percentage	1974	29	27	32	31	42	33	32
	1979	33	26	32	28	39	29	31
	1984	38	29	37	30	40	30	35

1. Excludes USSR.

Sources.— ICAO Digests of Statistics.

7. The domestic freight traffic of the Asia/Pacific carriers also increased from 1974 to 1984 much more rapidly than for the world's carriers as a whole, its average annual rate of growth being 19.3 per cent compared to the global rate of 3.7 per cent. Correspondingly, the Asia/Pacific carriers' share of the world's domestic freight traffic grew from only 2.2 per cent in 1974 to 8.8 per cent in 1984. The domestic share of the total freight traffic of the Asia/Pacific airlines increased from 9.0 per cent in 1974 to 10.0 per cent in 1984.

8. Table 7.4 compares selected airline freight traffic coefficients for international scheduled airlines, grouped according to region of registration, for 1974, 1979 and 1984. The Asia/Pacific airlines as a group in 1984 achieved the highest rankings of three coefficients: 45.0 tonnes average over-all capacity per aircraft compared to the world average of 34.2 tonnes; an average freight load of 11.3 tonnes per aircraft against the global figure of 7.5; and an over-all average weight load factor of 67 per cent compared to the world figure of 62 per cent. In all cases the Asia/Pacific carriers' figures were also higher than those of the carriers of any other region. Against the measure of freight as a percentage of total scheduled tonne-kilometres, the Asia/Pacific carriers ranked second with 38 per cent, just behind those of the Middle East with 40 per cent.

Table 7.5

**Scheduled freight tonne-kilometres performed by international scheduled airlines of the Asia/Pacific region by sub-region of airline registration (1974, 1979 and 1984)**

Sub-region of airline registration	Freight tonne-kilometres			Average annual growth rate			Percentage of the region		
	1974 (Millions)	1979 (Millions)	1984 (Millions)	1974-79 %	1979-84 %	1974-84 %	1974	1979	1984
<b>ASIA AND PACIFIC</b>									
Western sub-region									
— International	229.1	496.0	837.5	16.7	11.0	13.8	13.8	11.6	10.2
— Domestic	26.8	59.4	117.4	17.3	14.6	15.9	16.9	17.6	21.7
— International percentage of total	90	89	88	—	—	—	—	—	—
Central sub-region									
— International	260.7	931.0	1 885.2	29.0	15.2	21.9	15.6	21.8	22.9
— Domestic	40.2	60.6	82.5	8.6	6.4	7.5	25.3	18.0	15.3
— International percentage of total	87	94	96	—	—	—	—	—	—
North-Eastern sub-region									
— International	881.9	2 280.8	4 628.1	20.9	15.2	18.0	52.9	53.3	56.3
— Domestic	91.5	182.3	313.7	14.8	11.5	13.1	57.6	54.1	58.1
— International percentage of total	91	93	94	—	—	—	—	—	—
South-Eastern sub-region									
— International	295.5	569.2	875.6	14.0	9.0	11.5	17.7	13.3	10.6
— Domestic	0.4	34.5	26.7	143.9	—5.0	52.2	0.2	10.3	4.9
— International percentage of total	100	94	97	—	—	—	—	—	—
<b>TOTAL, ASIA AND PACIFIC REGION</b>									
— International	1 667.2	4 277.0	8 226.4	20.7	14.0	17.3	100.0	100.0	100.0
— Domestic	158.9	336.8	540.3	16.2	9.9	13.0	100.0	100.0	100.0
— International percentage of total	91	93	94	—	—	—	—	—	—

Sources. — ICAO Digests of Statistics.

### *Scheduled freight traffic by sub-regions*

9. The data in Table 7.3 on the volume, growth and distribution of international and domestic scheduled freight traffic carried by the world's airlines according to region of registration are expanded in Table 7.5 to provide a sub-regional breakdown for Asia and the Pacific. Traffic data for each of the airlines registered in the region are provided in Appendix 10 which shows that in 1984 only three airlines, two from the North-Eastern and one from the Central sub-regions, together accounted for over half (56.4 per cent) of the 8 227 million international scheduled freight tonne-kilometres produced by the 43 Asia/Pacific international scheduled airlines (Japan Air Lines 28.6 per cent, Korean Air 16.1 per cent, and Singapore Airlines 11.7 per cent).

10. In 1984 the ten airlines of the Western sub-region produced 837.5 million international scheduled freight tonne-kilometres, Air India handling 53 per cent of this and Pakistan International Airlines, 30 per cent. The average annual rate of growth for this traffic over the years 1974-1984, at 13.8 per cent, was significantly below the regional figure of 17.3 per cent with the result that the Western sub-region airlines' share of the total attributed to Asia/Pacific airlines declined from 13.8 per cent in 1974 to 10.2 per cent in 1984. The domestic scheduled freight traffic of the Western sub-region airlines amounted in 1984 to 12 per cent of all their scheduled freight traffic. During the 1974-1984

period this domestic traffic increased at an average annual rate of 15.9 per cent compared to the regional figure of 13.0 per cent so that the Western region international carriers' share of the region's domestic freight traffic increased from 16.9 per cent in 1974 to 21.7 per cent in 1984.

11. With the highest average annual growth rate over the 1974-1984 period (21.9 per cent), the 13 airlines of the Central sub-region produced 1 885.2 million international scheduled freight tonne-kilometres in 1984, thus increasing their share of the regional total from 15.6 per cent to 22.9 per cent. Two carriers accounted for almost three-quarters of this sub-regional total, Singapore Airlines (51 per cent) and Thai Airways International (21 per cent). The domestic scheduled freight traffic of the Central sub-region's international carriers (about 4 per cent of their total scheduled freight traffic), with the lowest growth rate over the decade (7.5 per cent), amounted in 1984 to 82.5 million tonne-kilometres or 15.3 per cent of the regional total, down from 25.3 per cent ten years earlier.

12. Fully 56.3 per cent of the Asia/Pacific carriers' international scheduled freight traffic throughout the 1974-1984 period was produced by the eight airlines of the North-Eastern sub-region. Of the 4 628.1 million tonne-kilometres they accounted for in 1984, almost 80 per cent were handled by two carriers, Japan Air Lines (51 per cent) and Korean Air (28.5 per cent). Regarding domestic scheduled freight (6 per cent of all their freight) the North-Eastern international carriers' share was even more pronounced, amounting to 58 per cent of the region's international carriers' domestic scheduled freight.

13. In 1984 the twelve airlines of the South-Eastern sub-region produced about 876 million scheduled freight tonne-kilometres (97 per cent of their total) on international services and 27 million (3 per cent) on their domestic services. Almost all of this scheduled international cargo was carried by two airlines: Qantas Airways (68 per cent) and Air New Zealand (30 per cent). With an average annual growth rate for the 1974-1984 period of 11.5 per cent, well below the regional average, their share of the region's freight traffic declined from 17.7 per cent to 10.6 per cent. The domestic scheduled freight traffic of the South-Eastern sub-region international airlines amounted in 1984 to less than 27 million tonne-kilometres or about 4.9 per cent of the region's total.

#### *Non-scheduled freight traffic*

14. The international non-scheduled freight traffic carried by the scheduled airlines of the Asia/Pacific region in the years 1974, 1979 and 1984 is shown in Table 7.6. The total amount of this traffic, 73.4 million tonne-kilometres in 1974, increased over the next five years by 17 per cent to 86.2 million in 1979 and then declined from the 1979 base by 49 per cent to 43.8 million in 1984. This fluctuation reflects a similar but more pronounced change in the quantity of non-scheduled freight traffic carried by the airlines of the North-Eastern sub-region which handled in 1984 over 70 per cent of the regional total, down from 93 per cent in 1979 and back to about the same value as at the start of the 1974-1984 period (69 per cent). The supplemental nature of these services explains the diversity of their development by individual air carriers of the region. Cathay Pacific Airways was the only airline with a steady growth of international non-scheduled freight traffic throughout the period, while Air India was the only carrier to show a constant decline in such traffic.

### **C — INTERNATIONAL FREIGHT TRAFFIC AT ASIA/PACIFIC AIRPORTS**

15. The total weight of international freight handled at the airports of the Asia/Pacific region in 1984 is estimated at 3.4 million tonnes, about three and a half times as much as in 1974, with an average annual rate of growth over the decade of 13.6 per cent (see Table 7.7 and Appendix 11). Throughout this period, just under 60 per cent of the freight (which increased from just over half a million tonnes in 1974 to nearly two million tonnes in 1984) was loaded and unloaded at the airports of the North-Eastern sub-region. Over the same ten years the share handled in the Central sub-region increased by about three percentage points to 21.5, that in the South-Eastern decreased by four points to 10.7, and that in the Western increased by one point to 10.5.

Table 7.6

**International non-scheduled freight traffic carried by  
the scheduled airlines of the Asia/Pacific region  
(1974, 1979 and 1984)**

Sub-region/airline	Tonne-kilometres (thousands)			Tonnes (units)	
	1974*	1979*	1984	1979	1984
<i>Sub-region/airline</i>					
Western sub-region					
Air India	12 989	1 441	565	819	161
Bakhtar Afghan Airlines	46	120	100*	69	100*
Pakistan International	2 312	2 918	2 569	585	965
Total	15 347	4 479	3 234	1 473	1 226
Central sub-region					
Garuda Indonesia	0	0	3 472	0	700*
Malaysian Airlines	172	465	8	159	11
Merpati Nusantara Airlines	515	0	0	0	0
Philippine Airlines	29	0	0	0	0
Singapore Airlines	112	200	141	186	135
Thai Airways	0	164	17	178	18
Thai International	56	27	1 868	21	303
Total	884	856	5 506	544	1 167
North-Eastern sub-region					
Cathay Pacific Airways	130	1 235	3 187	665	1 508
Japan Air Lines	43 159	51 306	16 678	5 304	1 788
Japan Asia	0	3 257	0	1 248	0
Korean Air	7 308	24 614	11 514	3 934	1 567
Total	50 597	80 412	31 379	11 151	4 863
South-Eastern sub-region					
Air New Zealand	123	0	3 187	0	1 275
Air Niugini	0	23	0	9	0
Qantas Airways	6 452	450	529	75	75
Total	6 575	473	3 716	84	1 350
<b>TOTAL ASIA/PACIFIC REGION</b>	<b>73 403</b>	<b>86 220</b>	<b>43 835</b>	<b>13 252</b>	<b>8 606</b>

\* Estimated data.

Notes.— Airlines which did not report this data are excluded.

Data prior to 1984 for Bakhtar Afghan Airlines are for Ariana Afghan Airlines.

Sources. — ICAO Digests of Statistics.

Table 7.7

**Estimated international freight traffic  
at airports of the Asia/Pacific region  
(1974, 1979 and 1984)**

Items	Asia/Pacific sub-regions					Total Asia/ Pacific
	Year	North- Eastern	Central	South- Eastern	Western	
Number of freight tonnes (loaded and unloaded) (000)	1974	550	187	140	90	960
	1979	1 210	350	240	190	1 990
	1984	1 970	740	370	360	3 440
Sub-regional percentage of total	1974	57.3	18.7	14.6	9.4	100.0
	1979	60.8	17.6	12.1	9.5	100.0
	1984	57.3	21.5	10.7	10.5	100.0
Average annual growth rate (percentage)	1974-79	17.1	14.2	11.4	16.1	15.7
	1979-84	10.2	16.2	9.0	13.6	11.6
	1974-84	13.6	15.2	10.2	14.9	13.6

Source. — Appendix 11.

16. Average annual rates of growth were higher in the first five-year period than in the second for all sub-regions except the Central, where the rate increased from 14.2 per cent to 16.2 per cent with a ten-year average of 15.2, the highest of the four sub-regions, reflecting a more than fourfold increase in freight tonnes loaded and unloaded, from 180 000 in 1974 to 740 000 ten years later. The increase in the Western sub-region, with the second highest growth rate (14.9 per cent), was fourfold, from 90 000 to 360 000 tonnes. The airports in the North-Eastern sub-region, handling the greatest quantity of freight throughout the decade, experienced the greatest decline in growth rate, from 17.1 per cent over the first five-year period to 10.2 per cent over the second. The lowest ten-year average annual rate of growth (10.2 per cent) occurred at the airports of the South-Eastern sub-region, with a consequent drop in traffic share from 14.6 per cent to 10.7 per cent.

#### *Ten busiest airports*

17. The ten cities in the Asia/Pacific region whose airports handled the largest quantity of international freight in 1984 are listed in Table 7.8 which shows tonnes loaded and unloaded, average annual rates of growth and shares of the regional total. Five are in the North-Eastern sub-region, three in the Central and one each in the South-Eastern and Western. Of the 3.44 million international freight tonnes handled at all of the region's airports in 1984, 1.15 million or 33.3 per cent were handled at two cities: Tokyo (21.2 per cent) and Hong Kong (12.1 per cent). Average annual growth rates were generally much higher over the first half of the 1974-1984 decade than the second, except at Manila where the average is estimated to have increased from 14.1 per cent during the first five years to 34.6 per cent during the second for a 10-year average of almost 24 per cent compared to 13.6 per cent for the region's international airports as a whole.

Table 7.8

**Freight tonnes loaded and unloaded on international flights at  
the ten busiest airports in the Asia/Pacific region  
(1984)**

City	Tonnes 1984 (000)	Average annual growth rate			Percentage of regional total 1984
		1974-79 (%)	1979-84 (%)	1974-84 (%)	
1. Tokyo <sup>1</sup>	729	16.0	8.8	12.4	21.2
2. Hong Kong	417	20.3	10.1	15.1	12.1
3. Taipei (estimated)	300	14.9	8.4	11.6	8.7
4. Singapore	297	22.1	13.0	17.5	8.6
5. Seoul	275	20.3	13.1	16.6	8.0
6. Bangkok	147	15.4	9.8	12.6	4.3
7. Manila	137	14.1	34.6	23.9	4.0
8. Osaka	128	12.3	11.3	11.8	3.7
9. Sydney	119	10.8	6.6	8.7	3.5
10. Bombay	113	13.8	11.1	12.4	3.3
Total top ten airports	2 662	16.7	10.8	13.7	77.4
Other airports	778	12.1	14.6	13.3	22.6
Total Asia/Pacific region	3 440	15.7	11.6	13.6	100.0

1. New Tokyo International (Narita) plus Tokyo International (Haneda).

Source. — Appendix 11.

## Chapter 8

# Fares and Rates

1. The Asia/Pacific region is characterized by wide variations in the regulatory policies of States with regard to both the establishment and the implementation of tariffs. IATA's role is limited in this region, and many fares and rates are in practice co-ordinated through the Orient Airlines Association (OAA) or made available by individual airlines. This over-all situation is reflected in varying levels and availability of fares and rates to, from and within the various sub-regions and in widespread discounting from the published levels in some markets. This chapter provides details of policy and practice in the development of fares and rates for the region (Part A) and of the levels of published fares and rates to, from and within the region (Parts B and C). Non-scheduled tariffs are not discussed because the traffic concerned is specialized in nature and the tariffs generally developed by carriers on an *ad hoc* basis. Analyses of air carrier revenue yields on routes to, from and within the Asia/Pacific region and the relationships between revenues and costs are presented in Chapter 9, Part B.

### A — DEVELOPMENT OF FARES AND RATES

2. International fares and rates for scheduled air transport on most world routes are in principle developed within the framework of IATA for approval by interested governments. The Asia/Pacific region differs in practice as regards both airline tariff negotiations and government approval procedures.

#### *Airline negotiations*

3. The vast majority of international fares and rates to, from and within the Asia/Pacific region are negotiated amongst airlines through IATA. However, IATA's role as a negotiating forum in the region is limited because of the preponderance of non-IATA carriers (only 12 of 43 international scheduled airlines in the region participate in IATA's tariff co-ordination activities).

4. In recent years IATA airlines have regularly reached agreement on passenger fares for travel within the Asia/Pacific region, except for many routes to and from the South-Eastern sub-region where only limited agreements could be achieved due to requirements for certain promotional fares to be available only from airlines operating direct through-plane services. Such restrictions on access to fares by airlines operating indirect routings have also inhibited agreement on fares between the South-Eastern sub-region and Europe. The preponderance of non-IATA airlines in Asia has meant that IATA agreements on other routes to and from Europe have been prevented or disrupted, although agreements have generally been reached on fares for routes between Europe and Japan/Republic of Korea. For routes between Asia and the Americas, IATA fare agreements have been reached on occasion in recent years, but frequently have not been implemented as a result of pending government action. Some stability in fare agreements has recently been reached on routes between the South-Eastern sub-region and the Americas, although here there are also continuing problems in respect of the impact of low fares offered by a non-IATA airline and the right of airlines operating indirect routes to offer certain low fares. Other major tariff issues affecting the region include the question of whether passengers travelling in "intermediate" class should pay more than the normal economy fare, and the existence of large directional imbalances in fares to and from Japan.



5. Against this background, the role played by the OAA in the development and implementation of passenger fares is of particular significance. Seven non-IATA airlines are members of the OAA together with four IATA members based in the OAA area, which extends from Thailand in the west to Japan, Papua New Guinea and Australia in the east. The OAA is concerned primarily with developing fares for routes within its own area, but also discusses fares between the OAA area and the rest of the Asia/Pacific region and between the OAA area and IATA Area 2 (Europe/Middle East/Africa). Tariffs to and from IATA Area 1 (the Americas) are not discussed within the OAA forum because such discussions are not immune to United States anti-trust legislation.

6. Where general agreement is reached in the OAA forum, the results are sometimes presented by the IATA airlines for consideration by the relevant IATA Conference. The OAA also has an active "market development programme", notably in Hong Kong, Malaysia, Singapore and Thailand, through which local agreements are developed to control the level of discounting from IATA or OAA fares through the designation of minimum selling prices along with penalties for infractions. IATA's own tariff enforcement activity in the region is limited, but IATA has sponsored programmes to promote tariff integrity in India and the Philippines, and has planned similar activity in the Republic of Korea.

7. With regard to the negotiation of freight rates, IATA agreements have consistently been adopted and approved over the past several years for most routes to, from and within Asia and the Pacific. A noticeable feature has been a trend towards adapting the agreements to prevailing market rates, although discounting remains prevalent in some major freight markets.

#### ***Government approval***

8. Although the majority of bilateral air transport agreements entered into by States in the region contain a tariff clause calling for both parties to act on tariffs previously negotiated by airlines ("dual approval"), in recent years several States have agreed on alternative regulatory approaches. Australia, Fiji, New Zealand and the Republic of Korea have each signed agreements with one or more bilateral partners incorporating the "country of origin" approach whereby tariff control is exercised only by the State in which the traffic originates. Malaysia, the Republic of Korea, Singapore and Thailand have entered into other bilateral agreements incorporating the "dual disapproval" approach, whereby tariffs take effect unless disapproved by both governments concerned. Finally, China and the Philippines have entered into arrangements with the United States whereby fares falling within a "fare band" or "zone of reasonableness" specified as a percentage above and/or below an agreed reference fare level are subject to the "dual disapproval" approach and fares falling outside the band to the "dual approval" and "country of origin" approaches respectively. Several other States in the region have recently expressed interest in fare band arrangements similar to those which already regulate most tariffs between the United States and Europe and which are being proposed for multilateral application within Europe.

9. Irrespective of the bilaterally agreed tariff approval mechanism, many States in the region do not intervene in all aspects of the tariff structure. For example, several States do not require approval of general tariff rules such as fare construction rules, baggage allowances or the conversion rules which determine the level of fares in local currency, and a number of States do not require approval of freight rates or non-scheduled tariffs. A recent ICAO survey showed that few States in the region regularly evaluate air carrier tariff submissions, and very few have disapproved or modified such submissions on more than isolated occasions. Similarly, while many States in the region have provisions for the enforcement of tariffs, including penalties for infringements ranging from revocation of operating licences to fines and imprisonment, application of these provisions has been very limited and at least three States (Fiji, Nepal and Singapore) have apparently relinquished their enforcement authority in recent years.

10. The question of recognition by States of fares and rates other than those developed through IATA and subsequently filed with them is particularly significant for routes to, from and within the Asia/Pacific region in view of the limited application of IATA agreements. Governments which approve the IATA fares often face legal and other difficulties in formally accepting the OAA and IATA local market programmes for controlled undercutting of the same fares. As far as the United States Government is concerned, carriers are liable to prosecution under anti-trust legislation if they participate in programmes which involve acceptance of prices which undercut government-approved fares.

11. However, the OAA-agreed fares and discounts are tacitly accepted by most States in the region, and in some cases are explicitly approved. Singapore approves IATA-agreed fares only as maxima, and accepts and approves lower fares filed separately by the same airlines. Since December 1985 Australia has also accepted for approval fares filed outside IATA agreements and has prohibited IATA from compelling its member airlines or their agents to apply the IATA-agreed fares and commissions. New Zealand is currently undertaking a review of the role of IATA agreements from a similar perspective.

## B — LEVELS OF PUBLISHED PASSENGER FARES

12. IATA-agreed fares and individual airline fares filed with governments are published in multilateral airline tariff guides and hence are susceptible to a route-by-route comparative analysis. The results of such an analysis for normal economy fares, derived from the annual ICAO surveys of fares and rates<sup>1</sup>, are presented in Table 8.1.

### *Fares to/from Asia/Pacific*

13. The first eight columns of Table 8.1 show for the month of September 1984 average normal economy fares per passenger-kilometre for the world as a whole and for route groups relating to the Asia/Pacific region, while the last eight columns show the development of these fares over the period September 1979 to September 1984. From these data it may be seen that published normal economy fares for travel from Africa/Middle East to Asia/Pacific and from the Americas to the South-Eastern sub-region were significantly above the world average at all distances for September 1984. For travel from the South-Eastern sub-region to the Americas and from the region as a whole to Middle East/Africa, these fares were also well above the world average at longer distances, but below the world average at shorter distances. Fares between the South-Eastern sub-region and Europe showed a limited relationship with distance.

14. The pattern of directionality of fares has changed significantly since 1979, primarily as a result of changing strengths among national currencies, but also in some instances as a consequence of government action to disapprove proposed fare increases. In the case of routes across the Pacific, a strengthening of the United States dollar between 1979 and 1984 has meant that fares from the region, which were higher in 1979 than those from the Americas, were by 1984 generally lower than those from the Americas.

15. First class fares were widely available in September 1984 at levels ranging between 30 and 60 per cent above the normal economy fare on average for routes between Europe/Middle East/Africa and Asia/Pacific, between 60 and 100 per cent above for routes across the North and Central Pacific, and between 80 and 100 per cent above for routes across the South Pacific. The relatively high level of first class fares for routes across the Pacific should be considered in the context of the widespread availability on these routes of intermediate class fares and on-line "normal" fares for all three classes of service. The "on-line" fares, which are not interlineable and do not allow for stopovers, are in general some 15 per cent lower than the applicable unrestricted fare.

16. Certain types of special fares were also available in September 1984 for some areas, in general on a round-trip basis. Among these, excursion fares containing conditions such as restrictions on length of stay and stopovers were available for many routes between Europe and Asia (at 55 to 60 per cent of the normal economy fare on average), between Europe and the South-Eastern sub-region (at 55 per cent), from the Middle East/Africa region to Asia/Pacific (at 70 per cent) and across the Pacific (at 60 to 70 per cent).

