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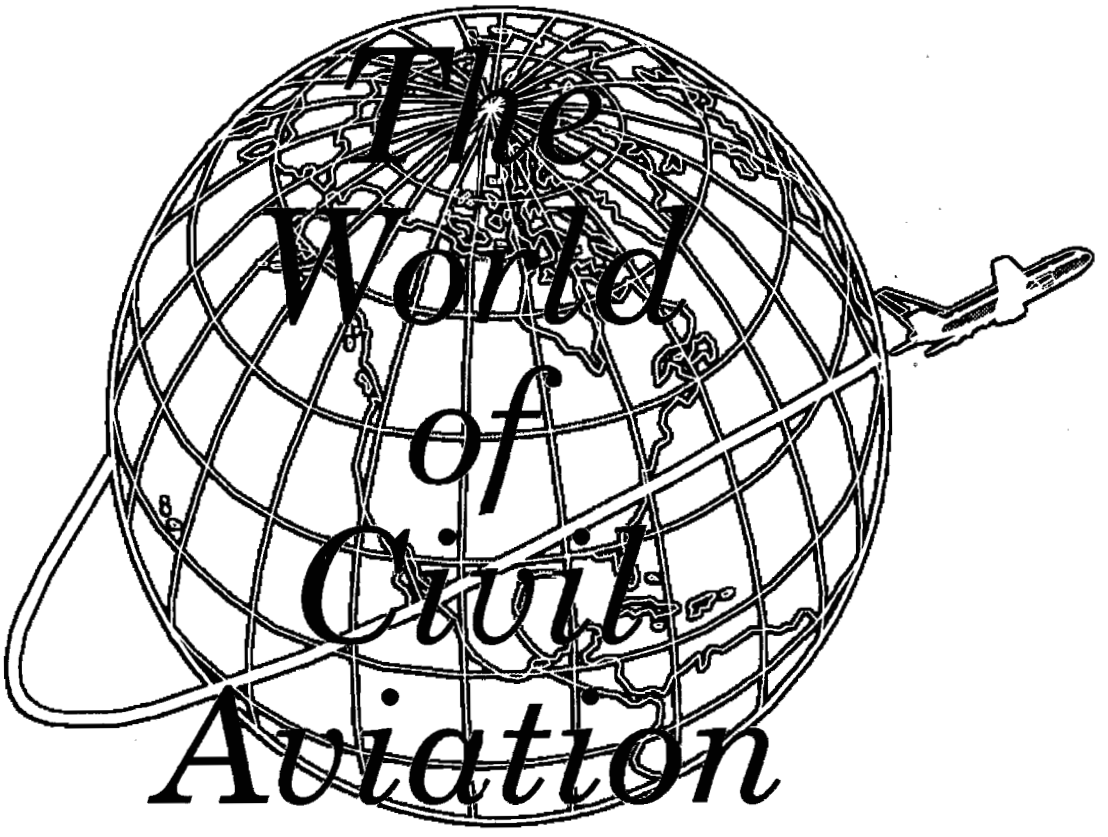

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1/02

HIGHLIGHTS

DURING 2000 ...

The world economy strengthened ...

The world's Gross Domestic Product (GDP) grew by an estimated 4.4 per cent in real terms. On a regional basis the change in GDP ranged from an estimated increase of some 6.4 per cent for the Middle East to about 3.5 per cent for Europe (Chapters 1 and 5).

... as did airline traffic ...

Overall scheduled passenger/freight/mail tonne-kilometres performed was up by over 8 per cent. There were significant differences in the traffic growth between regions, ranging from 11 per cent for carriers based in the Middle East to 5.7 per cent for those in Latin America and the Caribbean in terms of passenger-kilometres performed (Chapters 2 and 6).

... but airline operating profits softened further ...

Preliminary estimates indicate that the world's scheduled airlines as a whole experienced an operating profit — 3.3 per cent of operating revenues compared with 4 per cent in 1999 — for the eighth year in succession (Chapter 2).

... although aircraft orders increased markedly.

The number of turbo-jet aircraft ordered was 1 553 compared to 987 in 1999. The financial commitment for orders placed for these aircraft with the major aircraft manufacturers is estimated to be about U.S.$80 billion (Chapter 2).

Liberalization was ongoing through bilateral agreements and regional developments...

A significant number of bilateral agreements concluded or amended between States contained liberalization measures. Regional organizations in Africa, Asia/Pacific and Latin America considered or agreed to gradual liberalization of intra-regional air services (Chapter 2).

...and a review of the Annex on Air Transport of the GATS commenced.

The Council for Trade in Services of the World Trade Organization started to review the operation of the Annex on Air Transport with a view to considering the possible further application of the General Agreement on Trade in Services (GATS) to the sector (Chapter 2).

Privatization of airlines continued and airline alliances expanded.

Privatization aims were achieved during the year for six airlines, privatization objectives were made known for another four airlines and preparations for privatization continued for some 30 carriers. Airlines continued to expand transnational alliances, with most agreements including code sharing as a collaborative element (Chapter 2).

More autonomy was given to infrastructure providers ...

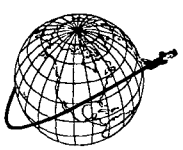
The year witnessed further activity at the government level towards establishing autonomous entities to operate airports or provide air navigation services, with growing emphasis being placed on active private participation in airport operations, management and finances. A new trend towards airport cooperating strategies or alliances was confirmed (Chapter 3).

... and airport construction continued.

Europe, Asia, North America and Africa led the way in new airport projects completed, under construction or projected. Major airport expansion projects were underway in all regions (Chapter 3).

Implementation of CNS/ATM systems components continued to yield early benefits.

Implementation of satellite-based communications, navigation and surveillance/air traffic management (CNS/ATM) systems led to increasing utilization of airspace for international civil aviation. Air traffic service systems around the world continued to be upgraded as part of the evolution to a seamless global air traffic management system (Chapter 3).



Safety remained a top priority ...

Preliminary information on aircraft accidents involving passenger fatalities in scheduled air services shows that there were 18 fatal aircraft accidents in 2000 involving 755 passenger fatalities compared to 21 fatal accidents and 499 passenger fatalities in 1999. The number of passenger fatalities per 100 million passenger-kilometres increased to 0.025 from 0.02 in 1999. By year-end, 131 aviation administrations in ICAO Contracting States had been assessed through the ICAO Universal Safety Oversight Audit Programme (Chapter 4).

... as did security.

Eleven acts of unlawful interference were officially reported or confirmed by concerned States in 2000 compared to six in 1999 (Chapter 4).

New solutions to the impact of aircraft noise were high on the agenda ...