17. For routes across the Pacific even lower fares were commonly available in September 1984, in the form of advance purchase excursion fares (APEX, at 55 to 70 per cent of the normal economy fare on average) and individual inclusive tour fares (at 50 to 70 per cent). Several "Circle Pacific" fares were also available, permitting travel by a continuous circuitous air route and generally allowing up to five free stopovers. Between Europe and Asia/Pacific

1. The latest edition is Circular 198 — *Survey of International Air Transport Fares and Rates — September 1985*.

**Table 8.1**  
**Average normal economy fares per passenger-kilometre**  
**by international route group, direction and distance**

International route groups	September 1984								September 1984/September 1979							
	Kilometres								Percentage increase per annum							
	500	1 000	2 000	4 000	6 000	8 000	12 000	16 000	500	1 000	2 000	4 000	6 000	8 000	12 000	16 000
I. <i>All World Routes</i>	22.5	18.6	15.4	12.8	11.4	10.6	9.5	8.8	3.7	3.6	3.6	3.5	3.5	3.5	3.4	3.4
II. <i>Selected Route Groups</i>																
Between Europe/Middle East/ Africa and Asia/Pacific																
— from Asia <sup>1</sup> to Europe	-	-	-	13.2	12.4	11.8	11.0	-	-	-	-	0.5	1.7	2.5	3.6	-
— from Europe to Asia <sup>1</sup>	-	-	-	14.5	12.0	10.5	8.8	-	-	-	-	2.1	0.5	-0.7	-2.3	-
— from the South-Eastern sub-region to Europe				Note 2								Note 2				
— from Europe to the South- Eastern sub-region				Note 2								Note 2				
— from Asia/Pacific to Middle East/Africa	-	15.2	13.8	12.5	11.8	11.4	10.7	-	-	-0.8	0.9	2.6	3.7	4.4	5.4	-
— from Middle East/Africa to Asia/Pacific	-	22.4	18.3	14.9	13.3	12.2	10.8	-	-	7.2	6.9	6.6	6.5	6.4	6.2	-
North/Central Pacific																
— from Asia <sup>1</sup> to the Americas	-	-	-	-	10.4	9.6	8.5	7.8	-	-	-	-	2.8	3.0	3.3	3.5
— from the Americas to Asia <sup>1</sup>	-	-	-	-	11.1	10.2	9.0	8.2	-	-	-	-	7.9	7.3	6.4	5.9
South Pacific																
— from the South-Eastern sub-region to the Americas	-	-	-	10.0	10.3	10.5	10.9	11.1	-	-	-	-2.9	2.0	5.6	10.9	14.8
— from the Americas to the South-Eastern sub-region	-	-	-	13.4	12.5	12.0	11.2	10.7	-	-	-	3.4	6.8	9.3	13.0	15.6
Within Asia/Pacific	16.8	14.8	13.1	11.5	10.7	10.2	9.5	-	6.1	5.3	4.5	3.7	3.3	2.9	2.5	-

1. "Asia" here consists of the Western, Central and North-Eastern sub-regions combined.

2. Fares between Europe and the South-Eastern sub-region show a widespread scatter above and below the average; fare levels on this route group are thus more dependent on other factors than distance.

Source.— Data for ICAO *Survey of International Air Transport Fares and Rates* (annual).

**Table 8.2**  
**International normal economy fares between**  
**and within Asia/Pacific sub-regions**  
**(September 1984)**

Region, sub-region or sub-regional pair <sup>1</sup>	Number of city- pairs with through-plane service for which fares are specified	Average city-pair distance (km)	Average fare at average city-pair distance	
			(U.S.\$)	(U.S. cents per passenger- kilometre)
All Asia/Pacific	740	2 976	362	12.2
South-Eastern to Western	7	9 834	947	9.6
Western to South-Eastern	7	9 822	980	10.0
North-Eastern to South-Eastern	18	7 004	794	11.2
South-Eastern to North-Eastern	20	6 874	787	11.4
Western to North-Eastern	21	5 049	571	11.3
North-Eastern to Western	21	4 945	628	12.7
South-Eastern to Central	37	4 903	614	12.5
Central to South-Eastern	38	4 778	677	14.2
Central to Western	33	3 616	469	13.0
Western to Central	33	3 480	372	10.7
North-Eastern to Central	58	2 987	378	12.6
Central to North-Eastern	56	2 977	378	12.7
Within South-Eastern	178	2 210	246	11.1
Within North-Eastern	80	1 381	191	14.5
Within Central	79	1 180	175	14.8
Within Western	54	1 050	121	11.6

1. Ranked by average city-pair distance between or within sub-region.

some APEX and individual inclusive tour fares were available (at 45 to 50 per cent of the normal economy fare on average). Group fares were widely available on routes across the Pacific at some 60 to 70 per cent on the North and Central Pacific, 50 to 55 per cent on the South Pacific and, in the form of inclusive tour fares, on routes between Europe/Middle East/Africa and the South-Eastern sub-region at 50 to 55 per cent.

18. There are also a number of fares for travel to and from the region, and in particular for travel across the Pacific, which are not publicly available but which are offered at a preferential level only to certain specific categories of passengers such as families, spouses, students, youth, military personnel, members of the clergy, government officials of certain countries, emigrants and refugees from Asia/Pacific to Canada and the United States, and ships' crews.

#### *Fares within Asia/Pacific*

19. Average normal economy fares at various distances for selected route groups are presented in Table 8.1 and shown in detail for each sub-region in Table 8.2 both in absolute and per-kilometre terms. From these data it can be seen that on an over-all basis, normal economy fares within the Asia/Pacific region were lower than the world

average levels at the distances concerned. Fares from the Western sub-region to the Central sub-region and within the South-Eastern and Western sub-regions were well below the regional averages for the distances concerned, whereas fares from the Central to the South-Eastern sub-region were well above the regional averages.

20. In addition to normal economy fares, first-class fares were widely available throughout the Asia/Pacific region in September 1984 (at a level 30 to 60 per cent above the normal economy fare on average). Excursion fares were available on many routes at some 75 per cent of the normal economy fare on average, except for routes between the South-Eastern sub-region and the rest of the Asia/Pacific region where they were at an average level of about 60 per cent. Except for routes within the South-Eastern sub-region and between the South-Eastern sub-region and the rest of the study area, there were few other publicly available special fares. However, for the routes mentioned, several advance purchase excursion fares, individual and group inclusive tour fares as well as affinity group fares were available at levels between 40 and 65 per cent of the normal economy fare on average. Some preferential fares were also available for ships' crews, students, spouses and families.

#### *Traffic distribution by fare type*

21. The pattern of availability of fares is in part reflected in the reported distribution of passengers among the various fare types for airlines serving the Asia/Pacific region (see Appendix 12). The socio-economic characteristics of the markets concerned and the marketing policies of airlines also have marked effects, as can be deduced from the wide variation of distribution patterns amongst individual airlines.

### **C — LEVELS OF PUBLISHED FREIGHT RATES**

22. Among freight tariffs, general cargo rates are of major importance in terms of revenue generated and traffic carried, and their level has a bearing on some other types of freight rates. The results of an analysis of general cargo rates, derived from the annual ICAO surveys of fares and rates, is presented in Table 8.3.

#### *Rates to/from Asia/Pacific*

23. The first eight columns of Table 8.3 show for the month of September 1984 the levels of the general cargo rates for small shipments (under 45 kg) for the world as a whole and for route groups relating to the Asia/Pacific region, while the last eight columns show the development of these cargo rates between September 1979 and September 1984. From these data it may be seen that in general, rates in September 1984 were significantly above the world average for shipments from Middle East/Africa to Asia/Pacific at all distances, while from Asia to Europe they were well below the world average except at the longest reference distance.

24. As with passenger fares, there was a notable lack of correlation between rate level and distance for the routes between Europe and the South-Eastern sub-region. For routes from Asia to the Americas there was a similar lack of correlation, mainly because the rates from Hong Kong and China in September 1984 were some 30 per cent below the world average while those from Japan were some 15 to 30 per cent above the world average for the same distances.

25. In addition to the general cargo rate for shipments of less than 45 kg, a further general cargo rate for larger shipments was available for almost all routes to and from the Asia/Pacific region at a level some 25 per cent lower on average. Further discounts for shipments of more than 500 kg were widely available for routes between the region and Europe, and between the region and North America. Bulk unitization rates were available for most routes between the South-Eastern sub-region and North America, and for many routes between other sub-regions and North America and from Europe to Asia/Pacific, as well as some routes from Asia/Pacific to Europe.

Table 8.3

**Average general cargo rates per tonne-kilometre for shipments  
of less than 45 kilograms by international route group, direction and distance**

International route groups	September 1984								September 1984/September 1979							
	Kilometres								Percentage increase per annum							
	500	1 000	2 000	4 000	6 000	8 000	12 000	16 000	500	1 000	2 000	4 000	6 000	8 000	12 000	16 000
	U.S. cents per passenger-kilometre															
I. <i>All World Routes</i>	176	147	124	104	93	87	78	73	2.4	2.6	2.7	2.9	3.0	3.1	3.2	3.2
II. <i>Selected Route Groups</i>																
Between Europe/Middle East/ Africa and Asia/Pacific																
— from Asia <sup>1</sup> to Europe	-	-	-	69	73	76	81	-	-	-	-	-1.4	0.6	2.1	4.2	-
— from Europe to Asia <sup>1</sup>	-	-	-	113	102	96	87	-	-	-	-	2.5	-0.6	-2.8	-5.7	-
— from the South-Eastern sub-region to Europe																
— from Europe to the South- Eastern sub-region																
— from Asia/Pacific to Middle East/Africa	-	137	119	103	95	89	82	-	-	-2.1	0.1	2.3	3.7	4.6	6.0	-
— from Middle East/Africa to Asia/Pacific	-	209	174	145	130	120	108	-	-	8.9	8.1	7.4	6.9	6.6	6.2	-
North/Central Pacific																
— from Asia <sup>1</sup> to the Americas																
— from the Americas to Asia <sup>1</sup>	-	-	-	-	103	87	70	60	-	-	-	-	7.8	8.2	8.7	9.0
South Pacific																
— from the South-Eastern sub-region to the Americas	-	-	-	87	80	75	69	65	-	-	-	3.5	4.5	5.3	6.3	7.0
— from the Americas to South-Eastern sub-region	-	-	-	99	93	89	83	79	-	-	-	7.7	8.9	9.7	10.9	11.7
Within Asia/Pacific	126	113	100	90	84	80	75	-	4.3	4.2	4.0	3.9	3.8	3.7	3.6	-

1. "Asia" here consists of the Western, Central and North-Eastern sub-regions combined.

2. Rates in these route groups show a widespread scatter of the actual rates above and below the average, indicating that rate levels are more dependent on other factors than distance.

Source.— Data for ICAO *Survey of International Air Transport Fares and Rates* (annual).

26. Specific commodity rates can be severely restrictive in both commodity description and in geographical area of application but offer substantial discounts, generally ranging from 50 to 70 per cent off the small shipment general cargo rate according to the commodity concerned and the weight of the shipment. In September 1984 such rates were widely available for most routes between the region and Europe and North America, although somewhat limited on routes from Europe to the South-Eastern sub-region. Specific commodity rates were also available for many routes from the region to the Middle East and Africa and a few routes from the Middle East and Africa to the region.

#### *Rates within Asia/Pacific*

27. For freight movements within the region, the average general cargo rates against distance for small shipments is summarized in Table 8.3 and shown in detail for each sub-region in Table 8.4 expressed in both per kilogramme and per tonne-kilometre terms. From these data it can be seen that on an over-all basis, rates for small shipments were lower than the world average levels at the distances concerned, but that rates between or within individual sub-regions differed from the averages for the region. Rates within the South-Eastern and Western sub-regions were below the regional average for the distances concerned, while rates within the North-Eastern sub-region and from the North-Eastern sub-region to each of the other sub-regions were above the regional average.

28. In September 1984, general cargo rates for shipments of over 45 kg, at a level some 25 per cent lower on average than the small shipment general cargo rate, were widely available within the Asia/Pacific region. However, further discounts for large shipments and for bulk unitization were only available for some routes within the South-Eastern sub-region. A few specific commodity rates were also available within the Asia/Pacific region, notably within the South-Eastern sub-region.

#### *Traffic distribution by rate category*

29. The distribution of freight traffic by rate category is affected by the composition of exports and imports in terms of commodities traded and by the marketing policies of airlines, as well as by the rates available. These factors vary considerably from market to market and this is reflected in different distributions of air freight by scheduled rate category among routes to, from and within the Asia/Pacific region (see Appendix 13).

**Table 8.4**  
**International general cargo rates for shipments of less than**  
**45 kilogrammes between and within the Asia/Pacific sub-regions**  
**(September 1984)**

Region, sub-region or sub-regional pair <sup>1</sup>	Number of city- pairs with through-plane service for which fares are specified	Average city-pair distance (km)	Average fare at average city-pair distance	
			(U.S.\$)	(U.S. cents per tonne- kilometre)
All Asia/Pacific	474	3 565	3.26	91
South-Eastern to Western	7	9 834	4.72	48
Western to South-Eastern	7	9 822	5.39	55
North-Eastern to South-Eastern	13	7 636	7.62	100
South-Eastern to North-Eastern	13	7 609	5.39	71
South-Eastern to Central	28	5 578	3.95	71
Central to South-Eastern	28	5 551	4.83	87
Western to North-Eastern	20	5 296	4.35	82
North-Eastern to Western	19	5 242	5.71	109
Central to Western	28	3 443	3.44	100
Western to Central	30	3 418	2.86	84
Central to North-Eastern	40	3 221	3.79	118
North-Eastern to Central	44	3 163	3.77	119
Within South-Eastern	94	2 419	1.91	79
Within North-Eastern	30	1 596	2.42	151
Within Central	35	1 525	1.76	115
Within Western	38	1 085	0.97	90

1. Ranked by average city-pair distance between or within sub-region.



## **Chapter 9**

# **Economics of Airline Operations**

1. Although the Asia/Pacific scheduled airlines, as a group, had only about one-sixth of the operating revenues and expenses of the world's airlines during the 1974-1984 period, they earned more than one-third of the cumulative 1974-1984 operating surplus of the world's airlines. This was achieved largely by bringing the costs per traffic unit below the world averages. Part A of this Chapter discusses the financial situation of the Asia/Pacific scheduled airlines, both international and domestic, in regard to all their services, scheduled and non-scheduled, domestic and international. Part B discusses revenues and costs for scheduled passenger services on major international route groups to, from and within the Asia/Pacific region, by all airlines, including airlines based in other regions.

### **A — FINANCIAL SITUATION OF ASIA/PACIFIC AIRLINES**

2. Over the period 1974-1984 the operating revenues of the Asia/Pacific scheduled airlines increased almost fivefold, from \$3 900 million in 1974 to \$18 200 million in 1984, while their operating expenses increased less (Table 9.1). Their share of the total operating revenues and expenses of the world's airlines during this period increased from about 12 per cent to more than 17 per cent, reflecting their rapid traffic growth.

3. Since 1975 the Asia/Pacific airlines consistently recorded significant annual operating surpluses, even during the difficult years 1980-1982 when the airlines of all other regions typically experienced operating losses. Over the 1974-1984 period the cumulative operating profits of the region's airlines exceeded \$5 100 million compared to \$15 000 million for the world airline industry as a whole.

4. In terms of net results (i.e. taking into account non-operating items as well), the profitability of the Asia/Pacific airlines as a group, compared with the world's airlines taken collectively, looked even better than in terms of operating results. Over the 1974-1984 period they had a \$1 550 million surplus of net profits over net losses, or nearly half of the net profits of all the world's airlines during the same years.

#### ***Operating revenues***

5. The growth of the Asia/Pacific airlines' operating revenues over the 1974-1984 period was faster than the world average (16.7 and 12.3 per cent per annum respectively), as a result of the region's traffic having increased on average about five percentage points more per annum than world-wide (Table 9.2). Operating revenues grew more rapidly in the first five years of the period than in the last, at average annual growth rates of 22.1 per cent against 11.4 per cent. This pattern was largely due to a more rapid increase in traffic during the first five years than during the second. A few components of the operating revenues of the Asia/Pacific airlines nevertheless showed steady or increasing growth in both halves of the period, among them revenues from mail and from non-scheduled flights.

6. Among the various sources of operating income of the region's airlines, scheduled freight and incidental revenues showed the most rapid rates of growth over the entire 1974-1984 period, at average rates of 20.5 and 18.2 per cent per annum respectively (Table 9.2). Average revenue increases from non-scheduled flights and from the carriage of

**Table 9.1**  
**Financial results of scheduled airlines**  
**(1974, 1979 and 1984)**

	Asia/Pacific region			World		
	1974	1979	1984	1974	1979	1984
	U.S.\$ millions					
Total operating revenues	3 900	10 600	18 200	33 080	70 750	104 800
Total operating expenses	3 900	10 280	17 000	32 290	70 020	99 700
Operating result	0	320	1 200	790	730	5 100
Net result	-60	120	560	40	590	2 000
<i>Expressed as percentage of total operating revenues</i>						
Operating result	0	3.0	6.6	2.4	1.0	4.9
Net result	-1.5	1.1	3.1	0.1	0.8	1.9

Sources. — ICAO Digests of Statistics, *Financial Data — Commercial Air Carriers*.

**Table 9.2**  
**Operating revenues of Asia/Pacific scheduled airlines**  
**(1974, 1979 and 1984)**

Revenue source	U.S.\$ millions			Average annual growth rates					
	1974	1979	1984	Airlines of the region			World		
				1974-79	1979-84	1974-84	1974-79	1979-84	1974-84
				(%)	(%)	(%)	(%)	(%)	(%)
Scheduled services									
Passenger	3 130	8 470	14 040	22.0	10.6	16.2	17.1	7.6	12.2
Freight	430	1 360	2 770	25.9	15.3	20.5	16.4	10.1	13.2
Mail	80	140	240	11.8	11.4	11.6	9.6	5.6	7.6
Total scheduled	3 640	9 970	17 050	22.3	11.3	16.7	16.8	7.8	12.2
Non-scheduled flights	110	180	350	10.4	14.2	12.3	10.8	3.7	7.2
Incidental revenues	150	450	800	24.6	12.2	18.2	17.2	17.1	17.1
Total operating revenues	3 900	10 600	18 200	22.1	11.4	16.7	16.6	8.2	12.3

Sources. — ICAO Digests of Statistics, *Financial Data — Commercial Air Carriers*.

**Table 9.3**  
**Sources of operating revenues**  
**Percentage distribution for Asia/Pacific and world airlines**  
**(1974, 1979 and 1984)**

	Asia/Pacific region			World		
	1974	1979	1984	1974	1979	1984
Scheduled services						
Passenger	80.3	79.9	77.2	78.0	79.8	77.6
Freight	11.0	12.8	15.2	11.1	10.9	11.9
Mail	2.0	1.3	1.3	2.3	1.6	1.4
Total scheduled	93.3	94.0	93.7	91.4	92.3	90.9
Non-scheduled flights	2.8	1.7	1.9	4.5	3.4	2.7
Incidental revenues	3.9	4.3	4.4	4.1	4.2	6.4
Total operating revenues	100.0	100.0	100.0	100.0	100.0	100.0

Sources. — ICAO Digests of Statistics, *Financial Data — Commercial Air Carriers*.

mail were moderate at 12.3 and 11.6 per cent per annum respectively for the 1974-1984 period. Although growth rates for the various revenue sources ranged widely from 10.4 to 25.9 per cent in the first half of the 1974-1984 period, they took on a much smaller 10.6 to 15.3 per cent range during the last five years.

7. Throughout the 1974-1984 period, the contribution of scheduled service revenues to total operating income remained essentially the same for both the region's and the world's airlines, whereas charter revenues declined and incidental revenues grew in proportion to total operating revenues for both groups (Table 9.3 and Figure 9.1). The development of various revenue sources within the scheduled services category for the Asia/Pacific airlines was also similar to that of the world's airlines: freight income increased in relative significance and the relative significance of income for passenger services and mail decreased.

8. The scheduled service yields of the region's airlines tended to be close to, but slightly under those of the world's airlines (Table 9.4). Two exceptions were mail and non-scheduled revenue yields which were considerably higher; nevertheless, because they constituted together only 3.2 per cent of the Asia/Pacific airlines' 1984 operating revenues, they provided little to offset the lower passenger and freight yields. The tonne-kilometre yield for total transport operations of the Asia/Pacific airlines in 1984 was 7.2 cents below the world average, due in part to the bigger shares of incidental income in the total revenues of airlines in other parts of the world and to the more rapid growth of this income in the second half of the period.

9. The lower-than-average yields of the Asia/Pacific airlines must be considered in the light of differences in average transport distances. The average passenger trip length on the scheduled services of the Asia/Pacific airlines exceeded the world airlines' average in 1979 by 3.2 per cent and in 1984 by 10.8 per cent (Table 9.5), with yields lower by 4.0 per cent and 6.7 per cent respectively (Table 9.4). For scheduled freight traffic, a similar relationship between the lower-than-world average Asia/Pacific airlines' yields and their greater distances of carriage can be seen throughout the period, their freight yield being 10.4 per cent lower and their average shipment distance being 4.0 per cent higher in 1984.

Figure 9.1  
Distribution of operating revenues and expenses  
of Asia/Pacific airlines in 1974 and 1984

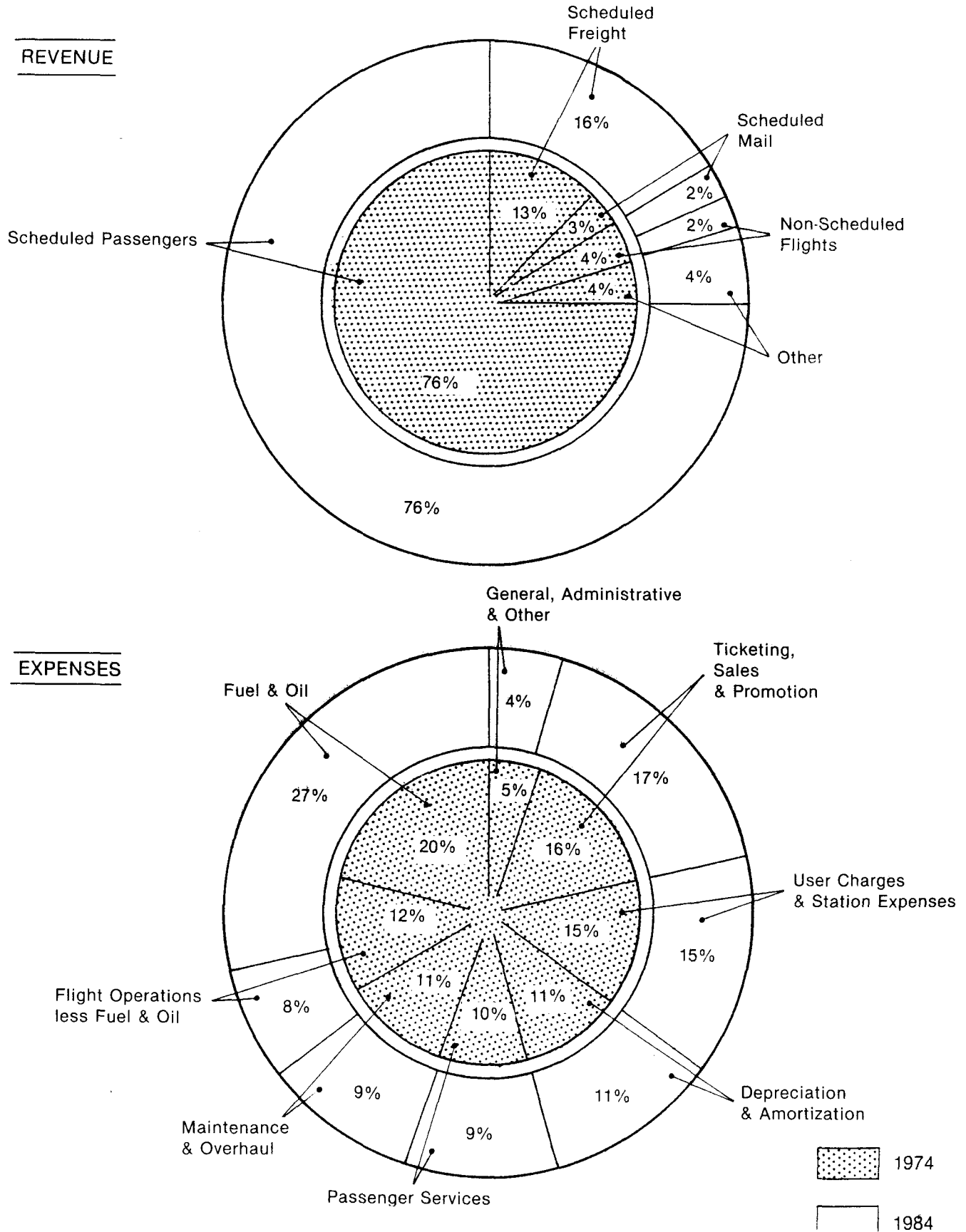


Table 9.4

**Unit operating revenues of Asia/Pacific scheduled airlines  
compared with the world's scheduled airlines  
(1974, 1979 and 1984)**

		Operating revenues per tonne-kilometre performed U.S. cents			Average annual growth rates		
		1974	1979	1984	1974-1979 (%)	1979-1984 (%)	1974-1984 (%)
Scheduled services							
Passenger	Asia/Pacific	48.2	66.4	76.6	6.6	2.9	4.8
	World	52.3	69.2	82.1	5.8	3.5	4.6
Freight	Asia/Pacific	21.4	27.9	30.2	5.4	1.6	3.5
	World	21.3	29.8	33.7	6.9	2.5	4.7
Mail	Asia/Pacific	51.0	56.3	61.4	2.0	1.7	1.9
	World	30.8	38.9	39.1	4.8	0.1	2.5
Total scheduled	Asia/Pacific	42.0	55.8	61.1	5.8	1.8	3.8
	World	43.8	58.6	68.2	6.0	3.1	4.5
Non-scheduled flights							
	Asia/Pacific	41.1	65.1	110.0	9.6	11.1	10.3
	World	29.8	39.2	48.6	5.6	4.4	5.0
Total transport operations	Asia/Pacific	43.7	58.4	64.8	6.0	2.1	4.0
	World	44.7	60.1	72.0	6.1	3.7	4.9

Sources. — ICAO Digests of Statistics, *Financial Data — Commercial Air Carriers* and *Traffic — Commercial Air Carriers*.

**Table 9.5**  
**Passenger and freight trip length for Asia/Pacific**  
**scheduled airlines compared with the world average**  
**(1974-1979-1984)**

		Average trip length, kilometres		
		1974	1979	1984
Scheduled services				
Passenger	Asia/Pacific	1 231	1 448	1 663
	World	1 299	1 403	1 501
Freight	Asia/Pacific	2 548	3 283	3 622
	World	2 546	2 999	3 482
Non-scheduled flights				
Passenger	Asia/Pacific	-	-	2 612
	World	-	-	1 508
Freight	Asia/Pacific	-	-	1 784
	World	-	-	2 364

Sources. - ICAO Digests of Statistics, *Traffic — Commercial Air Carriers*.

10. The growing differential between Asia/Pacific airlines' yields for non-scheduled flights over the average yields of the world's airlines cannot be explained by differences in trip lengths because of the peculiarities of charter traffic in the Asia/Pacific region (Table 9.4). Its volume is very limited and it is typically carried on an *ad hoc* basis at a high cost relative to that of programmes of flights more common to other regions. The much lower yields for most non-scheduled flights in the rest of the world result from operations in the mass markets of Europe and North America which generated, during the 1974-1984 period, between 75 and 85 per cent of the charter traffic of the world's scheduled airlines at prices considerably lower than experienced in the Asia/Pacific region.

### *Operating expenses*

11. Operating expenses increased much more rapidly for the region's airlines than for the world's airlines as a whole (21.4 per cent per annum on average versus 16.9 per cent per annum for 1974-1979 and 10.6 per annum on average versus 7.3 per cent per annum for 1979-1984) (Table 9.6). The greater rates of increase in total operating expenses of the Asia/Pacific airlines cannot be attributed to any particular category or sub-category of expense items: during both five-year periods virtually every component of operating expenses also increased more rapidly for the region's airlines than for the world's airlines.

12. Offsetting the rapidity of such increases, available capacity increased more rapidly so that for the Asia/Pacific airlines as a group, the total operating expenses per tonne-kilometre available increased less rapidly than for the world's airlines. By 1984 operating expenses per tonne-kilometre available were 3.8 per cent below the world average (Table 9.7).

**Table 9.6**  
**Operating expenses of Asia/Pacific scheduled airlines**  
**(1974, 1979 and 1984)**

Expense item	U.S.\$, millions			Average annual growth rates					
	1974	1979	1984	Asia/Pacific airlines			World		
				1974-79 (%)	1979-84 (%)	1974-84 (%)	1974-79 (%)	1979-84 (%)	1974-84 (%)
Flight operations less fuel and oil	470	800	1 360	11.2	11.2	11.2	13.7	4.2	8.8
Fuel and oil	800	2 720	4 530	27.7	10.7	18.9	21.2	7.7	14.3
Maintenance and overhaul	440	1 080	1 600	19.7	8.2	13.8	14.6	4.6	9.5
Depreciation and amortization	430	880	1 780	15.4	15.1	15.3	11.8	8.9	10.3
User charges and station expenses	570	1 620	2 630	23.2	10.2	16.5	16.9	6.2	11.4
Passenger services	370	980	1 460	21.5	8.3	14.7	17.2	6.4	11.7
Ticketing, sales and promotion	630	1 750	2 940	22.7	10.9	16.7	18.3	9.7	13.9
General, administrative and others	190	450	700	18.8	9.2	13.9	16.6	12.3	14.4
Total operating expenses	3 900	10 280	17 000	21.4	10.6	15.9	16.9	7.3	12.0

Sources.— ICAO Digests of Statistics, *Financial Data — Commercial Air Carriers*.

13. Two expense items contributed more than others to the lowering of the 1984 unit costs of the region's airlines; flight operations less fuel and oil, and general, administrative and other expenses, which were below the world average by 22.5 and 46.7 per cent respectively chiefly due to relatively low Asia/Pacific salaries which constitute the major portion of these cost elements (Table 9.7). For example, in 1984 North American airlines spent more than 9 per cent of their total operating expenses for flight crew salaries and related expenses, compared to less than 4 per cent for the Asia/Pacific airlines. As a result of regional differences in the levels of pay, European and North American airlines accounted in 1984 for 81 per cent of world-wide expenditures for flight crew salaries while they produced only 68 per cent of the world's tonne-kilometres available, the corresponding figures for the Asia/Pacific airlines being 10 and 18 per cent. On the other hand, the unit costs of depreciation and amortization for the region's airlines were 41.4 per cent above world unit costs due to the acquisition by many airlines of large numbers of new aircraft, incurring above-average depreciation charges, and to decisions by some carriers to amortize their fleets more rapidly.

14. The general tendency for wide-body aircraft to have lower unit costs than narrow-body aircraft can partially explain how the region's carriers held their total 1974-1984 increase in operating expenses per tonne-kilometre available to 53 per cent versus 76 per cent for the world's airlines (Tables 9.7 and 9.8). Whereas the average payload capacity in 1974 was 5 per cent smaller for the region's airlines than for the world's, in 1984 it was 28 per cent larger (the region's wide-body aircraft having more than doubled in number just since 1979 — see Chapter 3).

15. Non-operating expenses of the airlines of the Asia/Pacific region and of the airline industry as a whole have exceeded non-operating revenues throughout the 1974-1984 period, with interest charges a major cost item and retirement of property and equipment a main revenue item in this category (Table 9.9). The notable regional distinctions are the absence of any kind of subsidies and the rapid increase of income taxes, especially in the last five years, which is understandable in the light of the higher-than-average profitability of the Asia/Pacific airlines.

Table 9.7

**Unit operating expenses of Asia/Pacific scheduled airlines compared with the world average  
(1974, 1979 and 1984)**

		Operating expenses per tonne-km available, U.S. cents			Growth rate, percentages		
		1974	1979	1984	1974-79	1979-84	1974-84
Flight operations less fuel and oil	Asia/Pacific	3.0	2.8	3.1	-1.4	2.1	0.3
	World	3.0	3.8	4.0	4.8	1.0	2.9
Fuel and oil	Asia/Pacific	5.1	9.4	10.2	13.0	1.6	7.2
	World	4.3	8.0	9.3	13.2	3.1	8.0
Maintenance and overhaul	Asia/Pacific	2.8	3.8	3.6	6.3	-1.1	2.5
	World	2.9	3.9	4.0	6.1	0.5	3.3
Depreciation and amortization	Asia/Pacific	2.8	3.0	4.1	1.4	6.4	3.9
	World	1.9	2.3	2.9	3.9	4.7	4.3
User charges and station expenses	Asia/Pacific	3.7	5.6	5.9	8.6	1.0	4.8
	World	3.9	5.9	6.4	8.6	1.6	5.1
Passenger services	Asia/Pacific	2.4	3.4	3.3	7.2	-0.6	3.2
	World	2.2	3.3	3.7	8.4	2.3	5.3
Ticketing, sales and promotion	Asia/Pacific	4.1	6.1	6.6	8.3	1.6	4.9
	World	3.2	5.2	6.6	10.2	4.9	7.5
General, administrative and others	Asia/Pacific	1.2	1.6	1.6	5.9	0.0	2.9
	World	1.4	2.1	3.0	8.4	7.4	7.9
Total operating expenses	Asia/Pacific	25.1	35.7	38.4	7.3	1.5	4.3
	World	22.7	34.5	39.9	8.7	3.0	5.8

Sources.— ICAO Digests of Statistics, *Financial Data — Commercial Air Carriers and Traffic — Commercial Air Carriers*.



Table 9.8

**Average stage length and aircraft size for Asia/Pacific  
scheduled airlines compared with the world average  
(1974 — 1979 — 1984)**

		1974	1979	1984
Average stage length of flights, kilometres				
Scheduled services	Asia/Pacific	738	836	873
	World	767	858	888
Non-scheduled flights	Asia/Pacific	1 421	1 762	567
	World	1 451	1 271	1 110
All services	Asia/Pacific	748	843	867
	World	788	872	895
Average payload capacity of aircraft, tonnes				
Scheduled services	Asia/Pacific	17.3	23.7	30.8
	World	18.1	21.1	24.0
Non-scheduled flights	Asia/Pacific	17.1	20.8	21.0
	World	16.9	18.6	20.8
All services	Asia/Pacific	17.3	23.6	30.7
	World	18.0	20.9	23.9

Sources.— ICAO Digests of Statistics, *Traffic — Commercial Air Carriers*.

### *Financial performances of individual airlines*

16. With respect to yields and unit costs for air transport operations, wide variations exist among individual airlines in the region. This is evidenced by statistics available for 20 airlines of the Asia/Pacific region (Table 9.10). Nevertheless, these variations are rather limited for the airlines producing the bulk of the traffic. In 1984, yields of 15 airlines which accounted for 78 per cent of the region's revenue traffic all fell between 45 cents and 80 cents per tonne-kilometre performed. The unit costs of a second group of 15 airlines (largely the same carriers), one which contributed 94 per cent of the total capacity, all fell between 30 cents and 50 cents per tonne-kilometre available.

17. The scale of operations is a useful composite measurement of the interrelated impact on the average levels of yields and unit costs of such factors as the quantity, density and composition of traffic, flying distances and stage lengths, types of aircraft operated and rates of their utilization, and others. A rough measure of the effect of scale of operations on yields and unit costs for 20 Asia/Pacific airlines can be found by placing these airlines into four groups according to their traffic volumes (Table 9.11). For the four biggest airlines, average yields were 51.3 cents and average unit costs 36.0 cents. For the three smallest airlines, average yields were 116.0 cents and average costs 63.0 cents.

**Table 9.9**  
**Non-operating revenues, expenses and income taxes**  
**for Asia/Pacific and world scheduled airlines**  
**(1974, 1979 and 1984)**

		U.S. \$ millions			Average annual growth rates, percentages		
		1974	1979	1984	1974-79	1979-84	1974-84
Interest	Asia/Pacific	-100	-300	-570	24.6	13.7	19.0
	World	-760	-1 400	-3 300	13.0	18.7	15.8
Retirement of property and equipment	Asia/Pacific	10	130	220	67.0	11.1	36.2
	World	140	550	980	31.5	12.2	21.5
Subsidies	Asia/Pacific	-	-	-	-	-	-
	World	60	180	240	24.6	5.9	14.9
Affiliated companies	Asia/Pacific	10	30	20	24.6	-7.8	7.2
	World	10	140	90	69.5	-8.5	24.6
Other non-operating items	Asia/Pacific	50	-10	-10			
	World	80	520	-10		not applicable	
Income taxes	Asia/Pacific	-30	- 50	-300	10.8	43.1	25.9
	World	-280	-130	-1 100	-14.2	53.3	14.7
Total non-operating items and income taxes	Asia/Pacific	-60	-200	-640	27.2	26.2	26.7
	World	-750	-140	-3 100	-28.5	85.8	15.2

Sources.— ICAO Digests of Statistics, *Financial Data — Commercial Air Carriers*.

Table 9.10

**Financial data and traffic for 20 Asia/Pacific airlines  
(1984)**

	Tonne-km performed, millions	Operating revenues per t-km performed, U.S. cents	Tonne-km available, millions	Operating expenses per t-km available, U.S. cents
All Nippon Airways	1 650	112.3	3 652	48.6
Air India	1 241	56.5	1 964	32.7
Air Lanka <sup>1</sup>	245	53.5	397	32.0
Air New Zealand	1 004	58.6	1 380	36.3
Air Niugini	67	134.3	119	76.1
Bangladesh Biman	166*	72.0	320*	33.0
Garuda Indonesia	845	77.5	1 959	33.1
Indian Airlines	663	76.4	958	44.1
Japan Air Lines	5 993	54.2	9 171	33.7
Japan Asia Airways	185	78.5	246	52.5
Korean Air	2 561	47.7	3 623	31.9
Malaysian Airline System <sup>1</sup>	746	71.1	1 064	42.8
Merpati Nusantara Airlines <sup>1</sup>	44	109.9	71	68.9
Pakistan Int. Airlines	874	77.2	1 539	38.3
Philippine Airlines	1 056	46.0	1 660	21.1
Qantas Airways	2 209	55.7	3 385	34.8
Singapore Airlines	2 991	45.5	4 184	31.2
Thai Airways Company	49	100.3	94	40.5
Thai Airways Int.	1 196	57.8	1 823	31.1
Trans Australia Airlines	445	120.7	658	79.3
Totals for 20 airlines	24 230	59.4	38 267	35.0
Totals estimated for all airlines in the region	28 100	64.8	44 250	38.4

1. 1983 data.

\* Estimated data.

Sources. — ICAO Digests of Statistics, *Financial Data — Commercial Air Carriers and Traffic — Commercial Air Carriers*.  
IATA *World Air Transport Statistics*.

Table 9.11

**Relationship between the scale of operations and  
the level of yields and unit costs for 20 Asia/Pacific airlines  
1984**

Range of traffic volume, millions of t-km performed	Number of airlines in the group	Average yields, U.S. cents per tonne-kilometre performed	Average costs, U.S. cents per tonne-kilometre available
Below 100	3	116.9	63.0
100 — 1 000	9	75.2	41.1
1 000 — 2 000	4	72.5	37.7
Above 2 000	4	51.3	36.0

Sources. — ICAO Digests of Statistics, *Financial Data — Commercial Air Carriers and Traffic — Commercial Air Carriers*; Table 9.10.

### **Balance sheet**

18. Throughout the 1974-1984 period, assets and liabilities of the Asia/Pacific airlines showed practically the same growth rates (at about 17 per cent) as operating revenues, indicating that the region's airlines have generally maintained their preparedness for continued expansion. Flight equipment after depreciation represented the main component of assets, accounting throughout the period for approximately half of total assets for both the region's and the world's airlines. The most rapidly growing assets of the region's airlines were their investments in affiliated companies and their deferred charges, each of which now constitutes more than one-third of the value of such items on the balance sheet of the world's airlines (Table 9.12). Another rapidly increasing group in this category is current assets; their share in the total assets of the airlines of the region has grown from 26.7 per cent in 1974 to 32.2 per cent in 1984 compared to 27.8 per cent and 31.0 per cent respectively for the world's airlines.

19. Among liabilities of the Asia/Pacific airlines, long-term debt and capital, i.e. stockholder equity, showed the highest growth rates at an average of more than 18 per cent per annum for each of these items, compared to a world-wide average growth rate of only 10 per cent annually. As a result, the debt-equity ratio at the end of the period was the same as at the beginning: about 2.4 for the region's airlines and 1.8 for the world's airlines.

20. Due to slower increases in current liabilities and unearned transportation revenues in comparison to current assets, the current ratio (current assets to current liabilities) of the airlines of the region, a common indicator of solvency, improved from 0.87 in 1974 to 1.08 in 1984, whereas for the world's airlines the ratio deteriorated between these years from 1.05 to 0.96. However, another important indicator, the ratio of total assets to debt, showed the opposite development during the period, a decrease for the Asia/Pacific airlines from 2.7 to 2.4 and an increase for the world's airlines from 2.6 to 2.7.

Table 9.12

**Balance sheet of Asia/Pacific scheduled airlines  
(at the end of 1974, 1979 and 1984 financial years)**

	1974		1979		1984	
	U.S.\$ millions	Percentage of world's total	U.S.\$ millions	Percentage of world's total	U.S.\$ millions	Percentage of world's total
<i>Assets</i>						
1. Current assets	1 200	11.6	3 580	16.5	6 930	21.3
2. Flight equipment after depreciation	2 350	12.5	6 490	20.8	10 170	19.9
3. Ground property after depreciation	610	14.1	1 190	15.6	1 790	16.1
4. Investments in affiliated companies	40	4.2	420	28.6	550	35.6
5. Deferred charges	70	10.2	120	12.3	630	35.6
6. Other assets	230	10.3	1 100	27.2	1 480	20.6
<b>TOTAL ASSETS</b>	<b>4 500</b>	<b>12.0</b>	<b>12 900</b>	<b>18.6</b>	<b>21 550</b>	<b>20.5</b>
<i>Liabilities</i>						
1. Current liabilities	1 110	14.1	3 250	21.4	5 390	20.3
2. Unearned transportation revenues	270	13.6	760	12.6	1 030	13.8
3. Reserves	690	33.2	1 580	30.7	2 230	36.3
4. Long-term debt	1 640	11.5	5 470	22.9	8 920	23.3
5. Other liabilities	120	3.9	130	3.3	220	3.9
6. Capital	670	8.3	1 710	11.3	3 760	17.8
<b>TOTAL LIABILITIES</b>	<b>4 500</b>	<b>12.0</b>	<b>12 900</b>	<b>18.6</b>	<b>21 550</b>	<b>20.5</b>

Sources. — ICAO Digests of Statistics, *Financial Data — Commercial Air Carriers*.

## B — REVENUES AND COSTS FOR INTERNATIONAL SCHEDULED SERVICES TO, FROM AND WITHIN THE ASIA/PACIFIC REGION

### *Passenger revenues and costs*

21. Financial data for international scheduled passenger services to, from and within the Asia/Pacific region are summarized in Table 9.13 by major groups of routes and carriers<sup>1</sup>. This table shows, for the years 1979 and 1984, the average revenue per passenger-kilometre, the associated average cost per passenger-kilometre, and the revenue/cost ratio derived from these two figures.

22. With a range of fares being available on most routes, the passenger yield represents an average price of air travel, reflecting the extent to which the various fares available were used and the effects of other factors, including indirect routing and prorating. In 1984, the average passenger yield for all the international operations of the Asia/Pacific airlines, at 5.8 cents per passenger-kilometre, was somewhat lower than the world average of 6.9 cents. This relatively low passenger yield for Asia/Pacific carriers was reflected on all the major groups of interregional routes on which they operate, although passenger yields reported for international routes within the Asia/Pacific region are close to the world average.

23. For routes between Europe/Middle East and Asia/Pacific, the passenger yield shown for Asia/Pacific airlines was close to that for European airlines, but much lower than that for airlines based in Middle East/Africa, the latter carriers operating much shorter routes, on average. In the case of transpacific routes, the 1984 revenue data were strongly influenced by the strength of the U.S. dollar against national currencies in the Asia/Pacific region. This led to a strong demand for travel from North America and hence higher fares for traffic originating in that market and a higher yield traffic mix carried by some of the North American airlines (see Appendix 12). For routes within the region, the yields of airlines based in the South-Eastern sub-region are markedly lower than those of carriers from the other sub-regions, primarily as a consequence of the longer routes involved. In general, the trends between 1979 and 1984 in passenger yields on the various route groups reflect the trends in fares presented in Chapter 8.

24. The average revenue/cost ratios (appearing in the last two columns of Table 9.13) of Asia/Pacific airlines have improved since 1979, although in 1984 the performance of these airlines was consistently poorer than that of airlines from outside the region operating on the same groups of routes. In the case of routes between Europe/Middle East/Africa and Asia/Pacific, while European airlines achieved the same yields from passenger traffic as Asia/Pacific airlines, they offered greater cargo capacity on combination aircraft and hence obtained greater freight and mail revenue (27 per cent of their total revenue from combination aircraft against 17 per cent for Asia/Pacific airlines). With this freight and mail revenue offsetting the total costs of operating the aircraft, the European airlines achieved a lower passenger operating cost and hence a better revenue/cost ratio in 1984. On transpacific routes, the less satisfactory financial results for Asia/Pacific airlines compared with airlines from the Americas reflect the significantly lower yields achieved by the former.

25. Airline unit costs are in part determined by operational factors such as the geographical characteristics of the route networks and the volume of traffic, these determining the average stage length, the size of aircraft that can best be used, as well as the load factors achieved. Average cost levels will generally be lower where the stage lengths are relatively long and where large aircraft can be used. Such conditions prevailed in 1984 on most international routes operated by Asia/Pacific airlines (Table 9.14). Even on the international routes within the Asia/Pacific region, where stage lengths were relatively short, the volume of traffic was such that the average aircraft capacity (in seats) was significantly higher than the world average. On transpacific routes, the operational characteristics exhibited by Asia/Pacific airlines were significantly more beneficial than those of airlines from the Americas but, on the North Pacific in particular, it appears that relatively high load factors were achieved at the expense of a reduced yield.

1. A more general analysis covering all regions of the world is contained in *Regional Differences in Fares, Rates and Costs for International Air Transport, 1984* (Circ. 199), and earlier studies in that series.