ICAO continued to give high priority to the development of a new noise Standard more stringent than that in Annex 16, Volume I, Chapter 3, and to exploring worldwide the issue of operation resolutions on Chapter 3 aircraft.

... and work continued on policy options on engine emissions.

ICAO continued work on developing policy options to limit or reduce greenhouse gas emissions from civil aviation. Options include the further development of Annex 16, Volume II, the development of guidance material on operational measures to reduce emissions, and the potential role of market-based options (Chapter 4).

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Foreword

Introduction

1. This circular, *The World of Civil Aviation — 2000,* is the ninth in an annual series of publications covering recent and future developments in civil aviation; the developments for the previous period 1999-2002 were published in Circular 279. In the present circular, Part I reviews the main events in or affecting international civil aviation in 2000; Part II analyses trends in the world economy and the air transport industry; and Part III reviews, on a region-by-region basis, the year 2000. **Unlike previous editions of *The World of Civil Aviation,* this edition contains neither three-year airline global forecasts of scheduled passenger traffic and financial forecasts (in Chapter 5) nor medium-term traffic prospects for each ICAO region (in Chapter 6). A set of such forecasts was developed for inclusion in this edition, but the forecasts were overtaken by the events of 11 September 2001 which had an unprecedented negative impact on air transport which will be felt for some years. Currently, the forecasts are being revised and the next edition of *The World of Civil Aviation,* reviewing the year 2001, will include updated forecasts through to the year 2004.**

2. Extensive aviation statistics may be found in the annual ICAO statistical yearbooks entitled *Civil Aviation Statistics of the World,* whereas compendia of the key statistics are published in the various ICAO Digests of Statistics.

3. A *Catalogue of ICAO Publications and Audio-visual Training Aids* is available on request from:

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Sources

4. In addition to the Digests of Statistics and other ICAO publications referred to above, sources of information for *The World of Civil Aviation* include relevant and most recently available statistical publications of the United Nations; Airclaims Ltd.; the Airports

Council International (ACI); the Association of European Airlines (AEA); Avmark Inc; the European Civil Aviation Conference (ECAC); the International Air Transport Association (IATA); the International Monetary Fund (IMF); the Organisation for Economic Co-operation and Development (OECD); the United Nations Conference on Trade and Development (UNCTAD); the United States Department of Transportation (DOT); the World Bank; the World Tourism Organization (OMT-WTO); the World Trade Organization (WTO); and the WEFA Group (formerly known as Wharton Econometrics Forecasting Associates).

5. Another source of information used for *The World of Civil Aviation* 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. Finally, an information collection exercise specifically for *The World of Civil Aviation* was carried out through the seven ICAO Regional Offices.

6. The statistical data for 2000 appearing in this circular are to be considered as preliminary: experience shows that the margin of error for world totals is probably less than 2 per cent, except in the case of profit margins where it may be considerably higher. *Unless otherwise noted:*

a) all statistical data are applicable to ICAO Contracting States (185 at the end of 2000);

b) regional breakdowns are by ICAO statistical region (see map preceding Chapter 6);

c) traffic statistics are for scheduled services of commercial air carriers;

d) total airline financial statistics relate to non-scheduled as well as scheduled operations of commercial air carriers;

e) the expression "tonne-kilometre" means metric tonne-kilometre; and

f) the word "billion" means one thousand million.

Monetary unit

7. Unless indicated otherwise, all references in this circular to "cents" mean "U.S. cents" and all references to "$" mean "U.S. dollars".

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PART I

THE WORLD IN 2000

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Chapter 1
Economic Influences

1.1 While growth in air traffic has historically been greater than growth in the economy, there is a strong correlation between the two and the demand for air transport is primarily determined by economic development. Development in personal income affects the level of purchasing power and the propensity to undertake leisure travel in general and air travel in particular. Tourism, international trade in goods, and other commercial activities have a direct impact on the demand for air travel and air freight.

1.2 The world economy continued its strong growth in 2000, far exceeding the growth rates achieved in 1999. This growth was fueled by a particularly robust economic performance in North America. All regions of the world achieved higher growth rates in 2000. The Latin American and Caribbean region recovered from a weak economic performance and achieved a growth rate closer to the world average. Similarly the Middle East region rebounded strongly achieving the highest growth rate among all regions. The regions of Asia and the Pacific, Africa and Europe experienced growth moderately higher than the previous year.

1.3 As background to the analysis of the world of civil aviation in 2000, which follows in Chapters 2 to 6, this chapter reviews global developments in 2000 concerning: economic output, trade and international tourism; inflation, interest rates and currency markets; and crude oil and jet fuel prices.

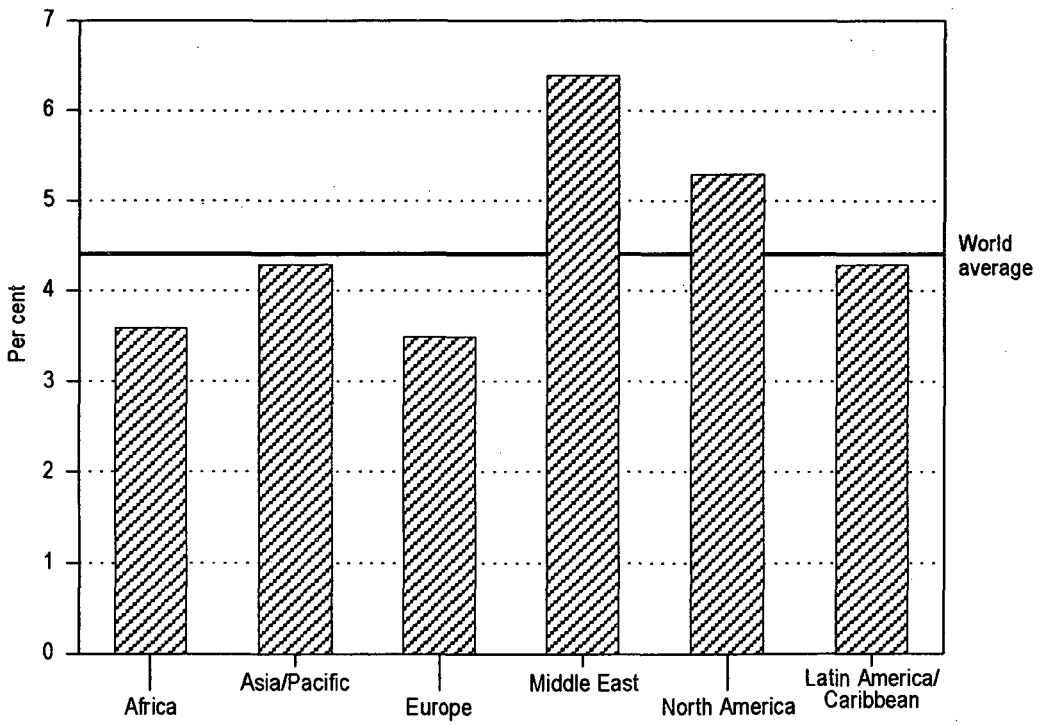
GROSS DOMESTIC PRODUCT

1.4 In terms of Gross Domestic Product (GDP) development, which is the broadest available measure of economic activity, the world economy in 2000 grew by an estimated 4.4 per cent (in real terms), compared to 3.1 per cent in 1999. This global result masks a wide spread between the economic performance of industrial and developing countries, and among regions. Figure 1-1 illustrates the economic growth rates for the world and the ICAO statistical regions in 2000.