Table 9.13

**Revenues and costs for international scheduled passenger services to, from and within the Asia/Pacific region<sup>1</sup>**

International routes and operations concerned	Average revenue per passenger-kilometre <sup>1</sup> (U.S. cents)		Average passenger cost per passenger-kilometre (U.S. cents)		Ratio revenue/cost <sup>2</sup>	
	1979	1984	1979	1984	1979	1984
<b>Selected route groups</b>						
<b>Between Europe/Middle East/Africa and Asia/Pacific</b>						
— carriers registered in Asia/Pacific	5.4	5.6	5.6	5.8	0.95	0.95
— carriers registered in Europe	5.3	5.6	5.7	5.1	0.95	1.10
— carriers registered in Middle East/Africa	8.1	10.3	8.3	9.8	1.00	1.05
<b>North and Mid Pacific</b>						
— carriers registered in Asia/Pacific	4.5	4.6	5.3	5.1	0.85	0.90
— carriers registered in the Americas	4.7	5.7	4.7	5.4	1.00	1.05
<b>South Pacific</b>						
— carriers registered in Asia/Pacific	4.1	5.3	4.8	6.2	0.85	0.85
— carriers registered in the Americas	4.5	5.7	4.8	6.1	0.95	0.95
<b>Within Asia/Pacific</b>						
— carriers registered in Asia <sup>3</sup>	6.9	7.1	6.8	7.0	1.00	1.00
— carriers registered in the South-Eastern sub-region	6.1	6.7	6.5	6.3	0.95	1.05
<b>All world routes and carriers</b>	6.4	7.0	6.9	7.0	0.93	1.00
<b>All operations of carriers registered in Asia/Pacific</b>	5.5	5.8	5.9	6.0	0.94	0.97

1. Excluding operational and financial data attributed to supersonic and propeller-driven aircraft.

2. Ratios for the selected route groups have been calculated from unrounded revenue and cost figures and subsequently rounded to the nearest twentieth.

3. "Asia" here consists of the Western, Central and North-Eastern sub-regions combined.

Source. — ICAO Circular 199.

Table 9.14

**Operational characteristics for international scheduled passenger services to, from and within the Asia/Pacific region in 1984**

International routes and operations concerned	Average length of flight stages (km)	Average block speed (km/h)	Average number of seats per aircraft (number)	Average aircraft productivity in available seat-kilometres per block-hour (thousands)	Average passenger load factor (%)
<b>Selected route groups</b>					
<b>Between Europe/Middle East/Africa and Asia/Pacific</b>					
— carriers registered in Asia/Pacific	3 410	734	336	247	69
— carriers registered in Europe	3 703	733	267	196	70
— carriers registered in Middle East/Africa	2 089	682	299	204	59
<b>North and Mid Pacific</b>					
— carriers registered in Asia/Pacific	5 968	808	351	284	72
— carriers registered in the Americas	4 425	780	319	249	67
<b>South Pacific</b>					
— carriers registered in Asia/Pacific	4 390	790	361	286	64
— carriers registered in the Americas	4 332	795	271	215	60
<b>Within Asia/Pacific</b>					
— carriers registered in Asia <sup>1</sup>	1 419	648	275	179	68
— carriers registered in the South-Eastern sub-region	2 161	731	266	191	67
<b>All world routes and carriers</b>	1 651	662	239	158	65
<b>All operations of carriers registered in Asia/Pacific</b>	2 445	718	316	227	68

1. "Asia" here consists of the Western, Central and North-Eastern sub-regions combined.

Sources. — *Official Airline Guide* and data reported for ICAO studies on regional differences in fares and costs.



Table 9.15

**Average freight revenue yield for international scheduled services to, from and within the Asia/Pacific region**

International routes and operations concerned	Average revenue per freight tonne-kilometre	
	1979 U.S. cents	1984 U.S. cents
Selected route groups		
Between Europe/Middle East/ Africa and Asia/Pacific		
— carriers registered in Asia/Pacific	29.6	25.5
— carriers registered in Europe	29.6	26.0
— carriers registered in Middle East/Africa	34.0	35.8
North and Mid Pacific		
— carriers registered in Asia/Pacific	19.1	25.7
— carriers registered in the Americas	19.3	27.2
South Pacific		
— carriers registered in Asia/Pacific	24.8	26.8
— carriers registered in the Americas	21.0	23.9
Within Asia/Pacific		
— carriers registered in Asia <sup>1</sup>	37.7	36.0
— carriers registered in the South-Eastern sub-region	30.4	29.2
All world routes and carriers	29.1	25.9
All operations of carriers registered in Asia/Pacific	27.5	27.7

1. "Asia" here consists of the Western, Central and North-Eastern sub-regions combined.

Source. — ICAO Circular 199.

26. Between 1979 and 1984, mainly through the greater use of wide-body aircraft, airlines in the Asia/Pacific region achieved an increase in aircraft productivity on international routes (in terms of available seat-kilometres per block-hour) of 5.8 per cent per annum, well above the world average of 3.5 per cent per annum. This increase, however, was not achieved without penalty as the Asia/Pacific airlines in 1984 show above-average depreciation and interest charges related to flight equipment.

#### *Freight revenues*

27. Average freight revenue yields reflect the relative use of the variety of tariffs available and represent average prices for shipping freight by air. An analysis of the average freight revenue yields per tonne-kilometre by selected route groups for international scheduled services to, from and within the Asia/Pacific region is given in Table 9.15. In 1984, the average freight revenue yields for the routes within the Asia/Pacific region were well above the world average of 25.9 cents, but the yields of Asia/Pacific airlines on the other international routes were close to the world average.

28. On the South Pacific routes, Asia/Pacific airlines showed an average freight revenue yield which was significantly higher than that for airlines from the Americas, but on other interregional route groups the yields of Asia/Pacific airlines were generally similar to those of airlines from outside the region. As with the average passenger yields, between 1979 and 1984 changes in average freight yields were strongly influenced by the appreciation of the U.S. dollar. In general, the changes shown in Table 9.15 for the individual route groups reflect the changes in rate levels discussed in Chapter 8.

# Chapter 10

## Facilitation

1. The state of facilitation in the Asia/Pacific region is one of great variety and stark differences, without any well marked sub-regional characteristics. In certain countries of the region, facilitation is in a highly advanced state, among the best in the world, and some of these countries have found this to be of great assistance in developing tourism and trade. In other countries, facilitation requires serious attention. This chapter discusses the facilitation problems most commonly experienced in the region with regard to passenger travel (Part A), freight movement (Part B), terminal facilities (Part C) and further improvements (Part D).

2. Efficient facilitation is essential to air transport, whose speed advantage may otherwise be lost in wasteful formalities and ground handling procedures. For this reason, ICAO established a comprehensive Facilitation programme early in its history, based on the Standards and Recommended Practices in Annex 9 to the Chicago Convention, for implementation by States. Additional guidance material is contained in a series of publications such as *Aims of ICAO in the Field of Facilitation* (Doc 7891), *International Signs to provide Guidance to Persons at Airports* (Doc 9430), *Dynamic Flight-related Public Information Displays* (Doc 9249), and *A Passport with Machine Readable Capability* (Doc 9303).

3. Eighteen of the thirty Contracting States of the region have so far notified ICAO of their position with respect to the Standards and Recommended Practices of the Eighth Edition of Annex 9, and in addition, similar information has been received from States concerning five territories. This information, together with reports from missions undertaken by ICAO personnel and pertinent meetings held in the region, has been used as a basis for this chapter.

### A — FACILITATION OF INTERNATIONAL PASSENGER TRAVEL

#### *Visa requirements*

4. Requirements for entrance visas for temporary visitors and business travellers represent one of the most time-consuming preliminary formalities for international travel. The need to inspect visas and to ascertain their validity tends to increase clearance times at airports of arrival and to obstruct clearance facilities. Apart from the cost, delay and inconvenience of visas, personal visits to consulates which may not be located in the same city as the prospective traveller are often involved. Because of the remoteness of the Asia/Pacific region from some of the main sources of its passenger traffic, and the costs involved in travelling to the region, visitors frequently have extended itineraries which include stopovers in a number of countries. If each country to be visited requires a visa, several weeks of preliminary formalities may be required. This may deter potential visitors from including certain countries in their itineraries.

5. For these reasons, Annex 9 contains no less than six Standards and five Recommended Practices dealing with visas and related procedures. These provisions specify that Contracting States should abolish entrance visas for temporary visitors, bilaterally or unilaterally, and when this is not possible, provide them without charge, according to simple procedures which should not require a personal appearance, ordinarily validating them for a period of twelve months. Annex 9 also contains specifications for the contents, layout and language of visas and for liberalizing the requirements for the re-entry of nationals of the countries concerned and resident aliens.

6. Most of the States of the region, however, still require entrance visas for temporary visitors from most other countries of the world, providing exemptions in some cases, solely on a reciprocal basis. Those States that are most aware of their tourism potential have considerably relaxed their requirements for visas, notably China, Malaysia, the Philippines, Singapore, Thailand and, among the territories, Hong Kong. The informal facilitation area meetings held in the region in the past have urged States to pursue with vigor their efforts to eliminate requirements for entrance visas for temporary visitors. The Council of ICAO, when reviewing the general status of implementation of Annex 9 in March 1986, selected this problem as one which should be drawn to the attention of States and their operators for further intensive work and implementation.

#### *Embarkation and disembarkation cards*

7. A majority of the States of the region still require the completion of embarkation or disembarkation cards by passengers, in many cases with more items than are prescribed by ICAO. With the diversity of languages spoken in the region, this may present serious problems for many passengers who are unable to complete these cards without assistance. In addition, in certain countries the names of passengers shown on embarkation and disembarkation cards have to be matched with those shown on the passenger manifest, which creates additional delays.

8. One of the most promising developments in the facilitation of passenger travel is the machine-readable passport (MRP) for which ICAO developed specifications in 1980, recently confirmed by the International Organization for Standardization in its Standard 7501. The MRP, so far adopted by Australia, the United States and Canada, greatly simplifies and speeds up passenger clearance, while providing security features that cannot be matched by traditional methods. Use of the MRP would be of great advantage in reducing passenger clearance delays in the region and should obviate the need for embarkation or disembarkation cards where these are still required. It is also considered to have significant potential in the fights against terrorism and narcotics trafficking.

9. In view of these advantages, ICAO has obtained funds from the United Nations Development Programme for a pilot study aiming at introducing the MRP in selected countries of South East Asia. Heads of Civil Aviation Departments of these countries are being approached with a view to ascertaining their Governments' interest in this programme.

#### *Examination of passenger baggage*

10. Many countries of the region insist on making a systematic examination of incoming passenger baggage, rather than adopting the oral declarations and sampling procedures recommended in Standards 3.16 and 3.17 of Annex 9. Only a few countries have so far adopted the dual-channel baggage clearance system recommended by ICAO in Annex 9 and by the Customs Co-operation Council. Several countries also require a fully itemized list of personal articles carried by passengers, particularly with respect to currency, jewelry and small electronic goods. With the volume of passenger traffic carried in the region and, in some cases, the inadequacy of airport terminal installations, these procedures often result in slow and ineffective clearance of arriving and departing passengers.

#### *Unaccompanied and mishandled baggage*

11. Although unaccompanied and mishandled baggage have different characteristics, they are often stored in the same ground facilities and give rise to similar facilitation problems. Their volume is such that the matter requires special attention when planning airport facilities. Current estimates are that the direct costs of baggage mishandling are several hundred million dollars each year for the world's scheduled airlines. At least nine States and territories of the region treat unaccompanied baggage as cargo rather than as baggage for the purpose of customs clearance, which results in requirements for complex clearance documentation, passenger inconvenience and frequent delays, and does not allow the duty concessions provided for accompanied baggage, contrary to Standard 4.46 of Annex 9.

12. Efficient facilitation suggests the need to provide adequate storage space for unaccompanied and mishandled baggage, with easy access by passengers or their airline representatives during extended hours. In certain parts of the region the space and facilities provided are inadequate, resulting in serious inconvenience to passengers and congested airport premises. Facilities at certain airports in one country are crowded with unaccompanied and mishandled baggage because there is no provision for forwarding the baggage in bond to ultimate destinations within the country concerned. Passengers are therefore required to return to the gateway airports to collect their baggage, sometimes at considerable cost and inconvenience.

#### *Disinsecting of aircraft*

13. Several countries and territories of the South-Eastern sub-region, notably Australia, Fiji, Kiribati, New Zealand, Papua New Guinea and the Cook Islands, often require disinsecting of aircraft on arrival while passengers are still seated in the aircraft, contrary to the requirements of Standard 2.23 of Annex 9. This practice entails costs and delays to the airlines, creating inconvenience and potential health hazards. In some cases, allergic reactions have been reported, requiring the administration of oxygen or other medical treatment. Some States do not support the use of insecticides in aircraft with passengers present and have indicated that the pesticides registered for this use should not be inhaled.

14. The requirement for disinsecting aircraft on arrival in the Southern and Western parts of the Pacific is motivated by concern over the potential introduction and subsequent establishment of anopheles vectors in malaria-free zones, and the potential introduction of arboviral vectors into areas where they are not now found. Except for Guam, there is a large area of the Pacific where anopheline mosquitos are not present. However, a number of vector diseases have reportedly been introduced in this area to countries that were previously free from them, coincidental with the considerable increase in passenger travel of the past decade. For these reasons, and because they have no control over spraying procedures carried out at aircraft departure from other countries, destination countries seek to protect their territories by requiring disinsecting of aircraft on arrival.

15. A recent development in disinsecting techniques, sponsored by the Government of New Zealand, may offer a practical solution. This method involves the spraying of aircraft with a solution of permethrin, leaving a residual coating reportedly effective for at least one month. The World Health Organization has recommended a procedure for this purpose which should obviate the need for frequent spraying of aircraft, on arrival or departure, when passengers and crews are present. The effectiveness of this method depends on the co-operation of all airlines operating into the vulnerable area.

## **B — FACILITATION OF INTERNATIONAL AIR FREIGHT**

#### *Simplification of documentary and inspection requirements*

16. The development of international air freight in the Asia/Pacific region in recent years has been spectacular and at growth rates that have greatly exceeded those of any other region. The provision of adequate and efficient airport cargo facilities, simplification of import and export formalities and systematic elimination of all unnecessary and wasteful paperwork, will help continue this growth. Some of the most successful trading States and territories of the region (for instance, Singapore and Hong Kong) are also among those with the most advanced and efficient cargo clearing procedures. There are, however, a number of States in the region, some with an impressive record of trade development, where import and export formalities are still restrictive, documentation requirements excessive and clearance procedures a hindrance to the efficient flow of air cargo traffic.

17. One of the difficulties often encountered in the region is the requirement for a multiplicity of documents for the clearance of air cargo where a single document, as provided in paragraphs 4.8, 4.9, 4.17 and 4.18 of Annex 9, would suffice. To a large extent the same information is repeated in several of these documents, which may be required in a large number of copies, in some instances up to 16, several copies being required by the same clearance authorities. The problem of excessive documentation is compounded when States insist on systematic inspection of all shipments instead of using the sampling methods recommended in paragraphs 4.12, 4.13 and 4.28 of Annex 9.

#### *Availability of customs staff*

18. Air transport is an activity that takes place around the clock, but there is often considerable reluctance to provide for customs clearance at other than daytime business hours. In cases where airport storage facilities are inadequate or do not provide for bonded premises, shipments may be left on the ground, exposed to the weather until customs staff are available, which may lead to substantial losses in certain tropical countries of the region. This problem is intensified on some of the more heavily travelled intercontinental routes, where flights normally arrive in the early morning hours or late at night. Rather than providing for shift work, customs authorities often require overtime payments from the airlines, the cost of which may be prohibitive.

### **C — TERMINAL FACILITIES**

19. The extensive construction and improvement of airport terminals in the region over the past decade (see Chapter 2) has had a beneficial effect on the facilitation of both passenger and cargo traffic in those States where these improvements were made. There are, however, a number of countries in the region, notably Pakistan and Thailand, where international airport terminals are inadequate for the volume of traffic handled. In some cases, the lack of adequate space has led to mingling of arriving and departing passengers, thus creating conflicting passenger flows and considerable over-crowding of facilities. In other cases, international and domestic passengers are not segregated, thus hindering effective immigration and customs control. In its 1986 Review of the Status of Implementation of Annex 9, the Council urged Contracting States to arrange for adequate consultations with the various categories of airport users early in the planning stage of new or substantially modified terminals, in order to ensure that their needs are met and that substantial and costly modifications will not be required soon after the new facilities are in operation.

### **D — FURTHER IMPROVEMENTS**

20. The region has enjoyed substantial growth in passenger and freight traffic during the past decade, exceeding growth rates achieved in other regions of the world. If these growth rates are to be sustained, passenger and cargo facilitation will need increased attention.

21. The most effective instrument for improving facilitation in Contracting States is the establishment and operation of airport facilitation committees to discuss and resolve problems at the local level, reporting to a national facilitation committee. Experience has shown that the national committees are most effective when they are responsible for establishing national facilitation objectives and for ensuring their implementation; it is also important that they be composed of representatives of the main government departments concerned, at a sufficiently senior level to be able to initiate changes in legislation where required. A majority of the States of the region have established national facilitation committees but, in many cases, they have not been sufficiently active.

22. A useful means of improving regional facilitation has been the convening of informal facilitation area meetings, where common problems are discussed and solutions are found or recommended. Two informal FAL area meetings have been held in the Asia/Pacific region, the first in Bangkok in 1974 and the second in Wellington in 1978. A further meeting will be held in the region in the last quarter of 1986. Its success will depend in large part on efforts made by States to attend. A Facilitation Divisional meeting, open to all Contracting States of ICAO, will also be held in Montreal in 1987.

# Chapter 11

## The Outlook for Passenger and Freight Traffic

1. International scheduled passenger traffic of the airlines of the Asia/Pacific region is forecast to grow at an average rate of 11 per cent per annum during the period 1984-1994. During the period 1974-1984 the international scheduled revenue passenger kilometres (RPKs) of the airlines of the Asia/Pacific region increased at an average growth rate of 12.6 per cent per annum and their share of the world's passenger traffic (RPKs) increased from 17.1 per cent to 25.4 per cent. International freight of the airlines of the region is forecast to grow at an average annual rate of 13.0 per cent for 1984-1994. During the period 1974-1984, the Asia/Pacific airlines' scheduled international freight tonne-kilometres (FTKs) increased at an average annual growth rate of 17.2 per cent, and their share of the world's air freight traffic (FTKs) increased from 14.9 per cent to 28.3 per cent. This chapter describes the external and internal factors which affect the demand for air transport in the region (Part A) and presents forecasts for the region's air transport demand (Part B).

### A — FACTORS AFFECTING AIR TRANSPORT DEMAND

2. Many factors influence the level and structure of demand for air transport in the region. Some of these are external to air transport, such as general economic activity, demographics, international trade, tourism and exchange rates. Others are internal or industry factors which include aircraft productivity, airline efficiency, marketing policies, regulatory aspects and fares and rates (average yields), some of which are discussed below.

#### External Factors

##### *Economic development and trade*

3. The external factors which affect air traffic growth relate primarily to general economic trends in the region and also in those countries with close links to the region. The Asia/Pacific region is considered to be the most dynamically growing world area in the near future, thus continuing a long-term trend, especially in merchandise exports. At the same time, the region's international tourism and trade are directly influenced by economic trends in North America, Europe, and the Middle East which, therefore, also have an impact on the volume and growth of air traffic in the region.

4. Growth in real Gross Domestic Product (GDP) for the region has averaged 4.9 per cent per annum over the 1974-1984 period against a world average of approximately 2.6 per cent per annum for that period. This high rate of growth has been responsible for a significant part of the rapid growth in the region's air traffic demand. The relationship between yearly developments in GDP and traffic is illustrated in Figure 11.1.

5. In spite of its sustained high rate of economic growth, the region accounted for only 22 per cent of world GDP in 1983 although it had 55.5 per cent of the world population. (See Figure 11.2.) This large population base provides a potential for continued rapid economic growth in the forecast period.



Figure 11.1

Annual growth in GDP in real terms  
and international scheduled air traffic  
(Asia/Pacific Region)

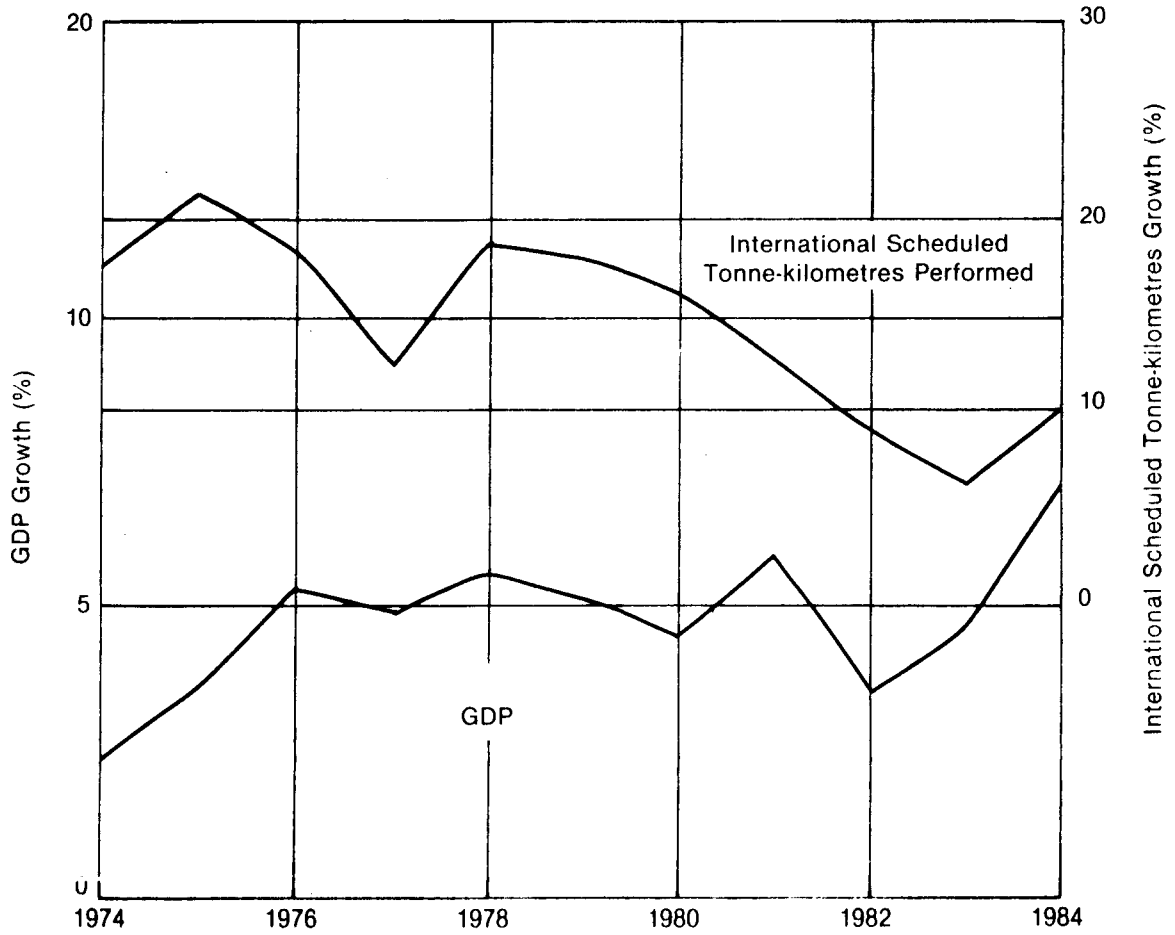
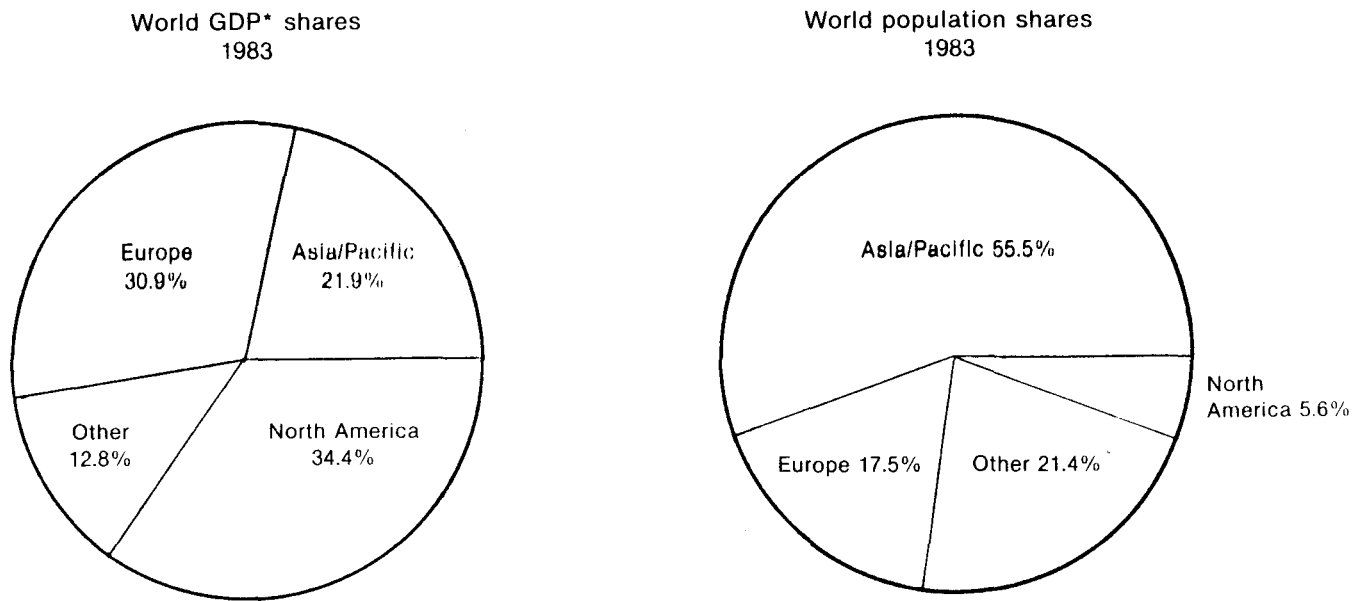


Figure 11.2



\*GDP in 1983 U.S. dollars.  
Source: World Bank Atlas, 1985.

6. The World Bank has outlined several scenarios for the growth prospects of various world-wide State groupings as listed in Table 11.1. Two simulations were performed by the World Bank. In both simulations it was assumed that developing States will continue to implement policies required for structural adjustment in the areas of key economic indicators, exchange rates and trade policies. Under both high and low simulations, Asian economies were shown to outperform the rest of the developing States.

7. Based on these World Bank scenarios, Table 11.2 was developed to reflect GDP growth rates for the Asia/Pacific region as a whole and for the four sub-regions respectively, indicating low, high and most likely growth possibilities. Although high compared with those for other major regions of the world, these prospective growth rates are moderate compared to the growth achieved in this region during the historical period.

8. The growth rate in international trade is a major factor influencing the development of international air transport. The export growth of the region has outperformed the GDP growth by approximately three percentage points from 1974-1984. During 1984, the volume of exports increased by approximately 18 per cent over 1983, a rate significantly higher than the regional average annual rate for the 1975-1983 period. Conversely, imports have been growing slightly faster in recent years than the historical rate.

9. Trade volumes are very sensitive to development strategies and other policies pursued by the States in the region and by their major trading partners. The World Bank scenarios assume continuation of strong growth in international trade, but at a lower rate than the last decade. However, there have been increased protective barriers by industrial nations in other regions to certain competition from Asia/Pacific nations. At the same time, some States are seeking new trading partners both within and outside the region. Increasing participation of China in the international economy provides an additional stimulus to the region's international trade flow.

#### *Other external factors*

10. Travel decisions are affected by currency exchange rates and price comparisons at home and abroad. Differences in inflation rates and changes in exchange rates have, at various times, encouraged traffic in some markets and discouraged traffic in others. Monetary factors are likely to continue to have an effect on the geography of traffic flows, although their impact on total traffic to, from and within the region may not be very great, except insofar as they have an impact on real economic growth.

11. Governments have an effect on air transport demand through their power to regulate the availability of air services and because of their authority to approve fares and rates (see Chapter 8). Government goals and regulations can stimulate or constrain travel to some degree, depending on their objectives. The governments of the region appear to closely monitor capacity and frequency offered under their bilateral agreements, but in the field of fares and rates many States in the region seem to be moving towards a relaxation of rigid controls.

### **Internal (Industry) Factors**

#### *Fares and rates*

12. The demand for travel is affected in part by the level and structure of passenger fares and freight rates. Over the last decade, fare structures have become increasingly complex, with a variety of promotional fares offered in many markets in addition to first class and normal economy fares.

13. For the purpose of assessing its impact on traffic development, the level of airline fares and rates is represented by the average yields (revenue earned per passenger-kilometre or per freight tonne-kilometre) of the airlines of the region. During the last decade the weighted average passenger and freight yields of the airlines of the region declined in real terms at an average annual rate of 2.3 per cent and 4.3 per cent respectively.

**Table 11.1**  
**Growth of real GDP, 1973-1995**  
**(average annual growth, per cent per annum)**

	Actual 1973-1980	Actual 1980-1985	Forecast 1985-1995	
			High	Low
Low Income Asian Countries	5.2	6.4	5.3	4.6
Developing Countries	5.5	3.0	5.5	4.7
Industrialized Countries	2.8	2.3	4.3	2.5
Middle Income Oil Importers	5.9	2.1	6.3	5.2
Middle Income Oil Exporters	5.8	1.8	5.4	4.7

Source.— The World Bank, *World Development Report, 1985*.

**Table 11.2**  
**Projected real GDP growth rates, 1985-1995**  
**(average annual growth, per cent per annum)**

Sub-region	Low	Base	High
Western	4.6	5.0	5.3
Central	4.1	4.5	4.8
North-Eastern	3.5	4.2	4.8
South-Eastern	2.5	3.4	4.3
Region total	3.7	4.3	4.9

Source.— ICAO estimates based on World Bank data.

### *Airline costs*

14. A sustained decline in real fares and rates is conditional upon a corresponding decline in unit operating costs. During the 1974-1984 period, expenses per available tonne-kilometre declined by approximately 3 per cent per annum in real terms. Cost efficiency to some degree improved with the progressive replacement of older aircraft with new, more fuel efficient aircraft. Fuel prices rose sharply in 1974/1975 and again in 1979/1980, which increased total costs in real terms in those years.

15. As regards future developments affecting costs, productivity improvements from fleet modernization is likely to continue but the high capital costs of acquisition will partly offset the benefits of improved operating efficiency. In real terms, fuel prices have been falling since the beginning of the 1980s. Although the long-term outlook for fuel prices is not clear, prevailing industry expectations are for moderate increases in real terms during the late 1980s and the 1990s.

### *Availability of airline services*

16. The region's carriers have expanded their international scheduled services by adding new routes and increasing frequencies on existing routes. The total number of scheduled aircraft departures by airlines of the region has increased by approximately 54 per cent over the last 10 years. The increase in aircraft departures ranged from approximately 79 per cent in the North-Eastern sub-region to 21 per cent in the South-Eastern sub-region. While these service improvements were largely in response to increased demand for air transport, they also have helped stimulate demand to a certain degree.

## **B — FORECASTS OF TRAFFIC GROWTH FOR THE REGION'S AIRLINES**

### *Forecasts by other organizations*

17. Forecasts of aggregate traffic of airlines of the Asia/Pacific region have been published by several airframe and engine manufacturers. Table 11.3 shows forecasts of scheduled passenger traffic (international and domestic) for various forecast horizons. These forecasts range from 5.0 to 9.0 per cent per annum. Table 11.4 and Table 11.5 depict forecasts for route groups in the Asia/Pacific region prepared by McDonnell Douglas and Boeing respectively. Forecasts of international scheduled passengers and international freight tonnes prepared by the International Air Transport Association (IATA) for the period 1984-1989, are presented in Table 11.6.

### *Forecasting methodology for this study*

18. As a basis for the preparation of the traffic forecasts for this study, econometric analyses were performed to determine the impact of economic variables on the demand for scheduled passenger and freight transport. Several models were developed at the regional level and at sub-regional levels for both passenger and freight traffic demand. These models were used in conjunction with scenarios of future economic growth (GDP) and air transport prices to estimate passenger and freight growth potential. The estimated traffic growth rates were then reviewed in the light of prospective changes of other factors which could not be quantified in the economic analysis.

19. Several econometric analyses were initially performed for traffic of airlines registered in each of the four sub-regions. These analyses were verified by separate market share analyses of traffic for each sub-region, using the forecasts of total traffic, historical traffic and trends in shares for each region, local economic development and any other factors that may have an impact in each of the sub-regions.

**Table 11.3**  
**Forecasts of scheduled passenger traffic for**  
**airlines of Asia/Pacific region**

Source of forecast	Average annual growth in passenger-kilometres (%)	Forecast period
Airbus Industrie (June 1985)	6.1	1985-1995
General Electric (March 1984)	5.0	1985-1993
McDonnell Douglas (August 1985)	8.9	1985-1995
Pratt and Whitney (January 1986)	7.8 7.1	1984-1994 1984-2000

**Table 11.4**  
**Forecasts for route groups in the Asia/Pacific region**  
**(average annual growth rates, per cent per annum)**

	Passenger-kilometres		Freight tonne-kilometres
	1985-1986	1987-1995	1985-1995
Europe-Far East	10.1	8.5	7.7
North and Mid-Pacific	11.6	8.4	-
South Pacific	9.1	7.4	-
Intra-Far East and Pacific	12.5	11.0	-
Intra-Far East	-	-	10.7

Source.— *World Economic and Traffic Outlook, 1985-1995*, McDonnell Douglas, August 1985.

Table 11.5

**Forecasts for route groups in the Asia/Pacific region  
(average annual growth rates, per cent per annum)**

	Passengers 1984-1990	
	Low	High
Transpacific	6.6	9.6
Europe-Orient	7.6	9.4
Intra-Orient	7.2	9.2

Source.— *World Air Travel Market Perspective*, Boeing, February 1984.

Table 11.6

**IATA route group forecasts for the Asia/Pacific region  
(average annual growth, per cent per annum)**

Region pairs	International scheduled passengers 1984-1989	International (scheduled and non-scheduled) freight tonnes 1984-1989		
		Inbound	Outbound	Total
Europe-Indian sub-continent	4.5	6.1	7.4	6.7
Europe-South East Asia	7.9	6.9	7.7	7.3
Europe-North East Asia	6.9	6.6	8.6	7.5
Middle East-Far East	3.1	8.0	8.8	8.4
Africa-Far East	4.2	12.0	7.9	9.5
Europe-South West Pacific	5.9	7.0	4.4	6.5
North America-Far East	8.5	5.9	3.6	4.4
North America-South West Pacific	8.0	5.5	15.2	8.6
Intra-Far East	7.5	10.1	7.1	8.6

Source.— IATA, *Total Market Passenger and Freight Forecasts, 1985-1989*, September 1985.

**Major assumptions established for the forecast**

20. The following assumptions concerning the forecast period, relative to economic and air transport prices and the airline operating environment, were used in the study:

- a) a “most likely” over-all economic growth rate in real terms of 4.3 per cent per annum for the total region based on World Bank estimates (Table 11.1) with the rates for sub-regional groupings of countries varying between 3.4 and 5 per cent per annum as shown in Table 11.2;
- b) average passenger and freight yields to decline at 1 per cent per annum in real terms over the forecast period for the airlines of the region;
- c) continued development of tourist infrastructure and airline fleets and services but at a slower rate than the last decade;
- d) continued growth in international trade at a marginally higher rate than for Gross Domestic Product.

**Forecasts of international scheduled passenger traffic: total region**

21. The econometric model developed for the international scheduled passenger traffic of the Asia/Pacific airlines is given in Appendix 14. Based on economic and air transport price assumptions, it is estimated that the international scheduled passenger traffic for the region will increase at an average growth rate of 11 per cent per annum, over the forecast horizon 1984-1994. The model indicates a GDP elasticity of 1.77 and price elasticity of 1.71. This implies that for every 1 per cent increase in GDP (real terms), passenger traffic will increase by 1.77 per cent; likewise, for every 1 per cent decline in the fare level (average yield) passenger traffic will increase by 1.71 per cent. The most likely rates of traffic growth for the sub-regions are 8 per cent per annum for the South-Eastern sub-region, 10 per cent per annum for the Western region, 11 per cent per annum for the Central sub-region and 12.5 per cent per annum for the North-Eastern sub-region.

22. The “most likely” traffic forecast for the region of 11 per cent per annum during the 1984 to 1994 period is below the 12.6 per cent per annum experienced in the previous decade and two percentage points below the ICAO forecasts published in 1980 for the period 1978-1988. This slowdown can be attributed mainly to somewhat slower economic growth expectations and a more moderate international trade growth than during the previous period.

23. The econometric model for the total market was used to test the sensitivity of traffic to alternative scenarios of economic activities and air transport price. A “high” forecast of 14 per cent was established using the scenario of a high GDP growth rate of 4.9 per cent in real terms and a decline in average air transport prices of 2.0 per cent per annum (real terms) during the forecast period. The low-growth scenario included a 3.7 per cent growth in GDP in real terms and no change in average air transport prices (yield) in real terms during the forecast horizon. This resulted in “low” growth of approximately 8 per cent per annum for the forecast period.

24. The “most likely” forecasts of international scheduled passenger traffic for the region and for the four sub-regions are depicted in Table 11.7, together with average annual growth rates and the distribution of shares for each of the sub-regions. Graphical presentations of historical and forecast traffic trends for the airlines of the region and the respective sub-regions are presented in Figure 11.3.

**Forecasts of international scheduled passenger traffic by sub-region**

25. The forecast growth rates for the passenger traffic in the four sub-regions range from a high of 12.5 per cent for the North-Eastern sub-region to a low of 8 per cent for the South-Eastern sub-region. In the past decade, traffic growth has been greatest in the Central and Western sub-regions, followed closely by the North-Eastern sub-region.



Table 11.7

**Forecasts of the scheduled international passenger traffic for Asia/Pacific airlines to 1994**

Region of airline registration	Passenger-kilometres (millions)			Average annual growth (per cent)		Distribution of traffic (per cent)		
	Actual		Forecast	Actual	Forecast <sup>1</sup>	Distribution of traffic		
	1974	1984	1994	1974-1984	1984-1994	1974	1984	1994
Western	4 755	18 189	47 000	14.4	10.0	11	13	12
Central	10 069	45 675	130 000	16.3	11.0	23	32	32
North-Eastern	15 657	53 333	173 000	13.0	12.5	37	38	43
South-Eastern	12 387	23 184	50 000	6.5	8.0	29	17	13
Region total	42 868	140 381	400 000	12.6	11.0	100	100	100
World	250 394	553 009	-	8.2	-	-	-	-

1. Rounded to the nearest 0.5 percentage point.

26. The North-Eastern sub-region traffic is predicted to increase at a rate that is 1.5 percentage points higher than the regional average for the forecast period. The Republic of Korea appears to show continuing strong growth and prosperity in the sub-region. China's increasing international traffic is also expected to stimulate growth for the sub-region.

27. The Central sub-region traffic is forecast to grow at the average rate for the region and the Western sub-region traffic is estimated to grow at one percentage point below the total market rate. A factor affecting the Western sub-region in particular is that the travel demand for migrant workers to and from the Middle East is expected to subside.

28. The South-Eastern sub-region is forecast to grow at a rate that is three percentage points slower than the regional average but slightly above the historical growth rate for the sub-region. During the last decade, the countries of the sub-region experienced somewhat slow economic growth and declining values of their currencies which led to a slow growth of originating traffic. The World Bank predicts a stronger economic growth for the sub-region for the next decade. Furthermore, the increased tourism infrastructure development in the north-eastern part of Australia, the opening of new international gateways and a generally more competitive environment are likely to stimulate high growth for the sub-region.

**Forecasts of international scheduled freight traffic**

29. The techniques used to determine the freight forecasts for the region and the sub-regions were similar to those used for the passenger forecasts. The econometric model developed to forecast the international scheduled freight traffic of Asia/Pacific airlines (Appendix 14) indicates a GDP elasticity of 2.48 and a yield elasticity of 1.09. This implies that for every 1 per cent increase in GDP (real terms) freight tonne-kilometres (FTKs) will increase by 2.48 per cent; likewise, for every 1 per cent decline in average freight yield, FTKs will increase by 1.09 per cent.

Figure 11.3

Forecasts of scheduled international passenger traffic for Asia/Pacific airlines to 1994

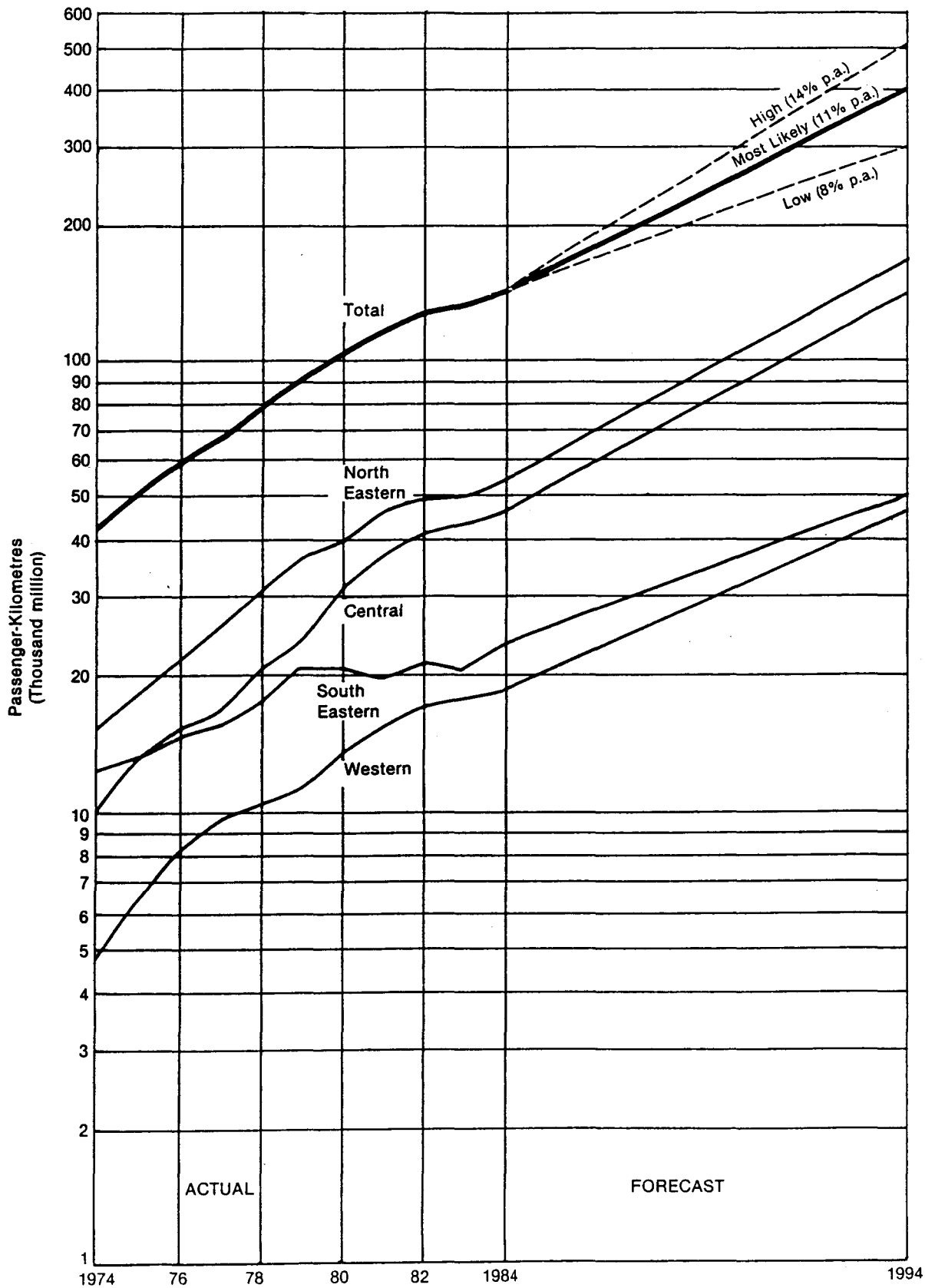


Table 11.8

**Forecasts of the scheduled international freight traffic for Asia/Pacific airlines to 1994**

Region of airline registration	Freight tonne-kilometres (millions)			Average annual growth (per cent)		Distribution of traffic (per cent)		
	Actual		Forecast	Actual	Forecast <sup>1</sup>	Distribution of traffic (per cent)		
	1974	1984	1994	1974-1984	1984-1994	1974	1984	1994
Western	229	807	1 900	13.4	9.0	13	10	7
Central	261	1 881	7 600	21.8	15.0	16	23	27
North-Eastern	882	4 553	16 200	17.8	13.5	53	56	58
South-Eastern	295	876	2 300	11.5	10.0	18	11	8
Region total	1 667	8 117	28 000	17.2	13.0	100	100	100
World	11 168	28 706	-	9.9	-	-	-	-

1. Rounded to the nearest 0.5 percentage point.

30. The "most likely" future freight growth for the region as a whole as indicated by the econometric analysis is 13.0 per cent which is approximately four percentage points lower than the growth experienced during the 1974-1984 period. High and low growth rates of 16 per cent per annum and 10 per cent per annum respectively, were established for the forecast horizon. The expected slowdown in the growth of air freight can be attributed in part to the high elasticity of freight traffic with respect to economic activity combined with the expected slowdown in GDP growth. Additionally, the export markets in North America and Europe for manufactured goods from the region which developed very rapidly in the past decade are facing increased protective barriers by importing countries.

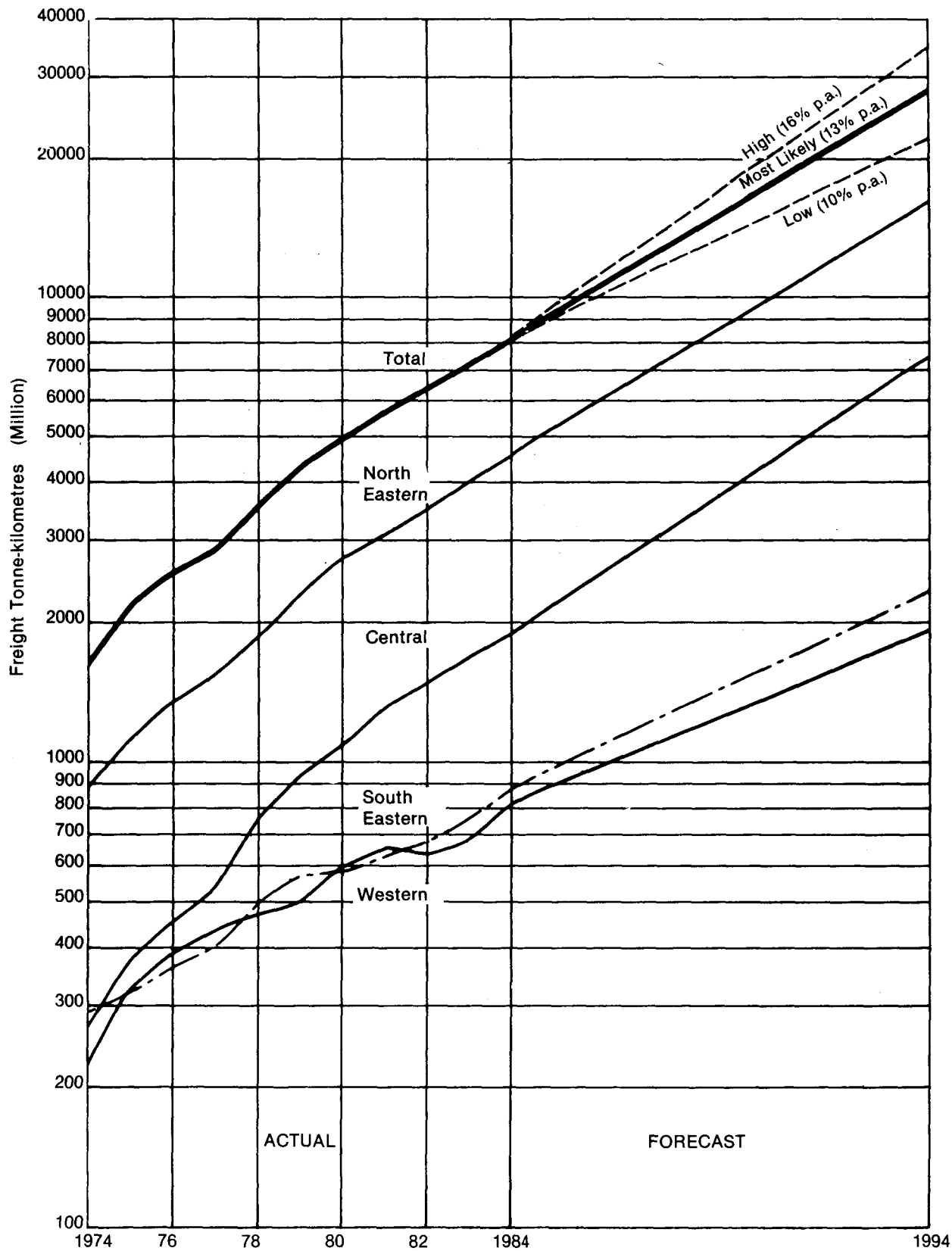
31. The forecast growth rates for the four sub-regions range from a high of 15 per cent for the Central sub-region to a low of 9 per cent for the Western sub-region. The historical trends and the forecast of international freight traffic for the region and the four sub-regions are depicted in Table 11.8 and Figure 11.4.