1.5 The economies of industrialized countries expanded almost in line with the global average at an estimated 4 per cent GDP growth rate in 2000. Since industrialized countries produce more than half of global output, their growth had an overall stabilizing effect on the world economy. The continuous robust economic growth in North America (5.3 per cent), backed by strong domestic demand, was a notable supporting factor.

1.6 Europe as a whole achieved an average GDP growth of 3.5 per cent in 2000, to which the European Union contributed almost at a similar rate. The economies of Central and Eastern European countries grew in the aggregate around 3.8 per cent and most countries of the Commonwealth of Independent States (CIS) showed a significant improvement in GDP growth, averaging 5 per cent.

1.7 The 2000 economic performance of developing countries averaged about 5.6 per cent GDP growth. Africa's economic growth improved with a GDP growth of 3.6 per cent. The region with the largest share in the world economy, Asia/Pacific, continued to regain its economic strength with approximately 4.3 per cent GDP growth in 2000. The developing economies in Asia/Pacific contributed significantly as their aggregate GDP grew by 6.7 per cent, but this result masks vast differences between countries. China's GDP growth led again at over 7.7 per cent. Several South-East Asian economies continued to show strong growth. Japan's GDP continued to improve with a 2 per cent growth in 2000. Asia's four newly industrialized economies (NIEs) continued their momentum, averaging 8 per cent GDP growth. Australia's and New Zealand's GDP grew at around 4 per cent, close to the world average.



Source: ICAO estimates based on data from the World Bank, the International Monetary Fund (IMF), WEFA Group, Organisation for Economic Co-operation and Development (OECD) and other economic sources.

Figure 1-1. Annual change in real GDP by region (2000/1999)

1.8 In other regions, the strong economic recovery trend prevailed. Latin America and the Caribbean recovered from a weak economic performance and posted a healthy 4.3 per cent growth in GDP and the Middle East rebounded strongly with significant growth of 6.4 per cent.

TRADE DEVELOPMENTS

1.9 The high world economic growth rate experienced in 2000, by far the highest in over a decade, had a positive impact on world trade developments.

1.10 In 2000, worldwide trade in goods and services is estimated to have grown approximately 12.4 per cent — the highest rate achieved during the last decade and more than twice that experienced in the previous year. Trading of manufactured goods expanded at a rate of 13.4 per cent, a significant increase from 1999's rate of 5.6 per cent. Internationally marketed services continued to benefit from globalization of economic activities and continued to gain importance. The seven major economies traded nearly half of the value of both exported and imported goods worldwide. All industrialized economies together accounted for almost three-quarters, while trade of developing countries and Asia's newly industrialized economies accounted for the rest.

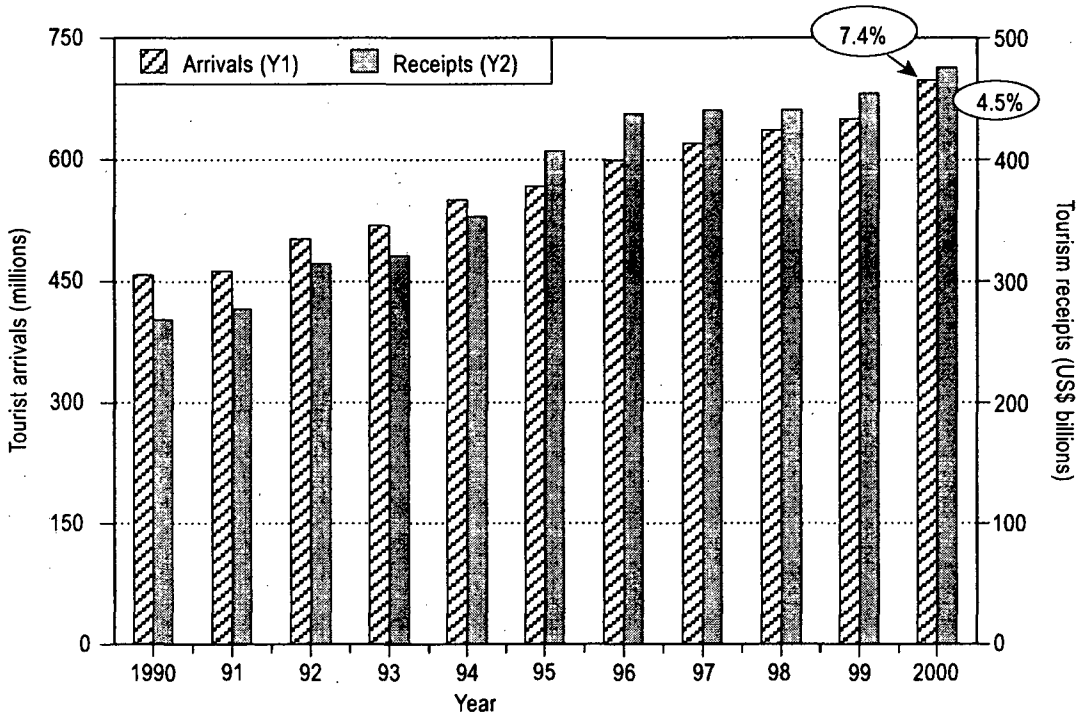
1.11 Both export and import volumes, in terms of trade in goods and services, expanded throughout most of the advanced economies and among major trading partners, reaching growth rates of over 11 per cent over the previous year. Newly industrialized Asian economies experienced an even higher rate of growth, exceeding 15 per cent.

TOURISM

1.12 The demand for international air travel is fueled by the expansion of international tourism. The World Tourism Organization (OMT-WTO) estimated a world total of almost 700 million international tourist arrivals and approximately $475 billion tourist receipts in 2000, representing an annual growth rate of 7.4 per cent and 4.5 per cent for arrivals and receipts, respectively. Figure 1-2 provides global results in tourist arrivals and receipts from 1991 to 2000.

1.13 In looking at the regional trends in tourism, Europe attracted the highest number of tourists compared to other regions of the world. This was partly due to the post-war recovery in the Balkans and recovery of the tourist market in Turkey which experienced a very high growth of almost 40 per cent. Tourist arrivals in the northern part of Europe experienced high growth rates ranging between 10 to 19 per cent.

1.14 North America realized a growth of 7 per cent in tourism. International arrivals to the United States rose by 8.7 per cent fueled by the overseas markets of Japan and the United Kingdom as well as leisure travel from Canada and Mexico. Tourism in South Asia grew above



Source: OMT - WTO.

Figure 1-2. Annual change in international tourist arrivals and receipts — World (1990-2000)

the world average (9 per cent), whereas East Asia and the Pacific also experienced higher increases with China (15.5 per cent) and Hong Kong (15.3 per cent) as favourite destinations. Australia also enjoyed a tourist boom (9.5 per cent) due to the Olympics. The Middle East had its best year ever with tourist arrivals reaching a growth of 20 per cent for the first nine months, but the year ended with an overall growth of 10.2 per cent due to unfavourable conditions in the last quarter. Central America recorded a higher than world average growth of 8.8 per cent while the Caribbean experienced growth of 7.1 per cent. Africa's international arrivals grew by only 1.5 per cent. While some North African countries enjoyed strong growth, tourist arrivals stagnated in South Africa and Zimbabwe.

INFLATION, INTEREST RATES AND CURRENCY MARKETS

1.15 Since the early 1980s, consumer prices in industrial countries have increased at steadily declining levels despite sharp fluctuations in commodity prices, including oil. During 2000, inflation in most industrial countries increased moderately due to high oil prices, resulting in an aggregate rate of 2.3 per cent. In the context of an economic boom, the United States recorded an inflation rate of 3.4 per cent in 2000 compared to 1.4 per cent in 1999. In contrast, in a climate of low domestic demand, Japan's consumers experienced a drop of 0.6 per cent in consumer prices.

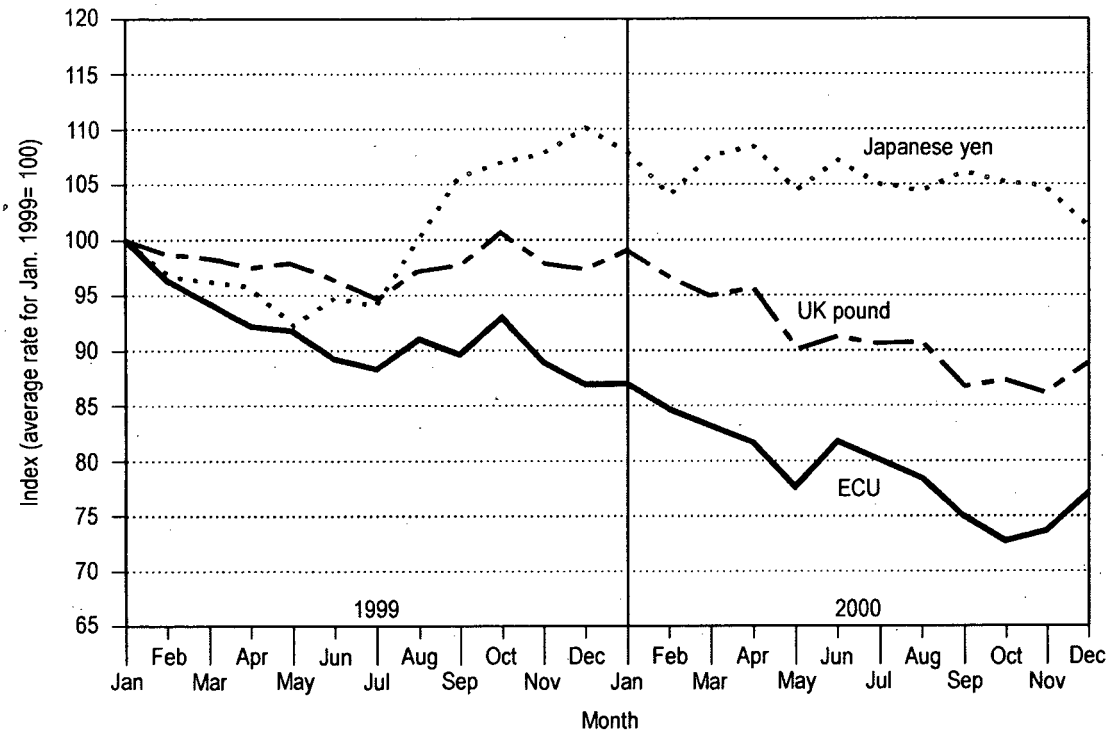
1.16 Consumer prices in developing countries as a group followed a similar trend to previous years' inflation rates and achieved in 2000 an average rate of 6.1 per cent. Large variations prevailed from region to region and among countries within regional groupings. Developing countries in Asia continued to reduce inflation to low levels as reflected in the regional aggregate rate of 1.9 per cent compared to 2.5 per cent in the previous year. In Africa, inflation has started to show an upward trend in recent years and the regional rate rose slightly to about 13.5 per cent in 2000. For South America and the Caribbean, the stabilization of inflation at around 8 per cent for the second consecutive year meant a long-awaited success following triple-digit inflation rates into the mid-nineties. Inflation in the Middle East region reached a slightly lower rate compared with the previous year (20.7 per cent). For the countries in transition from centrally planned to market-based economies, the aggregate inflation rate dropped to 20.1 per cent compared to 43.9 per cent in 1999. Similarly, the Russian Federation also experienced a sharp drop and showed a 20.8 per cent inflation rate compared to 85.7 per cent in the previous year. Central and Eastern European countries (excluding the CIS) saw their inflation rate rise to 12.8 per cent in 2000.

1.17 The nominal long-term interest rates in industrial countries continued the downward trend predominant in the nineties, with some modest fluctuations. The average rate rose from 4.7 per cent in 1999 to 5.1 per cent in 2000. Exceptionally low interest rates prevailed in Japan with long-term rates at 1.7 per cent in 2000. In this environment of relative price stability and low cost of financing in industrial countries, inflationary pressures on airlines and other civil aviation business were generally subdued.

1.18 Currency exchange rates responded to the international differences in asset values, interest and inflation rates, trade balances and various speculative pressures in individual countries. Among the currencies of major industrial countries, the Japanese yen stabilized against the United States (U.S.) dollar in 2000 and maintained an average at almost the same level achieved in the previous year. Depreciation of a number of Asian currencies in recent years contributed to a general strengthening of the U.S. dollar. At the same time, the common unit of the European exchange rate mechanism, ECU, called EURO, continued to depreciate, closely followed by the German Mark and currencies of other countries participating in the mechanism. The U.K. pound also depreciated moderately against the U.S. dollar (Figure 1-3).