***The outlook for domestic scheduled traffic: passenger and freight***

32. Domestic scheduled passenger-kilometres in the Asia/Pacific region grew at an average annual rate of 7.3 per cent during the last decade. Domestic scheduled freight traffic during the same period grew at an average annual growth rate of 10.3 per cent. Japan's domestic traffic accounts for well over 50 per cent of the total domestic scheduled traffic of the region. The over-all rate of growth for domestic traffic during the forecast period will not likely exceed the historical growth rate; however, there appears to be considerable potential for increased growth of domestic air transport in some countries of the region, especially China.

Figure 11.4

Forecasts of scheduled international freight traffic for Asia/Pacific airlines to 1994



***The outlook for international non-scheduled traffic***

33. The international traffic on non-scheduled services of carriers registered in the Asia/Pacific region is very small. During the last decade, this traffic declined at an average annual rate of about 2 per cent and its share of the total traffic has decreased from approximately 4 per cent in 1974 to about 1 per cent in 1984. The outlook for non-scheduled traffic is extremely uncertain and to a large degree depends upon national policies, special events and other related factors. The dominance of the scheduled services is likely to continue during the forecast period.

***Commentary on the present forecasts***

34. The ICAO passenger traffic forecast for the Asia/Pacific region published in 1980<sup>1</sup> for the period 1978-1988, indicated an average rate of growth of 13 per cent per annum. That forecast performed reasonably well for the period 1978-1984. In fact, the actual traffic in 1984 was a mere 2.4 per cent below the predicted level for that year due to the severity of the world recession in the 1981-1983 period. The present forecast for the 1984-1994 period is for a slower average growth rate, reflecting the greater economic maturity of major markets in the region and the perceived changes in the operational environment.

35. The ICAO forecast growth rates presented tend to be somewhat higher than those published by other organizations, although the various forecasts are not strictly comparable since the forecast periods differ and the traffic and traffic variables being forecast are not identical. The forecasts in Tables 11.3 through 11.6 include in some cases domestic traffic and in some cases non-scheduled traffic. Some of these forecasts include traffic of airlines registered outside the region. Furthermore, some of these forecasts are expressed in terms of passengers carried and freight tonnes carried, whereas the ICAO forecasts are in terms of passenger-kilometres and tonne-kilometres. Historically, traffic growth rates in respect of passenger-kilometres or tonne-kilometres have tended to exceed growth rates in respect of passengers or tonnes due to increasing average transport distances.

1. *International Air Passenger and Freight Transport, Asia and the Pacific* (Circ. 160).

## APPENDIX 1

### STATES AND TERRITORIES OF THE ASIA AND PACIFIC REGION

#### Western Sub-region

##### *States*

Afghanistan  
Bangladesh  
Bhutan\*  
Burma  
India  
Maldives  
Nepal  
Pakistan  
Sri Lanka

#### Central Sub-region

##### *States*

Brunei Darussalam  
Democratic Kampuchea  
Indonesia  
Lao People's Democratic Republic  
Malaysia  
Philippines  
Singapore  
Thailand  
Viet Nam

#### North-Eastern Sub-region

##### *States*

China  
Democratic People's Republic of Korea  
Japan

Mongolia\*  
Republic of Korea

##### *Territories*

Hong Kong  
Macao

#### South-Eastern Sub-region

##### *States*

Australia  
Fiji  
Kiribati  
Nauru  
New Zealand  
Papua New Guinea  
Samoa\*  
Solomon Islands  
Tonga  
Tuvalu\*  
Vanuatu

##### *Territories*

American Samoa  
Cook Islands  
French Polynesia  
Guam  
New Caledonia  
Niue  
Norfolk Island  
Trust Territory of the Pacific Islands  
Wallis and Futuna Islands

\* Non-Contracting State of ICAO.

## APPENDIX 2

STATES AND TERRITORIES OF THE ASIA AND PACIFIC REGION  
SELECTED ECONOMIC INDICATORS

(Data for 1983 unless otherwise indicated)

SUB-REGION	States/Territories	Population Mid-Year 1983	Area	Population Density	Gross National Product			Industrial Output as % of GDP	Average Annual Rate of Inflation 1973-83	External Trade			
					Total	Per Capita	Growth Rate (Per Capita) 1973-82			Volume		Growth	
										mill. US\$	US\$	%	Exports 1975-83
		mill.	000 Km <sup>2</sup>	Per Km <sup>2</sup>				%	mill. US\$	mill. US\$	%	%	
<b>WESTERN SUB-REGION</b>													
	Afghanistan	17.2	647	27	...	...	...	14	...	680	700	17.0	9.3
	Bangladesh	95.1	144	660	12 530	130	3.2	7	9.6	690	1 716	9.9	11.1
	Bhutan	1.2	47	26	...	...	...	3	...	...	...	...	...
	Burma	35.7	677	53	6 500	180	3.6	11	6.5	378	268	13.3	5.1
	India	733.2	3 288	223	190 710	260	1.8	18	7.7	8 713	13 434	8.6	14.4
	Maldives	0.2	298 2/	1	...	...	...	...	...	10	35	14.8	44.7
	Nepal	15.8	141	112	2 660	170	0.3	...	8.1	94	464	0.4	12.6
	Pakistan	89.8	804	112	35 000	390	2.9	20	11.1	3 149	5 341	16.1	15.2
	Sri Lanka	15.4	66	233	5 140	330	3.2	16	14.5	1 123	1 787	9.4	17.5
	Sub-Total	1 003.6	5 814	173	252 540	256 3/	...	...	...	14 837	23 745	...	...
<b>CENTRAL SUB-REGION</b>													
	Brunei Darussalam	0.2	6	33	4 420	21 140	1.1	74	...	3 386	728	19.6	17.0
	Democratic Kampuchea	6.9	181	39	...	...	...	...	...	10	12	-1.5	-14.3
	Indonesia	155.8	2 027	77	87 120	560	4.6	33	18.0	21 146	16 352	17.4	18.5
	Laos People's Democratic Republic	3.7	237	16	...	...	...	...	...	40	140	22.4	18.4
	Malaysia	14.9	330	45	27 760	1 870	4.9	30	6.5	14 129	13 230	17.3	20.6
	Philippines	52.0	300	173	39 420	760	2.9	28	11.7	5 005	7 980	12.1	12.2
	Singapore	2.5	1	2 500	16 560	6 620	6.5	26	5.4	21 833	28 158	21.3	19.9
	Thailand	49.6	514	96	40 380	810	4.0	22	8.7	6 368	9 159	14.9	15.8
	Viet Nam	58.5	330	177	...	...	...	...	...	188 6/	637 6/	...	...
	Sub-Total	344.1	3 926	88	215 660	784 4/	...	...	...	72 105	76 396	...	...
<b>NORTH-EASTERN SUB-REGION</b>													
	China	1 021.6	9 597	106	301 840	290	4.5	40	1.7	22 151	21 324	19.0	17.9
	Democratic People's Rep. of Korea	19.2	121	159	...	...	...	...	...	843 6/	899 6/	...	...
	Japan	119.3	372	321	1 204 270	10 100	3.3	42 6/	4.7	146 668	126 397	13.5	12.8
	Mongolia	1.8	1 565	1	...	...	...	...	...	37 6/	29 6/	...	...
	Republic of Korea	40.0	99	404	80 310	2 010	5.6	31	19.0	24 445	26 192	20.6	18.8
<b>Territories</b>													
	Hong Kong	5.3	1	5 300	31 900	6 000	6.8	...	9.9	21 951	24 009	18.2	18.6
	Macao	0.3	16 2/	18 188	780	2 560	9.3	...	...	740	720	25.0	25.5
	Sub-Total	1 207.5	11 755 2/	103	1 619 100	1 365 5/	...	...	...	216 835	199 570	...	...
<b>SOUTH-EASTERN SUB-REGION</b>													
	Australia	15.4	7 687	2	166 230	10 780	0.9	35 6/	10.5	20 594	19 393	9.0	11.8
	Fiji	0.7	18	39	1 190	1 790	1.2	12	...	240	484	9.7	11.0
	Kiribati	61 1/	886 2/	69	30	460	-13.1	...	...	20	14	-3.9	2.4
	Nauru	8 1/	21 2/	381	...	...	...	...	...	...	...	...	...
	New Zealand	3.2	269	12	24 000	7 410	-0.3	33 6/	14.2	5 284	5 333	12.6	9.4
	Papua New Guinea	3.2	462	7	2 510	790	-0.7	9	6.9	734	974	6.6	12.8
	Samoa	0.2	3	67	...	...	...	...	...	19	56	9.9	7.5
	Solomon Islands	0.3	28	11	160	640	2.0	...	...	61	61	18.2	14.5
	Tonga	0.1	699 2/	143	80	780	3.9	4	...	6	38	0.5	14.6
	Tuvalu	7 1/	26 2/	269	...	...	...	...	...	...	3	...	...
	Vanuatu	0.1	15	7	...	...	...	13	...	29	64	8.9	8.5
<b>Territories</b>													
	Melanesia:												
	New Caledonia	0.1	19	5	1 140	7 790	-0.9	19	...	154	304	-4.3	2.4
	Polynesia:												
	American Samoa	35 1/	197 2/	178	140	4 130	-6.4	...	...	140	110	11.7	11.5
	Cook Islands	17 1/	236 2/	72	...	...	...	...	...	...	...	...	...
	French Polynesia	0.2	4	50	1 260	8 190	1.8	...	...	34	533	5.0	9.6
	Wallis and Futuna Islands	10 1/	200 2/	50	...	...	...	...	...	...	...	...	...
	Micronesia:												
	Canton and Enderbury Islands	...	70 2/	...	...	...	...	...	...	...	...	...	...
	Guam	0.1	549 2/	183	690	6 070	-4.0	...	...	60	320	17.0	3.5
	Johnston Island	1 1/	1 2/	100	...	...	...	...	...	...	...	...	...
	Midway Island	2 1/	5 2/	400	...	...	...	...	...	...	...	...	...
	Niue	3 1/	259 2/	12	...	...	...	...	...	...	...	...	...
	Norfolk Islands	2 1/	36 2/	56	...	...	...	...	...	...	...	...	...
	Pacific Islands (Trust Territory)	0.1	2	50	140	1 000	3.1	...	...	...	...	...	...
	Tokelau	2 1/	10 2/	200	...	...	...	...	...	...	...	...	...
	Wake Island	2 1/	8 2/	250	...	...	...	...	...	...	...	...	...
	Sub-Total	23.9	8 510	3	197 570	8 400 2/	...	...	...	27 375	27 687	...	...
	GRAND TOTAL	2 579.1	30 005	86	2 284 870	925	...	...	...	331 152	327 398	...	...

Notes - 1/ Population shown in thousands when less than 100,000.

2/ Area in square kilometres.

3/ GNP per capita excludes Afghanistan, Bhutan and Maldives.

4/ GNP per capita excludes Democratic Kampuchea, Laos People's Democratic Republic and Viet Nam.

5/ GNP per capita excludes Democratic People's Republic of Korea and Mongolia.

6/ The World Bank, "World Development Report", 1984.

7/ GNP per capita excludes Nauru, Samoa, Tuvalu, Vanuatu, Cook Islands, Wallis and Futuna Islands, Johnston Island, Midway Island, Niue Island, Norfolk Island, Tokelau and Wake Island.

Source - United Nations, Statistical Yearbook, 1982, (Column 2).

United Nations Conference on Trade and Development, Handbook of International Trade and Development Statistics, 1985, (Columns 7,9,10,11 and 12).

The World Bank, World Bank Atlas, 1985, (Columns 1,4,5 and 6).

The World Bank, World Development Report, 1985, (Column 8).

## APPENDIX 3

## ASIA/PACIFIC AIRLINE MEMBERSHIP IN AIRLINE ASSOCIATIONS

(As of mid-1985)

Sub-region/Airline	IATA <sup>1</sup>		OAA <sup>2</sup>	ASPA <sup>3</sup>
	Tariff Co-ordination	Trade Association only		
<b>Western Sub-region</b>				
Air India	X	X	-	-
Air Lanka	-	-	-	-
Bakhtar Afghan Airlines	X	X	-	-
Bangladesh Biman Airlines	-	-	-	-
Burma Airways Corporation	-	-	-	-
DRUK-AIR (Royal Bhutan Airlines)	-	-	-	-
Indian Airlines	X	X	-	-
Maldives Airways Ltd.	-	-	-	-
Pakistan International Airlines (PIA)	X	X	-	-
Royal Nepal Airlines Corporation	-	-	-	-
<b>Central Sub-region</b>				
Air Kampuchea	-	-	-	-
Bouraq Indonesia Airlines (BOURAQ)	-	-	-	-
Garuda Indonesia (GARUDA)	X	X	-	-
Hang Khong Viet Nam	-	-	-	-
Lao Aviation (Air Lao)	-	-	-	-
Malaysia Air Charter (MAC)	-	-	-	-
Malaysian Airline System BHD (MAS)	-	-	X	-
Merpati Nusantara Airlines	-	-	-	-
Philippine Airlines Inc. (PAL)	X	X	X	-
Royal Brunei Airlines (RBA)	-	-	X	-
Singapore Airlines Ltd. (SIA)	-	-	X	-
Thai Airways Co. Ltd.	-	-	-	-
Thai Airways International Ltd.	-	-	X	-
<b>North-Eastern Sub-region</b>				
Air Mongol-MIAT (Dept. of Civil Aviation of the Mongolian People's Republic)	-	-	-	-
Cathay Pacific Airways Ltd. (CPA)	-	-	X	-
Civil Aviation Administration of China (CAAC)	-	-	-	-
Civil Aviation Administration of the Democratic People's Republic of Korea Choson Minhang (CAAK)	-	-	-	-
Japan Air Lines (JAL)	X	X	X	-
Japan Asia Airways Co. Ltd.	-	-	-	-
Korean Air	-	-	X	-
Nippon Cargo Airlines Co. Ltd. (NCA)	-	-	-	-



Sub-region/Airline	IATA <sup>1</sup>		OAA <sup>2</sup>	ASPA <sup>3</sup>
	Tariff Co-ordination	Trade Association only		
<b>South-Eastern Sub-region</b>				
Air Caledonie International	-	-	-	X
Air Micronesia	-	-	-	-
Air Nauru	-	-	-	X
Air New Zealand Ltd.	X	X	-	X
Air Niugini	X	X	X	X
Air Pacific Ltd.	X	X	-	X
Air Tungaru Corp.	-	X	-	-
Air Vanuatu	-	X	-	-
Polynesian Airline Operations Ltd.	X	X	-	X
Qantas Airways Ltd. (QANTAS)	X	X	X	X
Solomon Islands Airways, Ltd. (SOLAIR)	-	X	-	X
South Pacific Island Airways, Inc. (SPIA)	-	-	-	X

Notes.— 1. International Air Transport Association

2. Orient Airlines Association

3. Association of South Pacific Airlines









## APPENDIX 8

VISITOR ARRIVALS BY ALL MODES AND BY SUB-REGION  
1979 AND 1984

State/Territory	No. of visitor arrivals by all modes		Average annual growth rate 1979-84 (%)	Proportion arriving by air in 1984 (%)
	1979 (000)	1984 (000)		
<b>Western Sub-region</b>				
Afghanistan	37	-	-	-
Bangladesh	57	103	12.6	69
Bhutan	-	2	-	33
Burma	35*	38	1.7	99
India	1 213	1 211	-0.1	69
Maldives	33	84	20.5	100
Nepal	162	177	1.8	85
Pakistan	319	407	5.0	59
Sri Lanka	250	318	4.9	96
Sub-total	2 106	2 340	2.1	74
<b>Central Sub-region</b>				
Brunei Darussalam	266	361 <sup>1</sup>	6.3	21
Democratic Kampuchea	-	-	-	-
Indonesia	501	701	6.9	100
Lao People's Democratic Republic	-	-	-	-
Malaysia	1 416	1 981	6.9	36
Philippines	967	817	-3.3	97
Singapore	2 247	2 991	5.9	87
Thailand	1 591	2 347	8.1	73
Viet Nam	-	-	-	-
Sub-total	6 988	9 198	5.6	72
<b>North-Eastern Sub-region</b>				
China	362	1 182	26.7	5
Democratic People's Rep. of Korea	-	-	-	-
Japan	1 113	2 110	13.6	100
Mongolia	-	-	-	-
Republic of Korea	1 126	1 297	2.9	95
<b>Territories</b>				
Hong Kong	2 213	3 152	7.3	87
Macao	644	752	3.1	-
Sub-total	5 458	8 493	9.2	74

State/Territory	No. of visitor arrivals by all modes		Average annual growth rate 1979-84 (%)	Proportion arriving by air in 1984 (%)
	1979 (000)	1984 (000)		
<b>South-Eastern Sub-region</b>				
Australia	793	1 016	5.1	100
Fiji	189	235	4.5	98
Kiribati	-	-	-	-
Nauru	-	-	-	-
New Zealand	414	568	6.5	99
Papua New Guinea	33	34	0.6	100
Samoa	50	40	-4.4	88
Solomon Islands	10	11	1.9	89
Tonga	13	17	5.5	80
Tuvalu	-	-	-	-
Vanuatu	31	32	0.6	96
<i>Territories</i>				
American Samoa	45	48	1.3	89
Cook Islands	20	26	5.4	100
French Polynesia	101	102	0.2	98
Guam	264	361	6.5	100
New Caledonia	55	92	10.8	100
Niue	-	-	-	-
Norfolk Island	-	-	-	-
Trust Territory of the Pacific Islands	123	132	1.4	100
Wallis and Futuna Islands	-	-	-	-
Sub-total	2 141	2 714	4.9	99
Grand Total	16 693	22 745	6.4	76

Note 1.— Data for 1983.

Symbols — \* Estimated data.

- Data not available.

Sources.— State replies to ICAO questionnaire.

World Tourism Organization, *World Tourism Statistics*, 1985.

National statistics.

APPENDIX 9

AIR VS. SURFACE DOOR-TO-DOOR COST COMPARISON — 1985

Consignment of typewriters valued at U.S. \$5 000 weighing 85 kg, and of a volume of 0.5 cu.m for shipment by air and 0.8 cu.m crated for shipment by sea. Values shown in U.S.\$.

Direct Costs	Amman to Singapore		Frankfurt to Hong Kong		Frankfurt to New Delhi		Frankfurt to Singapore		Helsinki to Hong Kong		Mauritius to Sydney	
	Air (\$)	Sea (\$)	Air (\$)	Sea (\$)	Air (\$)	Sea (\$)	Air (\$)	Sea (\$)	Air (\$)	Sea (\$)	Air (\$)	Sea (\$)
Value of goods	5 000.00	5 000.00	5 000.00	5 000.00	5 000.00	5 000.00	5 000.00	5 000.00	5 000.00	5 000.00	5 000.00	5 000.00
Packing costs	-	92.00	11.65	15.55	11.65	15.55	11.65	15.55	37.80	85.00	12.70	126.70
Pick-up/Delivery charges (at origin)	12.50	63.25	12.20	18.40	12.20	18.40	12.20	18.40	11.20	27.00	12.70	12.70
Documentation charges	12.50	37.50	11.45	19.85	11.45	19.85	11.45	19.85	21.45	35.00	19.00	75.10
Terminal charges	-	10.50	-	-	-	-	-	-	1.40	4.00	2.20	19.00
Freight transport charges	212.50	100.00	113.05	83.15	134.30	83.15	130.05	83.15	429.20	125.00	348.65	136.00
Insurance	50.00	150.00	15.00	46.25	15.15	47.30	15.05	46.55	14.00	17.00	71.30	202.75
Pick-up/Delivery charges (at destination)	2.00	15.00	32.05	21.80	64.55	129.10	27.65	54.75	72.50	60.00	12.70	69.70
Cost of capital (@ \$3.30/day) <sup>1/</sup>	11.55	92.40	16.50	85.80	26.40	128.70	16.50	102.30	13.20	151.80	29.70	468.60
Total distribution cost	301.05	560.25	211.90	290.80	275.70	442.05	224.55	340.55	600.75	504.80	508.95	1 110.55
Index: Sea cost = 100	54	100	73	100	62	100	66	100	119	100	46	100
Total cost of consignee	5 301.05	5 560.25	5 211.90	5 290.80	5 275.70	5 442.05	5 224.55	5 340.55	5 600.75	5 504.80	5 508.95	6 110.55
Index: Sea cost = 100	95	100	99	100	97	100	98	100	102	100	90	100
Time (days)	3.5	28	5	26	8	39	5	31	4	46	9	142
Time saving by air (days)	24.5	-	21	-	31	-	26	-	42	-	133	-

Direct Costs	Nairobi to Bombay		Port Vila to Nadi		Rio de Janeiro to Tokyo		Seoul to Los Angeles		Wellington to Los Angeles		Zurich to Tokyo	
	Air (\$)	Sea (\$)	Air (\$)	Sea (\$)	Air (\$)	Sea (\$)	Air (\$)	Sea (\$)	Air (\$)	Sea (\$)	Air (\$)	Sea (\$)
Value of goods	5 000.00	5 000.00	5 000.00	5 000.00	5 000.00	5 000.00	5 000.00	5 000.00	5 000.00	5 000.00	5 000.00	5 000.00
Packing costs	27.15	42.20	15.00	25.00	-	15.00	-	35.00	-	-	-	-
Pick-up/Delivery charges (at origin)	12.05	24.15	6.00	6.00	15.00	50.00	20.00	30.00	7.90	10.55	10.95	97.60
Documentation charges	21.10	30.15	20.00	20.00	50.00	50.00	7.50	7.50	13.20	12.00	15.60	-
Terminal charges	13.30	57.30	-	-	-	-	-	4.70	-	-	-	76.15
Freight transport charges	162.85	96.50	124.00	70.00	831.15	86.15	506.60	64.00	260.00	168.00	205.00	-
Insurance	241.30	217.15	50.00	15.00	20.00	83.90	-	17.00	31.65	31.25	13.30	29.30
Pick-up/Delivery charges (at destination)	24.15	24.15	10.00	10.00	94.40 <sup>2/</sup>	231.60 <sup>2/</sup>	15.00	22.00	125.00	125.00	114.80	212.40
Cost of capital (@ \$3.30/day) <sup>1/</sup>	9.90	115.50	23.10	161.70	19.80	165.00	9.90	66.00	16.50	69.30	19.80	161.70
Total distribution cost	511.80	607.10	248.10	307.70	1 030.35	681.65	559.00	246.20	454.25	416.10	379.45	577.15
Index: Sea cost = 100	84	100	81	100	151	100	227	100	109	100	66	100
Total cost to consignee	5 511.80	5 607.10	5 248.10	5 307.70	6 030.35	5 681.65	5 559.00	5 246.20	5 454.25	5 416.10	5 379.45	5 577.15
Index: Sea cost = 100	98	100	99	100	106	100	106	100	101	100	97	100
Time (days)	3	35	7	49	6	50	3	20	5	21	6	49
Time saving by air (days)	32	-	42	-	44	-	17	-	16	-	43	-

Notes - 1/ Based on a pre-tax profit margin of 30 per cent.  
 2/ Charges based on Frankfurt-Tokyo case.