1.19 Movements in exchange rates affect relative prices of international travel markets and hence the related demand and subsequent geographical distribution of traffic flows. Travel decisions are affected by exchange rates and price comparisons at different destinations. Differences in inflation rates and changes in exchange rates have, at various times, encouraged traffic in some markets and discouraged traffic in others.

1.20 Fluctuations in exchange rates affect the profitability and balance sheet of airlines. If the proportion of an airline's expenses incurred in the foreign currency exceeds the proportion of its foreign currency revenues, then the devaluation of the local currency would tend to reduce the airlines' operating profit. On the other hand, there could be a profit associated with that part of the airline's debt denominated in a depreciated foreign currency. An appreciated foreign currency, however, would increase the debt burden.



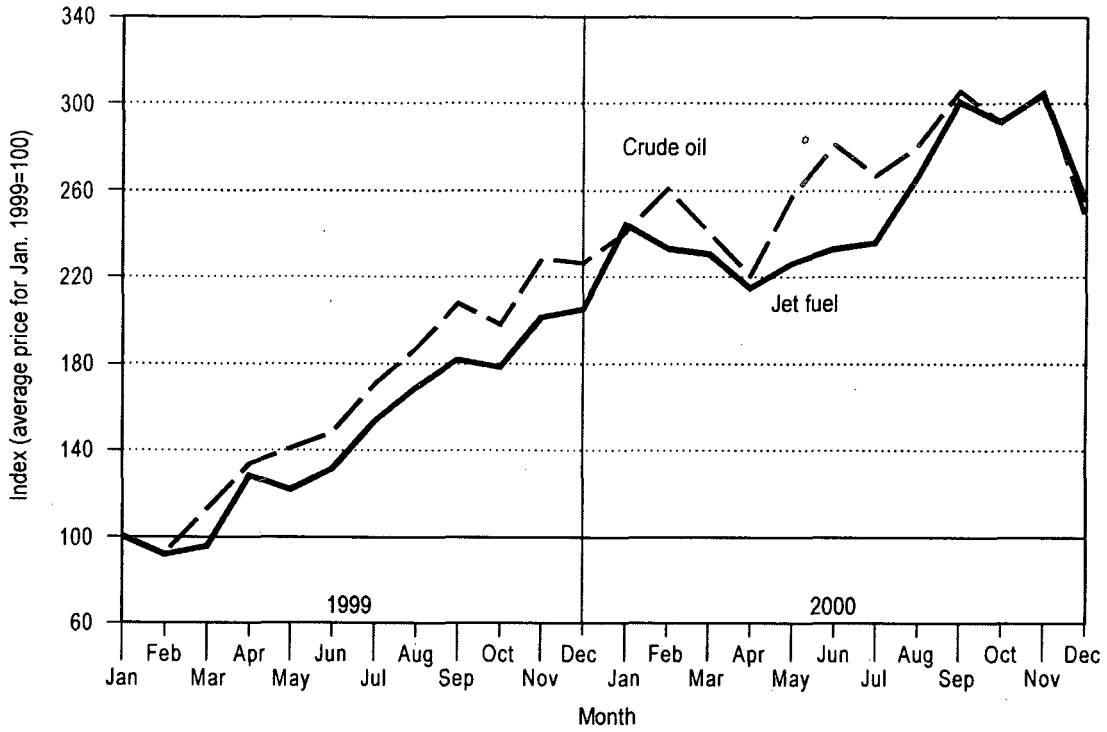
Source: IATA five-day rate.

Figure 1-3. Currency variations with respect to the U.S. dollar (January 1999 to December 2000)

CRUDE OIL AND JET FUEL

1.21 In the year 2000, world prices of crude oil continued to escalate primarily due to a more disciplined quota within the Oil and Petroleum Exporting Countries (OPEC) and a rebound in demand. After experiencing a short-lived reduction in prices during the first quarter of 2000, the world trade prices of crude oil rose and remained at a decidedly higher level (Figure 1-4). Oil prices soared to as high as $33 U.S. per barrel towards the end of the year.

1.22 Consequently, jet fuel prices increased, resulting in higher operating costs for airlines worldwide. Some airlines chose to impose fuel surcharges to offset higher fuel prices. The average annual price of jet fuel in U.S. dollars rose from 49 cents per gallon in 1999 to about 85 cents per gallon in 2000. Over the past decade, fuel costs have ranged from 12 to 25 per cent of scheduled airlines' operating costs (Figure 1-4).



Source: Petroleum Economist and the Journal of Commerce.

Figure 1-4. Trends in crude oil and jet fuel prices (January 1999 to December 2000)

Chapter 2
Air Carriers and their Fleets

2.1 This chapter reviews developments in 2000 regarding the economic regulation of air carriers; market entry and exit by air carriers; air carrier ownership, alliances and cooperative ventures; the service levels and the fares and rates they offer; the distribution of their products; their traffic, their fleets and their finances. Some information on developments in general aviation activities in 2000 is also included.

ECONOMIC REGULATION

Air transport agreements and negotiations

2.2 States continued to expand international air transport networks using bilateral air services agreements. During the year, a total of 73 bilateral air services agreements were reportedly concluded or amended by 72 States. This was a slim increase from the total of 67 agreements reported in 1999. Of the 72 States, the United States and India each concluded or amended over 15 agreements.

2.3 Continuing a trend, approximately 70 per cent of these agreements and amendments contained some form of liberalized regulatory arrangements. For example, 15 "open skies" agreements were concluded among 18 countries (See Table A1-1 of Appendix 1). These agreements provide for full market access without restrictions on designations, route rights, capacity, frequencies, code sharing and tariffs. Seven of them are for immediate introduction, and the remaining eight are on a phase-in basis. Eight of the 15 open skies agreements also allow seventh freedom for all-cargo services. It is noteworthy that the agreements involve not only developed countries, but also an increasing number of developing countries (about 60 per cent).

2.4 In addition, all-cargo open skies agreements were concluded between Colombia and the United States, and between Jamaica and the United States. The provision of intermodal transport was agreed between Germany and the United States and between Morocco and the United States as one of the additional elements of their open skies agreements. The intermodal agreement allows airlines to sell services on both air transport between the two countries and on connecting surface transport, such as rail or bus services, to other destinations in the parties' territories or in third countries.

2.5 Negotiations of agreements, however, have not always been easy. During 2000, the five-year-long open skies negotiations between the United States and the United Kingdom

continued intermittently, but in October the next round of talks was deferred until early 2001, taking into consideration the failure of British Airways-KLM merger talks and British Airways' resulting need to review its alliance policy. The Government of Argentina in January advised the United States to put the application of the open skies agreement agreed in 1999 on hold because of the financial trouble of Aerolineas Argêntinas. In November, both governments agreed to amend the original agreement to accommodate Argentina's request by deferring the implementation of full market access. Australia and the United Kingdom came close to an open skies agreement, but could not finalize it owing to the divergence of ownership and control issues.

Trade in services developments

2.6 Another significant development in 2000 was the undertaking by the Council for Trade in Services (CTS) of the World Trade Organization (WTO-OMC) to review the Annex on Air Transport of the General Agreement on Trade in Services (GATS). The CTS, which oversees the operation of the GATS, was charged to review developments in the air transport sector and the operation of this Annex with a view to considering the possible further application of the Agreement in this sector. Two special sessions were held in September and December that examined developments in the air transport sector and the operation of the Annex. During the process of review, there were some indications of possible additions to the Annex of certain further elements of "soft" rights. For example, some elements of ground handling are considered appropriate by WTO-OMC Members for inclusion, such as passenger, baggage, freight and mail handling; ramp handling; aircraft services including cleaning, disinfecting, heating and de-icing; and crew administration. Airport services encompassing "the provision of air terminal services and runway operating services" as well as general aviation (especially "air taxi" services) are also potential targets for inclusion in the Annex. As for "hard rights", a small number of WTO-OMC Members now seem prepared to consider the inclusion of at least some aspects in the Annex. Several sub-sectors such as cargo, non-scheduled and multimodal transport have been identified as potential early candidates for inclusion in the Annex. A full review is expected to be completed before detailed discussions of any possible extension of the Annex takes place. So far the review has not reached any firm conclusion.

2.7 A related development within the WTO-OMC was the consideration of a proposed GATS Annex on Tourism. Tentative drafts of this Annex have included elements such as perceived anti-competitive practices including access to airports and to computer reservation services which have implications for air transport and are possibly conflicting and overlapping in coverage with the GATS Annex on Air Transport. The Organisation for Economic Co-operation and Development (OECD) also launched an initiative to develop a model bilateral and a multilateral agreement for the liberalization of air cargo transport.

Regional regulatory developments

2.8 Air transport liberalization activity continued to develop at the regional level. The regional liberalization arrangements have the basic objective of providing greater market

access and improving services among the Member States concerned. Small groups of States of comparable size and development would find it easier to agree on market access than larger diverse groups of States. The small groups also would provide a more manageable environment to test liberalized air transport policies.

2.9 In Africa, the Heads of States and Governments of the Organization for African Unity (OAU) endorsed, in August, the regional provisional aviation agreement reached in 1999 by the African Transport Ministers (known as the Yamoussoukro Decision), which would gradually liberalize the African skies with the aim to achieve full integration by 2002. In contrast, the Council of Ministers of the Common Market for Eastern and Southern Africa (COMESA) decided in December to put in abeyance the further implementation of the programme of "Liberalisation of Air Transport Services" pending establishment of the COMESA Air Transport Regulatory Board and the formulation and implementation of the COMESA Air Transport Competition Rules. However, COMESA Member States in a position to implement the programme could continue to do so.

2.10 In Asia and the Pacific, the meeting of the Transportation Working Group of the Asia-Pacific Economic Cooperation (APEC) in October reviewed the implementation of the eight recommendations for the liberalization of air transport developed in 1998. The Working Group reported that the extent to which the recommendations have been implemented varied considerably while common interest was strong among APEC members in multiple airline designation, airline cooperation, charter services and air freight. In November, five like-minded members of the APEC (Brunei Darussalam, Chile, New Zealand, Singapore and the United States) concluded a new plurilateral open skies agreement. This agreement mirrors the United States' open skies bilateral agreements, but removed the traditional foreign ownership limits (while keeping effective control of an airline) to enhance cross border investment among foreign carriers.

2.11 In Europe, a referendum in Switzerland in May approved the wide-ranging bilateral agreement with the European Union (EU), under which Switzerland would be fully integrated into the European Economic Area (ECA). The European Commission continued to pursue the proposal to negotiate on behalf of the EU with the United States for a Transatlantic Common Aviation Area (TCAA). The proposal, which was originated by the Association of European Airlines (AEA) in September 1999, identifies core areas for liberalization including the freedom to provide services, airline ownership and the right of establishment, competition policy and leasing of aircraft. It advocates liberalization between the EU-U.S. market on an incremental, regional basis, with provisions for other like-minded States to join subsequently. The Ministers of the European Council adopted in December an agreement on a new EU Treaty dealing with the institutional operations of an enlarged EU. The enlargement will include 12 additional States, of which 10 are from Central and Eastern Europe, and their accession is targeted for completion by January 2004.

2.12 In Latin America, the Aeronautical Authorities Council of the Fortaleza Agreement (signed in 1997 by six countries in the region) set up a commission in August under the chairmanship of Chile to study further liberalization options, including a prospective harmonization with the Andean Pact countries. In September, the representatives of the Caribbean Community (CARICOM) and the United States met in Jamaica to exchange views

on a possible regional open skies agreement. Also in September, the Special Committee on Transport of the Association of Caribbean States (ACS) met to reach consensus on the principle of air transport liberalization including a proposal for an ACS Common Aviation Area.

National liberalization policies

2.13 At the national level, the Government of Australia formally issued its new liberal aviation policy in June, providing for negotiation of reciprocal open skies arrangements with like-minded States. This policy called for a multiple airline designation, unrestricted market access, pricing, freight and code sharing. The Japanese government liberalized its domestic air transport in February by removing both upper and lower limits of fares and by allowing airlines to enter into new routes or withdraw from unprofitable operations without prior government authorization. The Governments of Cambodia and Lebanon also announced in March and November, respectively, liberal aviation policies which allow more open access by foreign carriers to their international airports. The Government of the United Kingdom in December initiated a review process of its overall air transport policy in light of capacity and environmental constraints.