## APPENDIX 10

THE ASIA/PACIFIC REGION REPORTED SCHEDULED  
INTERNATIONAL TRAFFIC BY AIRLINE

State or Territory/Airline	Year	Passengers carried Units	Freight tonnes carried Units	Passenger- kilometres performed (000)	Seat- kilometres available (000)	Passenger load factor %	Tonne-kilometres performed			Tonnes- kilometres available (000)	Over-all weight load factor (%)
							Passenger	Freight	Total		
							(000)	(000)	(000)		
<b>WESTERN SUB-REGION</b>											
<b>Afghanistan</b>											
Ariana Afghan Airlines	1974	79 900	3 774	254 400	417 830	61	22 995	13 300	36 459	63 254	58
	1979	70 000	5 995	206 027	374 624	55	18 541	19 033	37 730	65 456	58
	1984	45 000	12 165	105 615	243 703	43	9 505	19 318	28 986	47 596	61
<b>Bangladesh</b>											
Bangladesh Biman Airlines	1974	75 900	174	208 702	321 424	65	18 634	1 954	20 716	30 449	68
	1979	243 300	4 910	899 092	1 297 364	69	80 920	18 293	99 213	168 700	59
	1984	350 000	4 500	1 500 000	2 224 300	67	135 000	23 000	158 700	269 300	59
<b>Burma</b>											
Burma Airways Corp.	1974	50 500	698	50 827	151 419	34	4 210	1 131	5 415	20 082	27
	1979	60 000	600	50 000	130 000	38	4 500	550	5 200	16 500	32
	1984	70 000	900	63 000	90 000	70	5 670	800	6 720	9 800	69
<b>India</b>											
Air India	1974	499 800	22 331	2 566 395	4 577 847	56	236 106	130 113	374 761	637 035	59
	1979	1 147 700	43 823	5 612 802	8 931 731	63	519 137	253 470	789 624	1 309 808	60
	1984	1 655 300	71 008	8 184 791	11 592 066	71	766 873	442 221	1 225 675	1 812 251	68
Indian Airlines	1974	79 900	435	26 882	66 489	40	2 297	124	2 499	5 208	48
	1979	311 300	1 819	177 768	333 434	53	14 464	1 278	15 983	26 616	60
	1984	395 000	6 887	256 670	481 921	53	21 306	7 023	28 572	49 016	58
<b>Maldives</b>											
Maldives Airways	1979	25 000	400	17 500	34 000	51	1 575	300	1 890	4 000	47
	1984	40 000	550	31 500	50 000	63	2 835	440	3 295	5 340	62
<b>Nepal</b>											
Royal Nepal Airlines Corporation	1974	58 000	650	32 000	62 000	52	2 880	460	3 300	6 300	52
	1979	174 700	1 052	196 680	287 746	69	16 857	1 604	18 561	30 747	66
	1984	162 900	2 160	256 900	410 900	63	21 530	4 220	25 750	46 790	55
<b>Pakistan</b>											
Pakistan International Airlines (PIA)	1974	370 400	14 226	1 363 196	2 729 271	50	120 865	79 547	204 379	445 830	46
	1979	1 285 700	37 619	3 858 897	6 596 953	58	356 461	199 737	560 145	1 106 495	51
	1984	1 674 800	55 796	5 308 914	8 432 335	63	487 187	250 211	742 739	1 286 384	58
<b>Sri Lanka</b>											
Air Ceylon	1974	90 000	790	252 741	459 694	55	22 642	7 597	25 661	47 348	54
	1979	19 600	20	15 500	22 000	70	1 306	15	1 320	2 000	66
Air Lanka	1979	40 700	558	114 742	268 146	43	10 124	1 759	12 011	31 731	38
	1984	681 300	13 281	2 481 525	3 732 536	66	223 419	59 562	286 011	477 259	60
<b>CENTRAL SUB-REGION</b>											
<b>Democratic Kampuchea</b>											
Air Kampuchea	1974	14 000	350	15 000	28 000	54	1 350	450	1 820	2 700	67
<b>Indonesia</b>											
Garuda Indonesia (GARUDA)	1974	318 200	6 839	770 314	1 694 317	45	68 812	26 546	97 009	224 476	43
	1979	729 200	9 903	2 089 891	4 400 962	47	188 461	48 540	238 947	644 980	37
	1984	1 043 500	31 179	4 845 434	8 917 392	54	443 966	124 129	570 990	1 296 260	44
Merpati Nusantara Airlines (MERPATI)	1974	27 200	21	10 199	16 436	62	803	6	810	1 293	63
	1979	18 400	29	9 860	26 774	37	784	8	792	2 364	34
	1984	2 100	0	443	964	46	35	0	35	88	40
<b>Lao People's Democratic Republic</b>											
Air Lao	1974	15 000	450	12 000	28 000	43	1 050	380	1 440	3 000	48
Lao Aviation (Air Lao)	1979	13 000	250	6 500	10 000	65	585	125	720	1 100	65
	1984	15 000	300	8 000	11 000	73	720	155	885	1 200	74
<b>Malaysia</b>											
Malaysian Airline System BHD (MAS)	1974	789 200	9 220	735 239	1 220 360	60	66 754	13 577	81 438	146 726	56
	1979	1 396 100	28 438	1 754 531	2 662 875	66	167 147	57 839	226 518	347 513	65
	1984	2 273 500	85 448	4 601 834	6 376 812	72	438 740	177 314	620 699	861 317	72
<b>Philippines</b>											
Philippine Airlines Inc. (PAL)	1974	323 200	7 895	1 577 082	2 833 657	56	147 120	49 261	200 062	380 019	53
	1979	731 500	14 200	3 381 977	5 223 350	65	318 672	88 807	411 906	713 841	58
	1984	1 317 400	33 548	6 915 868	9 686 513	71	698 307	220 305	924 437	1 483 973	62
<b>Singapore</b>											
Singapore Airlines Ltd. (SIA)	1974	1 508 500	24 961	4 021 358	5 907 013	68	378 131	110 267	495 158	818 977	60
	1979	3 377 500	93 406	12 048 900	16 479 399	73	1 146 130	360 296	1 720 367	2 421 373	71
	1984	4 791 800	151 720	20 324 573	28 492 445	71	1 918 926	961 189	2 909 039	4 089 030	71
<b>Thailand</b>											
Thai Airways Co. Ltd.	1974	30 500	257	17 876	24 169	74	1 352	150	1 533	2 197	70
	1979	66 900	219	43 323	55 197	78	3 275	165	3 476	5 883	59
	1984	56 700	174	35 307	118 101	30	3 164	126	3 744	13 038	25

State or Territory/Airline	Year	Passengers carried Units	Freight tonnes carried Units	Passenger- kilometres performed (000)	Seat- kilometres available (000)	Passenger load factor %	Tonne-kilometres performed			Tonnes- kilometres available (000)	Over-all weight load factor (%)
							Passenger	Freight	Total		
							(000)	(000)	(000)		
Thai Airways International Ltd.	1974	695 500	12 833	1 699 481	2 839 845	60	155 591	34 776	194 641	230 791	59
	1979	1 527 200	45 179	4 385 282	6 717 273	65	397 273	175 208	579 471	903 855	64
	1984	2 567 400	91 607	8 941 320	13 942 636	64	810 596	397 364	1 225 804	1 851 195	66
Viet Nam Hang Khong Viet Nam	1974	145 700	1 150	210 576	369 702	57	18 578	2 025	20 775	36 172	57
	1984	10 000	80	2 500	3 330	75	225	20	251	315	80
<b><u>NORTH-EASTERN SUB-REGION</u></b>											
China Civil Aviation Administration of China (CAAC)	1974	60 000	3 000	91 000	165 000	55	8 190	3 200	11 690	23 000	51
	1979	319 000	26 000	810 000	1 180 000	69	61 000	52 000	113 000	182 000	62
	1984	1 000 000	80 000	2 787 000	4 800 000	58	209 000	164 000	373 000	632 000	59
Democratic People's Republic of Korea Civil Aviation Administration of the Democratic People's Republic of Korea Choson Minbang (CAAK)	1979	19 000	500	15 000	28 000	54	1 350	400	1 800	3 500	51
	1984	27 500	170	64 000	95 000	67	5 760	350	6 180	10 650	58
Japan Japan Air Lines (JAL)	1974	2 097 400	79 774	10 969 713	19 362 791	57	1 025 439	618 202	1 689 066	3 042 806	56
	1979	3 894 700	166 987	20 799 015	31 078 845	67	1 941 995	1 346 290	3 367 393	5 124 170	66
	1984	5 183 800	301 805	27 918 152	38 238 085	73	2 608 353	2 349 046	5 060 546	7 335 477	69
Japan Asia Airways Co. Ltd.	1979	465 700	13 966	857 310	1 256 385	68	79 796	27 111	108 112	151 805	71
	1984	746 500	26 980	1 301 769	1 709 109	76	121 355	53 415	176 353	235 066	75
Republic of Korea Korean Air	1974	932 900	40 096	2 405 911	4 083 460	59	218 088	199 534	421 914	887 555	48
	1979	1 933 000	101 103	8 382 692	13 251 547	63	775 399	661 698	1 450 517	2 254 900	64
	1984	2 256 100	173 700	10 028 900	15 809 900	63	925 320	1 321 620	2 274 180	3 248 950	70
Hong Kong Cathay Pacific Airways Ltd. (CPA)	1974	1 210 700	29 504	2 190 182	3 640 438	60	209 844	60 955	273 196	460 077	59
	1979	2 546 800	84 914	5 209 630	8 006 344	65	497 306	193 294	699 543	1 073 345	65
	1984	3 546 500	146 928	11 233 213	15 839 385	71	1 072 124	664 542	1 759 107	2 500 223	70
<b><u>SOUTH-EASTERN SUB-REGION</u></b>											
Australia Qantas Airways Ltd. (Qantas)	1974	1 321 600	26 718	9 546 328	14 938 635	64	877 196	208 220	1 109 702	1 908 618	58
	1979	1 891 400	55 523	15 678 940	23 010 443	68	1 439 666	416 461	1 890 531	2 873 175	66
	1984	2 348 000	90 153	16 154 002	25 336 297	64	1 494 683	597 177	2 133 711	3 280 044	65
Fiji Air Pacific Ltd.	1974	61 100	463	65 927	131 362	50	6 226	714	7 094	13 396	53
	1979	105 000	700	140 000	210 000	67	12 600	1 500	14 300	20 500	70
	1984	166 000	1 870	360 000	600 000	60	32 400	3 400	36 030	63 500	57
Kiribati Air Tongaru Corp.	1984	9 500	340	23 000	33 000	70	2 070	1 700	3 820	4 600	83
Nauru Air Nauru	1979	60 000	350	96 000	225 000	43	8 650	450	9 140	34 000	27
	1984	157 500	900	400 000	732 500	55	36 000	1 600	37 680	87 400	43
New Zealand Air New Zealand Ltd.	1974	706 200	18 653	2 774 296	4 296 932	65	260 768	86 541	352 391	590 020	60
	1979	1 001 100	30 947	4 313 990	6 174 874	70	409 075	145 623	561 119	800 275	70
	1984	1 062 200	47 362	5 855 983	8 601 122	68	555 444	263 669	829 464	1 137 308	73
Papua New Guinea Air Niugini	1979	96 100	1 719	259 465	510 429	51	23 352	5 116	29 271	66 540	44
	1984	103 500	2 181	353 908	593 929	60	31 852	8 106	41 256	78 561	53
Vanuatu Air Vanuatu	1984	16 700	11	36 869	54 759	67	3 318	21	3 343	5 976	56

## APPENDIX 11

INTERNATIONAL PASSENGER AND FREIGHT TRAFFIC  
AT MAIN ASIA/PACIFIC AIRPORTS<sup>1</sup>

1974, 1979 AND 1984

Sub-region; State or territory	City	Number of passengers embarked and disembarked			Number of freight tonnes loaded and unloaded			Airport
		1974 (000)	1979 (000)	1984 (000)	1974	1979	1984	
<b>North-Eastern sub-region</b>								
<i>Contracting States</i>								
China	Beijing	*150	*350	*500	5 000	10 000	*20 000	Capital
	Guangzhou	-	*10	*300	-	*500	*1 000	Baiyun
	Hangzhou	-	-	*44	-	-	*100	Jianqiao
	Kunming	-	*7	*26	-	*10	*50	Wujiaba
	Shanghai	-	*100	*600	-	*5 000	*40 000	Hongqiao
	Tianjin	-	-	*40	-	-	*70	Zhangguizhuang
	Xiamen	-	-	*8	-	-	*20	Gaoqi
	Gaoxiang	*8	*110	*200	-	*12 000	*20 000	Gaoxiang
	Taibei	*2 500	*3 800	*5 000	*100 000	*200 000	*300 000	Taoyuan
Democratic People's Republic of Korea	Pyong Yang	*16	*36	*60	*1 000	*3 000	*5 000	Sunan
Japan	Fukuoka	*50	*130	*500	*500	*2 000	*10 000	Fukuoka
	Kagoshima	*8	*12	*50	*50	*120	*200	Kagoshima
	Komatsujima	-	*9	*17	-	*10	*30	Komatsujima
	Kumamoto	-	*8	*6	-	-	-	Kumamoto
	Nagasaki	-	*14	*28	-	*150	*270	Nagasaki
	Nagoya	*20	*60	*190	*100	*350	*400	Nagoya
	Niigata	*6	*10	*30	*400	*450	*800	Niigata
	Okinawa	*20	*40	*150	*200	*500	*400	Naha
	Osaka	1 184	*2 320	3 355	41 676	*75 000	127 900	Osaka
	Sapporo	-	-	*23	-	-	*100	Chitose
	Tokyo	4 485	*1 490	471	227 580	*57 000	15 261	Haneda
	Narita	-	*6 800	8 522	-	*410 800	714 087	Narita
Mongolia	Ulan Bator	*30	*42	*47	*3 000	*4 000	*4 500	Buyant Ukla
Republic of Korea	Cheju	*10	*50	74	*100	*380	573	Cheju
	Pusan	*200	*400	486	*5 000	*10 000	14 349	Kimhae
	Seoul	1 057	2 516	3 382	59 072	149 000	275 162	Kimpo
<i>Territory</i>								
Hong Kong	Hong Kong	3 693	6 230	9 539	102 282	257 346	417 148	Kai Tak
<b>Central sub-region</b>								
<i>Contracting States</i>								
Brunei Darussalam	Bandar Seri Begawan	*240	*310	353	*3 000	*5 000	6 814	Brunei
Democratic Kampuchea	Phnom-Penh	*46	*2	*20	*1 000	*100	*1 000	Phnom-Penh
Indonesia	Denpasar	*111	*156	413	*245	*309	1 294	Ngurah Rai
	Jakarta	770	1 331	1 660	715 676	19 439	39 401	Halim Perdanakusuma
	Jayapura	*3	*4	*3	-	1 365	1 075	Kemayoran
	Medan	*60	*162	*240	*1 000	*2 472	*4 000	Sentani
	Pekanbaru	*20	*36	*38	*30	*56	*137	Polonia
	Pontianak	*2	*3	*4	-	-	-	Pekanbaru
	Supadio	-	-	-	-	-	-	Supadio
Lao People's Democratic Republic	Vientiane	44	*15	*30	789	*500	*800	Wattay
Malaysia	Kota Kinabalu	*40	*101	*350	*200	*1 239	*8 000	Kota Kinabalu
	Kuala Lumpur	527	1 357	2 284	6 069	16 649	51 565	Subang
	Kuching	*80	*131	*200	*850	*1 350	*3 680	Kuching
	Malacca	*7	*4	*8	*47	*24	*30	Malacca
	Penang	*200	412	557	*1 000	5 241	12 243	Penang

Sub-region; State or territory	City	Number of passengers embarked and disembarked			Number of freight tonnes loaded and unloaded			Airport
		1974 (000)	1979 (000)	1984 (000)	1974	1979	1984	
Philippines	Manila	*760	2 266	3 203	*16 000	*31 000	*136 756	Manila
Singapore	Singapore	-	-	8 380	-	-	294 433	Changi
		49	49	31	1 229	2 968	2 261	Seletar
		2 997	5 430	-	58 132	158 086	-	Singapore
Thailand	Bangkok	2 116	3 658	5 177	45 000	92 000	147 000	Don Muang
	Chiang Mai	*1	*14	-	-	-	-	Chiang Mai
	Phuket	-	*8	*79	-	*100	*3 000	Phuket
	Songkhla	-	*38	*160	-	*1 000	*5 000	Hat Yai
Viet Nam	Ho Chi Minh	*232	*25	*40	*20 000	-	*3 000	Tansonnhat
	Hanoi	*35	*50	*70	*8 000	*12 000	*20 000	Noi Bai
<b>Western sub-region</b>								
<i>Contracting States</i>								
Afghanistan	Kabul	96	94	*65	4 826	6 631	*9 549	Kabul
Bangladesh	Chittagong	-	-	*9	-	-	*50	Chittagong
	Dhaka	*260	341	694	*21.6	3 565	*16 227	Zia International
Burma	Rangoon	*40	*45	*47	*1 000	*1 200	*1 500	Mingaladon
India	Amritsar	-	*1	*2	*400	*800	*1 200	Amritsar
	Bombay	701	*1 890	3 105	35 155	*67 012	113 399	Bombay
	Calcutta	166	232	297	4 999	7 447	7 164	Calcutta
	Delhi	479	951	1 594	18 757	30 361	63 289	Indira Gandhi
	Madras	66	151	315	1 430	12 823	12 531	Madras
	Patna	*35	*56	*18	*40	*100	*80	Patna
	Tiruchchirappalli	*10	*11	*56	*50	*100	*1 900	Tiruchchirappalli
	Trivandrum	*8	*75	*100	-	*450	*1 200	Trivandrum
	Varanasi	*25	*32	*47	*200	*300	*1 000	Varanasi
Maldives	Male	*5	*60	*160	-	*400	*1 750	Hulule
Nepal	Kathmandu	*2150	336	440	*21.9	1 872	5 005	Tribhuvan
Pakistan	Gwadar	-	*3	*3	-	-	-	Gwadar
	Islamabad	*250	211	303	*3 000	*4 532	*8 000	Chaklala
	Karachi	534	1 763	2 505	18 652	47 568	85 798	Karachi
	Lahore	4	36	105	31	659	1 666	Lahore
	Peshawar	-	*3	*36	-	-	*120	Peshawar
Sri Lanka	Colombo	181	267	1 286	1 545	1 840	28 193	Kutunayake
<b>South-Eastern sub-region</b>								
<i>Contracting States</i>								
Australia	Adelaide	-	*11	*80	-	*50	*5 200	Adelaide
	Brisbane	134	301	453	1 518	4 889	11 373	Brisbane Intl.
	Cairns	*8	16	41	*30	209	179	Cairns
	Darwin	40	23	43	203	68	296	Darwin
	Hobart	-	*1	*2	-	*10	*63	Hobart
	Melbourne	465	893	1 044	10 734	24 384	54 546	Melbourne
	Perth	139	261	455	1 960	4 426	19 653	Perth International
	Port Hedland	-	-	*1	-	-	*30	Port Hedland
	Sydney	1 524	2 260	2 501	51 518	86 107	118 560	Kingsford Smith
Fiji	Nandi	*385	381	519	*4 540	7 700	*7 000	Nandi
	Suva	*17	*49	*23	*237	*609	259	Nausori
Kiribati	Tarawa	*2	*3	*5	*10	*20	*50	Bonriki International
Nauru	Nauru I.	*16	*45	*90	*400	*1 000	*5 000	Nauru
New Zealand	Auckland	811	1 282	1 433	23 381	46 797	74 525	Auckland
	Christchurch	229	324	285	3 397	7 000	9 105	Christchurch
	Wellington	156	170	118	2 256	2 475	4 763	Wellington

Sub-region; State or territory	City	Number of passengers embarked and disembarked			Number of freight tonnes loaded and unloaded			Airport
		1974 (000)	1979 (000)	1984 (000)	1974	1979	1984	
Papua New Guinea	Port Moresby	23	*130	137	428	*3 000	3 184	Jacksons
Samoa	Apia	*100	*130	*150	*7 000	*10 000	*10 000	Faleolo
Solomon Islands	Honiara	*20	*35	*50	*3 000	*4 000	*5 000	Henderson
Tonga	Tongatapu	30	48	42	*2 000	*3 000	*4 000	Fua'Amotu International
Tuvalu	Funafuti	*2	*3	*5	*200	*500	*1 000	Funafuti
Vanuatu	Port Vila	*8	*13	*70	*1 000	*2 000	*6 000	Bauerfield
<i>Territories</i>								
Australia								
Norfolk Island	Norfolk I.	*4	*7	*10	*7	*34	*100	Norfolk Island
France								
New Caledonia	Noumea	*148	*235	184	*4 309	*6 346	3 868	La Tontouta
Tahiti	Papeete	*225	*256	238	*3 528	*4 734	4 772	Faaa
Wallis Island	Wallis I.	*3	*7	10	*33	*146	200	Wallis I.
New Zealand								
Cook Island	Avarua	*20	*40	*50	*400	*600	*800	Rarotonga
Niue	Alofi	*10	*15	*20	*100	*200	*300	Niue
United States								
American Samoa	Pago Pago	*2160	126	102	*470	3 547	818	Pago Pago
Caroline Is.	Koror	*16	*17	*25	*450	*400	*550	Airai
	Truk	*15	*16	*16	*180	*150	*100	Truk
	Ponape I.	*14	*17	*20	*430	*300	*300	Ponape
	Yap I.	*9	*7	*10	*100	*200	*430	Yap
Johnston I.	Johnston I.	*10	*10	*1	*10	*10	*10	Johnston Atoll
Mariana Is.	Guam I.	*2600	619	886	*16 000	12 754	9 382	Agana Naval Air Station
	Rota	*15	*5	*30	*1 000	—	*30	Rota
	Saipan I.	*50	*90	*160	*1 900	*1 200	*1 200	Saipan International
	Tinian Is.	*4	4	*5	*1 300	*20	*5	Tinian Is.
Marshall Is.	Kwajalein	*10	*12	*10	*350	*90	*40	Kwajalein
	Majuro Atoll	*16	*21	*11	*400	*300	*150	Marshall Is.