Fair competition

2.14 Anti-competitive behaviour in the airline industry takes a variety of forms, which range from predatory practices against a specific competitor on a particular route to monopolistic activities serving to strengthen existing market power. Along with liberalization activity, the question of how to maintain fair competition in international transport is becoming an issue, and the use of competition laws in dealing with anti-competitive behaviour has occurred with more frequency. Table A1-2 summarizes major anti-competitive cases reported in 2000, other than those involving mergers and alliances. However, one of the fundamental problems is distinguishing between anti-competitive and normal behaviour. The United States Department of Transportation (DOT) proposed enforcement guidelines designed to address unfair competitive practices against new airlines; this brought about heated debate. DOT supporters cited the need for action in order to prevent alleged abuses of dominant positions by major airlines which prevented effective competition by new airlines. Opponents questioned the facts, analysis and conclusions underlying the proposed guidelines and characterized them as an effort to re-regulate the industry. (In January 2001, the DOT decided to apply a case-by-case approach instead of pursuing proposed enforcement guidelines.)

Consumer protection

2.15 In 2000, the protection and improvement of airline passenger rights acquired higher levels of importance, particularly in the major markets. In Europe, the European Commission (EC) published its consultation paper on passenger rights in January, followed by a Communication to the Council in June. The Communication proposed a combination of

airlines' voluntary commitments and enforcement regulations. In December, as a first step, the Commission started a consultation process about community air passenger reports on service quality indicators. In Latin America, the Assembly of the Latin American Civil Aviation Commission (LACAC) in November adopted a recommendation on a consumer protection code for airlines. In the United States, the legislation known as "AIR-21" was enacted, introducing a number of consumer-related measures and investigation requirements. Under the legislation, the Inspector General of the U.S. DOT in June released the interim report on airlines' customer service commitment, which had been developed as a "Customer First" initiative by the Air Transport Association and its member airlines since 1999. The report noted that while the airlines made efforts to improve customer services the results were mixed. Also the International Air Transport Association (IATA) developed and adopted a Global Customer Service Framework as a recommended practice for use by member airlines.

Airport access

2.16 During the past ten years, the growth in commercial air services has continued to outstrip the available capacity at more and more airports. Although many airports with congestion problems are located in Europe, a growing number of airports in other regions are reaching capacity limits. Moreover, because of the interconnected operations of the international air transport system, capacity constraints at some airports impact on other airports. Environmental, economic, political and physical constraints on increasing airport capacity have, in some instances, exacerbated this problem. Governments, airlines and airports have each developed measures to overcome or ameliorate situations of insufficient airport capacity. However, governments are increasingly likely to face situations where the demand by airlines to initiate or increase commercial operations cannot be met because of a lack of airport capacity. In June, ICAO held the Conference on the Economics of Airports and Air Navigation Services (ANSConf 2000) to discuss, *inter alia*, capacity management, including slot allocation.

2.17 In Europe, according to the Association of European Airlines (AEA), intra-European departures exceeding 15 minutes' delay showed minor improvements from the worst level of 30.3 per cent in 1999 to 25.5 per cent in 2000. The highest proportion of delays was attributed to constraints of air traffic control and airport congestion. In July, the EC announced its intention to propose a revision to its current regulation on slot allocation, in order to make airlines use their slots more efficiently at congested airports and to ensure effective competition between incumbents and new entrants. The Commission's proposal, which ran into strong opposition from the airline industry, includes replacement of grandfather rights with a more market-oriented mechanism of time-limited slots and secondary trading of slots.

2.18 In the United States, a combination of bad weather, airport congestion and labour unrest caused a sharp increase in flight delays during the summer period, these being at or near record levels in terms of the number of flights arriving late. In September, the Port Authority of New York and New Jersey informed airlines that it could not add new flights at peak hours at New York-LaGurdia airport, taking into account the unacceptable levels of flight delays. In December, the United States Federal Aviation Administration (FAA) conducted an "emergency lottery" of LaGurdia's slots, which would temporarily scale back

operations to alleviate congestion and delays. A definitive long-term plan for assignment of slots at LaGurdia airport was planned to be finalized during the summer of 2001.

OWNERSHIP, ALLIANCES AND COOPERATION

Privatization

2.19 The trend towards partial or full privatization of government-owned airlines continued in 2000. Preparations for privatization continued for some 30 government-owned carriers which had been targeted in previous years, while privatization objectives were announced for another four airlines (See Table 2-1). From 1985 to 1994, governments announced privatization plans or expressed intentions of privatization for approximately 115 national airlines. Since 1995, another 50 carriers had joined the list. By December 2000, 62 of these targeted carriers had achieved their privatization goals (37 since 1995).

2.20 Partial privatization was achieved in 2000 by six airlines, some involving varying degrees of foreign equity investment. The Government of Cyprus reduced its stake in Cyprus Airways from almost 80 per cent to 66 per cent by issuing a stake in the local exchange market. The Government of Mauritania sold some 61 per cent of its 68 per cent stake in Air Mauritanie to investors including Air Afrique. The Government of the Republic of Moldova sold 49 per cent of its stake in Air Moldova to Unister Venture Gmbh (a German investor). The Government of Côte d'Ivoire sold 51 per cent of its stake in Air Ivoire, which had suspended operations in 1999. Air France bought a 34 per cent stake in this deal which provided for Air Afrique to acquire the other 17 per cent and for the Government to assume all the debts of Air Ivoire. In December, British West Indies Airways (BWIA) completed the initial public offering of its stock. The European Bank for Reconstruction and Development (EBRD) acquired an almost 10 per cent stake in Ukraine International Airlines from the State Property Fund.

2.21 Delays in implementation of privatization plans were reported in Greece, India, Thailand and Turkey. However, the Government of Thailand agreed, in March, to the sale of 23 per cent of its 93 per cent stake in Thai Airways International, 10 per cent of which would be offered to a strategic partner. The Indian government initially announced that it would sell 51 per cent of its stake in Indian Airlines and later decided to sell a 60 per cent stake in Air India as well. The Government of Turkey launched the official tender process to sell a 51 per cent stake in Turkish Airlines. Foreign investors that took part in the bidding consortium would be able to own no more than 24 per cent. The Greek government also launched the official tender process in December to sell as much as a 65 per cent stake in Olympic Airways.

2.22 The privatization of several other carriers had to be deferred or postponed because of a variety of reasons such as the complexities encountered in the process, the economic condition of the airlines concerned, or other local circumstances. Uganda Airlines was forced to cease operations in April after its failure to offer its shares to South African Airways.

2.23 In contrast to the general trend, the Government of Jamaica increased its stake in Air Jamaica from 25 to 45 per cent in exchange for a $45 million loan to the airline in July. In December, the Malaysian government bought back an almost 30 per cent stake in Malaysian Airlines to regain control of the financially-troubled carrier. The Government Pension Fund also bought a 9 per cent stake in Malaysian Airlines from the Brunei Investment Agency. The Government is considering to resell a majority of its shares to foreign carriers.