## Notes.—

1. The number of passengers (000) and freight tonnes shown in the Appendix refers to the sum of arrival and departure traffic carried on commercial scheduled and non-scheduled international flights, exclusive of direct transit passengers and freight.
2. Data for the previous year.
3. Source other than ICAO.

Symbols.— \* Estimated data.

— Magnitude nil.

Source.— ICAO Digests of Statistics, Airport Traffic.

## APPENDIX 12

PASSENGER DISTRIBUTION BY SCHEDULED FARE CATEGORY ON  
ROUTES TO/FROM AND WITHIN ASIA/PACIFIC — 1984

Route Group, State of Registration, and Airline	First Class %	Intermediate Class and Normal Economy <sup>1</sup>	Economy Excursion <sup>2</sup>	Inclusive Tour (Group or Individual)	Other (Affinity Group, Family, Pilgrim, Students, Teachers, etc.)	Total
<b>Between Europe/Middle East and Western Sub-region</b>						
Czechoslovakia (CSA)	-	85.0	5.0	3.0	7.0	100.0
France (Air France)	4.1	30.5	32.2	22.6	10.6	100.0
France (UTA)	-	16.3	10.6	62.1	11.0	100.0
Germany, Fed. Rep. of (Lufthansa)	6.0	34.0	33.0	1.0	26.0	100.0
India (Air India)	1.1	2.5	26.8	← 69.6 →		100.0
Italy (Alitalia)	1.0	20.0	30.0	27.8	21.2	100.0
Jordan (Alia)	1.2	57.3	38.7	-	2.8	100.0
Netherlands, Kingdom of the (KLM)	3.3	20.1	33.5	12.2	30.9	100.0
Scandinavia (SAS) <sup>3</sup>	1.0	25.0	39.0	9.0	26.0	100.0
Sri Lanka (Air Lanka) <sup>1</sup>	1.9	29.0	55.9	2.8	10.4	100.0
Switzerland (Swissair)	9.0	40.0	23.0	9.0	19.0	100.0
Union of Soviet Socialist Republics (Aeroflot)	2.2	41.6	39.4	7.4	9.4	100.0
<b>Between Europe/Middle East and Central Sub-region</b>						
Czechoslovakia (CSA)	-	83.0	15.0	2.0	-	100.0
France (Air France)	5.0	35.2	20.1	36.1	3.6	100.0
France (UTA)	3.6	37.7	50.7	3.0	5.0	100.0
Germany, Fed. Rep. of (Lufthansa)	8.0	31.0	27.0	22.0	12.0	100.0
Italy (Alitalia)	0.8	20.7	34.5	30.5	13.5	100.0
Jordan (Alia)	0.4	71.1	24.7	0.8	3.0	100.0
Netherlands, Kingdom of the (KLM)	4.3	20.0	35.4	12.1	28.2	100.0
Scandinavia (SAS) <sup>3</sup>	4.0	43.0	19.0	30.0	4.0	100.0
Singapore (Singapore Airlines) <sup>3</sup>	4.1	12.0	62.9	15.0	6.0	100.0
Switzerland (Swissair)	7.0	33.0	36.0	9.0	15.0	100.0
Union of Soviet Socialist Republics (Aeroflot)	2.3	37.4	45.6	7.1	7.6	100.0
<b>Between Europe/Middle East and North-Eastern Sub-region</b>						
Finland (Finnair) <sup>1</sup>	3.0	16.0	8.0	72.0	1.0	100.0
France (Air France)	4.1	32.2	4.4	58.5	0.8	100.0
Germany, Fed. Rep. of (Lufthansa)	6.0	39.0	10.0	36.0	9.0	100.0
Italy (Alitalia)	1.0	11.2	12.4	68.5	6.9	100.0
Netherlands, Kingdom of the (KLM)	3.9	18.0	15.4	25.4	37.3	100.0
Republic of Korea (Korean Air)	1.9	40.2	1.4	13.8	42.7	100.0
Scandinavia (SAS) <sup>3</sup>	3.0	40.0	1.0	36.0	20.0	100.0
Switzerland (Swissair)	7.0	30.0	18.0	35.0	10.0	100.0
Union of Soviet Socialist Republics (Aeroflot)	3.1	29.2	54.5	4.6	8.6	100.0

Route Group, State of Registration, and Airline	First Class %	Intermediate Class and Normal Economy <sup>1</sup>	Economy Excursion <sup>2</sup>	Inclusive Tour (Group or Individual)	Other (Affinity Group, Family, Pilgrim, Students, Teachers, etc.)	Total
<b>Between Europe/Middle East and South-Eastern Sub-region</b>						
Australia (Qantas)	3.0	7.0	20.0	-	70.0	100.0
France (UTA)	0.6	25.1	32.6	28.0	13.7	100.0
Germany, Fed. Rep. of (Lufthansa)	4.0	11.0	71.0	2.0	12.0	100.0
Italy (Alitalia)	0.8	2.3	87.6	-	9.3	100.0
Netherlands, Kingdom of the (KLM)	2.6	9.6	69.7	0.3	17.8	100.0
New Zealand (Air New Zealand)	0.8	8.2	82.4	0.5	8.1	100.0
<b>Between Africa and the Western Sub-region</b>						
India (Air India)	4.9	0.2	62.7	32.2	-	100.0
Kenya (Kenya Airways)	3.0	70.0	20.0	-	7.0	100.0
Mauritius (Air Mauritius)	3.0	7.0	35.0	10.0	45.0	100.0
Sri Lanka (Air Lanka) <sup>3</sup>	2.7	23.2	66.8	1.6	5.7	100.0
<b>Between Africa and the Central Sub-region</b>						
Mauritius (Air Mauritius) <sup>3</sup>	4.0	10.0	16.0	70.0	-	100.0
<b>Between Africa and the North-Eastern Sub-region</b>						
South Africa (SAA) <sup>3</sup>	2.6	9.5	16.6	12.7	58.6	100.0
<b>Between Africa and the South-Eastern Sub-region</b>						
Australia (Qantas)	5.0	29.0	1.0	1.0	64.0	100.0
South Africa (SAA) <sup>3</sup>	5.8	15.9	47.7	1.0	29.6	100.0
<b>Between the Americas and the Western Sub-region</b>						
India (Air India)	2.1	4.8	7.4	-	85.7	100.0
United States (Pan Am)	4.3	80.5	← 13.2 →		2.0	100.0
<b>Between the Americas and the Central Sub-region</b>						
Singapore (Singapore Airlines) <sup>3</sup>	4.7	10.8	62.2	19.5	2.8	100.0
United States (Continental)	-	52.3	← 47.7 →		-	100.0
United States (Pan Am)	9.6	66.6	← 13.5 →		10.3	100.0
United States (Northwest Airlines)	1.1	9.1	← 89.8 →		-	100.0
<b>Between the Americas and the North-Eastern Sub-region</b>						
Brazil (Varig) <sup>3</sup>	2.0	8.0	25.0	65.0	-	100.0
Republic of Korea (Korean Air)	2.8	46.9	21.7	18.4	10.2	100.0
United States (Continental)	-	46.3	← 53.7 →		-	100.0
United States (Northwest Airlines)	3.3	4.3	← 91.8 →		0.6	100.0
United States (Pan Am)	10.3	68.5	← 12.1 →		9.1	100.0
United States (United Airlines)	4.8	0.1	← 94.3 →		0.8	100.0

Route Group, State of Registration, and Airline	First Class %	Intermediate Class and Normal Economy <sup>1</sup>	Economy Excursion <sup>2</sup>	Inclusive Tour (Group or Individual)	Other (Affinity Group, Family, Pilgrim, Students, Teachers, etc.)	Total
<b>Between the Americas and the South-Eastern Sub-region</b>						
Australia (Qantas)	6.0	19.0	66.0	-	9.0	100.0
Chile (Lan Chile)	2.9			97.1		100.0
France (UTA)	-	20.6	23.7	42.7	13.0	100.0
New Zealand (Air New Zealand)	2.7	10.7	80.7	4.2	1.7	100.0
United States (Continental)	6.1	51.5		41.9	0.5	100.0
United States (Pan Am)	10.0	61.4		16.5	12.1	100.0
<b>Within Asia/Pacific</b>						
Australia (Qantas)	3.0	22.0	53.0	7.0	15.0	100.0
France (UTA)	0.6	32.7	11.5	52.7	2.5	100.0
India (Air India)	2.6	3.3	14.6		79.5	100.0
Republic of Korea (Korean Air)	3.7	40.8	15.0	29.6	10.9	100.0
New Zealand (Air New Zealand)	1.9	27.0	49.7	20.5	0.9	100.0
Singapore (Singapore Airlines) <sup>3</sup>	5.7	20.3	54.0	17.8	2.2	100.0
Sri Lanka (Air Lanka) <sup>3</sup>	1.2	33.7	47.6	3.6	13.9	100.0

Notes.—

1. Fares for travel other than first class which are available to the public at large with no conditions attached.
2. Fares available to the public at large but with attached fare conditions such as advance purchase or restrictions on period of stay.
3. Year ended 31 March 1985.



## APPENDIX 13

FREIGHT TRAFFIC DISTRIBUTION BY TYPE OF SCHEDULED FREIGHT RATE  
ON ROUTES TO/FROM AND WITHIN ASIA/PACIFIC — 1984

Route Group, State of Registration, and Airline	General Cargo (and Class) %	Specific Commodity %	Other %	Total %	General Cargo (and Class) %	Specific Commodity %	Other %	Total %
<b>Between Europe/Middle East and the Western Sub-region</b>	<b>To the Western Sub-region</b>				<b>From the Western Sub-region</b>			
Czechoslovakia (CSA)	70.0	30.0	-	100.0	50.0	50.0	-	100.0
France (Air France)	93.1	2.5	4.4	100.0	11.6	87.2	1.2	100.0
France (UTA)	53.7	46.3	-	100.0	19.5	80.5	-	100.0
India (Air India)	64.2	34.3	1.5	100.0	10.5	32.2	57.3	100.0
Italy (Alitalia)	66.5	33.5	-	100.0	18.5	81.5	-	100.0
Jordan (Alia)	100.0	-	-	100.0	100.0	-	-	100.0
Netherlands, Kingdom of the (KLM)	69.2	29.2	1.6	100.0	29.7	68.2	2.1	100.0
Pakistan (Pakistan International Airlines)	68.9	31.1	-	100.0	30.5	69.5	-	100.0
Scandinavia (SAS) <sup>1</sup>	45.8	41.0	13.2	100.0	18.0	80.6	1.4	100.0
Switzerland (Swissair)	15.0	75.0	10.0	100.0	25.0	65.0	10.0	100.0
<b>Between Europe/Middle East and the Central Sub-region</b>	<b>To the Central Sub-region</b>				<b>From the Central Sub-region</b>			
Czechoslovakia (CSA)	96.7	3.3	-	100.0	75.0	25.0	-	100.0
France (Air France)	84.2	9.1	6.7	100.0	20.9	48.2	30.9	100.0
France (UTA)	34.4	65.6	-	100.0	24.3	75.7	-	100.0
Italy (Alitalia)	66.7	33.3	-	100.0	36.0	64.0	-	100.0
Jordan (Alia)	100.0	-	-	100.0	100.0	-	-	100.0
Netherlands, Kingdom of the (KLM)	42.9	54.2	2.9	100.0	37.0	61.4	1.6	100.0
Scandinavia (SAS) <sup>1</sup>	13.9	84.4	1.7	100.0	37.0	62.4	0.6	100.0
Switzerland (Swissair)	15.0	75.0	10.0	100.0	25.0	65.0	10.0	100.0
Singapore (Singapore Airlines)	32.7	65.3	2.0	100.0	33.2	62.7	4.1	100.0
<b>Between Europe/Middle East and the North-Eastern Sub-region</b>	<b>To the North-Eastern Sub-region</b>				<b>From the North-Eastern Sub-region</b>			
Finland (Finnair) <sup>2</sup>	4.8	95.2	-	100.0	40.0	60.0	-	100.0
France (Air France)	44.1	53.3	2.6	100.0	40.6	14.8	44.6	100.0
Italy (Alitalia)	16.1	83.9	-	100.0	59.1	40.9	-	100.0
Netherlands, Kingdom of the (KLM)	36.0	64.0	-	100.0	59.0	41.0	-	100.0
Republic of Korea (Korean Air)	33.5	66.5	-	100.0	40.2	59.3	0.5	100.0
Scandinavia (SAS) <sup>3</sup>	6.9	92.3	0.8	100.0	49.7	38.1	12.2	100.0
Switzerland (Swissair)	15.0	75.0	10.0	100.0	25.0	65.0	10.0	100.0
<b>Between Europe/Middle East and the South-Eastern Sub-region</b>	<b>To the South-Eastern Sub-region</b>				<b>From the South-Eastern Sub-region</b>			
Australia (Qantas)	19.4	0.4	80.2	100.0	20.7	64.1	15.2	100.0
France (Air France)	97.4	1.3	1.3	100.0	48.9	36.7	14.4	100.0
France (UTA)	90.0	10.0	-	100.0	3.8	96.2	-	100.0
Italy (Alitalia)	96.7	3.3	-	100.0	89.1	10.9	-	100.0
Netherlands, Kingdom of the (KLM)	97.6	2.3	0.1	100.0	85.7	14.3	-	100.0
Scandinavia (SAS) <sup>1</sup>	62.5	8.3	29.2	100.0	4.2	91.6	4.2	100.0
Switzerland (Swissair)	15.0	75.0	10.0	100.0	25.0	65.0	10.0	100.0
<b>Between Africa and the Western Sub-region</b>	<b>To the Western Sub-region</b>				<b>From the Western Sub-region</b>			
India (Air India)	35.9	54.0	10.1	100.0	97.9	0.2	1.9	100.0
Kenya (Kenya Airways)	85.3	-	14.7	100.0	54.2	33.0	12.8	100.0
Mauritius (Air Mauritius) <sup>2</sup>	-	75.0	25.0	100.0	-	85.4	14.6	100.0

Route Group, State of Registration, and Airline	General Cargo (and Class) %	Specific Commodity %	Other %	Total %	General Cargo (and Class) %	Specific Commodity %	Other %	Total %
<b>Between Africa and the North-Eastern Sub-region</b>	<b>To the North-Eastern Sub-region</b>				<b>From the North-Eastern Sub-region</b>			
South Africa (SAA) <sup>1</sup>	91.2	8.8	-	100.0	31.8	68.2	-	100.0
<b>Between Africa and the South-Eastern Sub-region</b>	<b>To the South-Eastern Sub-region</b>				<b>From the South-Eastern Sub-region</b>			
South Africa (SAA) <sup>2</sup>	73.8	26.2	-	100.0	13.2	86.8	-	100.0
Australia (Qantas)	34.8	48.3	16.9	100.0	76.6	4.3	19.1	100.0
<b>Between the Americas and the Western Sub-region</b>	<b>To the Western Sub-region</b>				<b>From the Western Sub-region</b>			
India (Air India)	22.6	67.6	9.8	100.0	23.3	76.7	-	100.0
Pakistan (Pakistan International Airlines)	91.2	8.8	-	100.0	23.3	76.7	-	100.0
<b>Between the Americas and the Central Sub-region</b>	<b>To the Central Sub-region</b>				<b>From the Central Sub-region</b>			
Singapore (Singapore Airlines) <sup>2</sup>	57.9	34.8	7.3	100.0	24.8	74.5	0.7	100.0
<b>Between the Americas and the North-Eastern Sub-region</b>	<b>To the North-Eastern Sub-region</b>				<b>From the North-Eastern Sub-region</b>			
Republic of Korea (Korean Air)	50.0	30.0	20.0	100.0	-	31.4	68.6	100.0
<b>Between the Americas and the South-Eastern Sub-region</b>	<b>To the South-Eastern Sub-region</b>				<b>From the South-Eastern Sub-region</b>			
Australia (Qantas)	11.4	5.0	83.6	100.0	22.3	70.5	7.2	100.0
France (UTA)	72.0	28.0	-	100.0	92.0	8.0	-	100.0
New Zealand (Air New Zealand)	12.7	3.8	83.5	100.0	19.2	56.8	24.0	100.0
<b>Within Asia/Pacific</b>	<b>To the Country</b>				<b>From the Country</b>			
Australia (Qantas)	16.9	45.1	38.0	100.0	10.1	66.6	23.3	100.0
France (UTA)	13.5	86.5	-	100.0	52.3	47.7	-	100.0
India (Air India)	79.4	19.9	0.7	100.0	50.4	45.8	3.8	100.0
New Zealand (Air New Zealand)	11.2	16.9	71.9	100.0	13.1	24.1	62.8	100.0
Pakistan (Pakistan International Airlines)	61.4	38.6	-	100.0	47.4	52.6	-	100.0
Republic of Korea (Korean Air)	95.9	4.1	-	100.0	30.1	22.2	47.7	100.0
Singapore (Singapore Airlines) <sup>1</sup>	35.2	60.9	3.9	100.0	76.0	16.0	8.0	100.0

Notes.—

1. Year ended 31 September 1984.

2. Year ended 31 March 1985.

## APPENDIX 14

**ECONOMETRIC MODELS OF DEMAND FOR INTERNATIONAL PASSENGER AND  
FREIGHT TRANSPORT ON AIRLINES REGISTERED IN THE ASIA/PACIFIC REGION**

The following models for passenger and freight traffic were estimated using aggregated data for the airlines of the Asia/Pacific region. The models were developed using econometric analysis, based on annual traffic, economic and demographic data and average yields for the airlines of the region.

Passenger model:

$$\ln \text{RPK} = 6.92 + 1.77 \ln \text{GDP} - 1.71 \ln \text{PYIELD} \quad r^2 = 0.96$$

(5.2)                      (2.9)                      S.E. = 0.067

Freight model:

$$\ln \text{FTK} = -6.95 + 2.48 \ln \text{GDP} - 1.09 \ln \text{FYIELD} \quad r^2 = 0.98$$

(6.0)                      (2.4)                      S.E. = 0.067

Where RPK	= revenue passenger-kilometres
FTK	= freight tonne-kilometres
GDP	= Gross Domestic Product in real terms
PYIELD	= passenger revenue per passenger-kilometre in real terms
FYIELD	= freight revenue per freight tonne-kilometre in real terms
S.E.	= standard error of the estimate

*Note.*— Figures in brackets represent “t” statistics of the corresponding coefficient estimates.

Data for the GDP variable were obtained from the International Monetary Fund for individual countries of the Asia/Pacific region. An aggregated GDP series was then created by carefully selecting appropriate weights, based on traffic of each country of the Asia/Pacific region. The YIELD variables were based on year-to-year average rates of change in passenger and freight yields of individual Asia/Pacific airlines, measured in national currencies and deflated by local consumer price indices. Each airline yield was then weighted by the distribution of corresponding airline traffic.

## APPENDIX 15

**EXTRACT FROM SECTION IX OF ANNEX I TO THE JOINT DECLARATION OF THE GOVERNMENT OF THE UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND AND THE GOVERNMENT OF THE PEOPLE'S REPUBLIC OF CHINA ON THE QUESTION OF HONG KONG**

The Hong Kong Special Administrative Region shall maintain the status of Hong Kong as a centre of international and regional aviation. Airlines incorporated and having their principal place of business in Hong Kong and civil aviation related businesses may continue to operate. The Hong Kong Special Administrative Region shall continue the previous system of civil aviation management in Hong Kong, and keep its own aircraft register in accordance with provisions laid down by the Central People's Government [of China] concerning nationality marks and registration marks of aircraft. The Hong Kong Special Administrative Region shall be responsible on its own for matters of routine business and technical management of civil aviation, including the management of airports, the provision of air traffic services within the flight information region of the Hong Kong Special Administrative Region, and the discharge of other responsibilities allocated under the regional air navigation procedures of the International Civil Aviation Organization.

The Central People's Government shall, in consultation with the Hong Kong Special Administrative Region Government, make arrangements providing for air services between the Hong Kong Special Administrative Region and other parts of the People's Republic of China for airlines incorporated and having their principal place of business in the Hong Kong Special Administrative Region and other airlines of the People's Republic of China. All Air Service Agreements providing for air services between other parts of the People's Republic of China and other States and regions with stops at the Hong Kong Special Administrative Region and air services between the Hong Kong Special Administrative Region and other States and regions with stops at other parts of the People's Republic of China shall be concluded by the Central People's Government. For this purpose, the Central People's Government shall take account of the special conditions and economic interests of the Hong Kong Special Administrative Region and consult the Hong Kong Special Administrative Region Government. Representatives of the Hong Kong Special Administrative Region Government may participate as members of delegations of the Government of the People's Republic of China in air service consultations with foreign governments concerning arrangements for such services.

Acting under specific authorizations from the Central People's Government, the Hong Kong Special Administrative Region Government may:

- renew or amend Air Service Agreements and arrangements previously in force; in principle, all such Agreements and arrangements may be renewed or amended with the rights contained in such previous Agreements and arrangements being as far as possible maintained;
- negotiate and conclude new Air Service Agreements providing routes for airlines incorporated and having their principal place of business in the Hong Kong Special Administrative Region and rights for overflights and technical stops; and
- negotiate and conclude provisional arrangements where no Air Service Agreement with a foreign State or other region is in force.

All scheduled air services to, from or through the Hong Kong Special Administrative Region which do not operate to, from or through the mainland of China shall be regulated by Air Service Agreements or provisional arrangements referred to in this paragraph.

The Central People's Government shall give the Hong Kong Special Administrative Region Government the authority to:

- negotiate and conclude with other authorities all arrangements concerning the implementation of the above Air Service Agreements and provisional arrangements;
- issue licences to airlines incorporated and having their principal place of business in the Hong Kong Special Administrative Region;
- designate such airlines under the above Air Service Agreements and provisional arrangements; and
- issue permits to foreign airlines for services other than those to, from or through the mainland of China.

**APPENDIX 16**  
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## ICAO PUBLICATIONS IN THE AIR TRANSPORT FIELD

The following summary gives the status and also describes in general terms the contents of the various series of publications in the air transport field issued by the International Civil Aviation Organization:

**International Standards and Recommended Practices on Facilitation** (*designated as Annex 9 to the Convention*) which are adopted by the Council in accordance with Articles 37, 54 and 90 of the Convention on International Civil Aviation. The uniform observance of the specifications contained in the International Standards on Facilitation is recognized as practicable and as necessary to facilitate and improve some aspect of international air navigation, while the observance of any specification contained in the Recommended Practices is recognized as generally practicable and as highly desirable to facilitate and improve some aspect of international air navigation. Any differences between the national regulations and practices of a State and those established by an International Standard must be notified to the Council in accordance with Article 38 of the Convention. The Council has also invited Contracting States to notify differences from the provisions of the Recommended Practices;

**Council Statements** on policy relating to air transport questions, such as the economics of airports and en-route air navigation facilities, taxation and aims in the field of facilitation;

**Digests of Statistics** which are issued on a regular basis, presenting the statistical information received from Contracting States on their civil aviation activities;

**Circulars** providing specialized information of interest to Contracting States. They include regional studies on the development of international air passenger, freight and mail traffic and specialized studies of a world-wide nature;

**Manuals** providing information or guidance to Contracting States on such questions as airport and air navigation facility tariffs, air traffic forecasting techniques and air transport statistics.

Also of interest to Contracting States are reports of meetings in the air transport field, such as sessions of the Facilitation Division and the Statistics Division and conferences on the economics of airports and air navigation facilities. Supplements to these reports are issued, indicating the action taken by the Council on the meeting recommendations, many of which are addressed to Contracting States.

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