National consolidation

2.24 In 2000, among the reported major developments in airline consolidation at the national level, of particular note was the proposed United Airlines-US Airways merger that was announced in May. If the merger proceeds as proposed, a new United Airlines would have over 25 per cent of the domestic market in the United States. To ease regulatory concerns about reduced competition, the carriers proposed to sell US Airways' regional operations in the Washington area to a new carrier called DC Air. In January 2001, American Airlines announced its intention to buy Trans World Airlines and also to purchase from United Airlines some 20 per cent of US Airways assets and 49 per cent of DC Air. After protracted discussions with the United States Department of Justice (DOJ), Northwest Airlines resold to Continental Airlines its controlling voting stake, while keeping veto power over any proposed financial dealings by Continental Airlines with other airlines. In Canada, the takeover of Canadian Airlines by Air Canada was completed, thereby securing nearly 80 per cent of Canada's domestic airline market. In approving the takeover, the Canadian government imposed several conditions to protect competition, employees and air services in small communities. In Mexico, the Federal Competition Commission ordered the breakup of CINTRA, the holding company of AeroMexico and Mexicana.

2.25 In China, the airline industry was in the process of consolidation. The Civil Aviation Administration of China (CAAC) was reported to have encouraged airlines to merge into three corporate groups to help better prepare for a more competitive marketplace, particularly when China joins the World Trade Organization (WTO-OMC). The new group would be headed by Air China, China Eastern Airlines and China Southern Airlines. In August, China Southern Airlines took over Zhongyuan Airlines and entered into merger talks with China Northern Airlines in October and with Xinjiang Airlines in November. China Eastern Airlines announced in August that it would take over Great Wall Airlines, while Hainan Airlines was taking over Changan Airlines. In October, Shandong Airlines moved to take over Shanxi Airlines and was in merger talks with China Northwest Airlines.

2.26 In Europe, major airlines launched takeovers of, mostly, smaller regional airlines. In Austria, Austrian Airlines increased its stake in Lauda Air from 36 to almost 55 per cent in November. In France, Air France bought a 42 per cent stake with an option to increase to 100 per cent in Proteus Airline. Air France also acquired a 70 per cent stake in Regional Airlines in January and a 49 per cent stake in Brit Air through its subsidiary and subsequently increased both stakes to almost 100 per cent. Air France plans to merge these three carriers and Flandre Airlines, which merger would control about half of the French domestic market, competing with SAirGroup-backed carriers (AOM, Air Littoral and Air Liberte). In Germany,

Table 2-1. Government-owned airlines targeted for partial or full privatization (2000)

Targeted during 2000	Targeted before 2000 and progress reported	Aim achieved during 2000
Motor Sich Aviacompania (Ukraine)	Aer Lingus (delayed)	Air Ivoire
TACV Cabo Verde	Aeromexico/CINTRA Holding	Air Mauritanie
TAME Ecuador	Air Afrique (delayed)	Air Moldova
Winair (Netherlands Antilles)	Air ALM (Netherlands Antilles)	BWIA West Indies Airways
	Air China	Cyprus Airways
	Air India	Ukraine International Airlines
	Air Niugini	
	Air Ukraine	
	Alitalia (delayed)	
	Biman Bangladesh	
	CSA Czech Airlines	
	Dominicana (reorganized)	
	El Al Israel Airlines	
	Emirates	
	Iberia (delayed)	
	Indian Airlines	
	Kuwait Airways (delayed)	
	Kyrgyzstan Airlines	
	Lituanian Airlines	
	Malev Hungary (delayed)	
	Mexicana/CINTRA Holding	
	Nigeria Airways	
	Olympic Airways	
	Royal Air Maroc	
	Royal Jordanian Airlines	
	Saudi Arabian Airlines	
	South African Airways (delayed)	
	Sudan Airlines	
	Tarom Roumanian (delayed)	
	Thai Airways International	
	Turkish Airlines	
	Uganda Airlines (suspended)	

Lufthansa agreed to take an almost 25 per cent stake in Eurowings in September. In Spain, Iberia started merger talks with Air Europa. In Sweden, Skyways acquired a 63 per cent stake in Flying Enterprise in January and merged three of its four subsidiaries, Highland Air, Airborne and Air Express, to form Skyways Regional.

Transnational ownership

2.27 During 2000, the trend towards partial foreign ownership of airlines continued. Several governments adopted a new policy or amended existing rules on foreign investment

or control in national carriers. The Government of India liberalized its rules and permitted a strategic partner to take a holding in Air India of up to 40 per cent, including 26 per cent of foreign equity. In the case of Indian Airlines, the selected strategic partner would be permitted to acquire up to 26 per cent. Foreign airlines would not be allowed to acquire a stake, and foreign equity in the strategic partner would be limited to 40 per cent of latter's capital. As for privately-owned domestic airlines, up to 40 per cent of foreign non-airline equity or 100 per cent non-resident Indian holdings would be permitted. The Indonesian government, which originally had no specific limitation on foreign stake, set a new 49 per cent limit in its airlines through a presidential decree issued early in the year in order to encourage local investment, but it was revoked by a later decree that reinstated no limitation. The Malaysian government increased the foreign investment ceiling in Malaysia Airlines from 30 to 45 per cent to attract foreign strategic partners.

2.28 At present, many airlines continue to make equity investment in foreign carriers, often as part of a strategy to forge or strengthen alliances and expand market access. By December 2000, at least 57 carriers had shareholdings in foreign airlines while over 190 airlines had equity owned by foreign investors. Table A1-3 summarizes carriers' investments in foreign airlines reported in 2000. Other notable events in 2000 were the separate plans to merge KLM with Alitalia and with British Airways. Although both proposed plans eventually fell through owing to the political, economic and regulatory complexity of the negotiations, they raised significant issues relating to substantial ownership and effective control of designated airlines in view of the designation and authorization provisions contained in most bilateral air services agreements.

Transnational alliances

2.29 Airlines throughout the world continued to form alliances to maximize the benefits of economies of scale and scope through various cooperative arrangements (such as code sharing, blocked space, cooperation in frequent flyer programmes, joint marketing and purchasing, and franchising). These alliances are needed for a variety of reasons but in large part due to increased traffic feed and to an increasingly competitive environment. During 2000, over 200 agreements were concluded, amended or terminated by about 150 airlines worldwide (see Table A1-4), with approximately 50 per cent of them resulting in new partnerships. About 70 per cent involved code sharing or some form of operational coordination. Eight agreements were cargo alliances, two were intermodal agreements, and ten were franchise agreements. Overall, airline alliances continued to thrive and evolve, with partnership relations becoming more intertwined and complex.

2.30 There has been continued formation and expansion of competing "global alliance" groupings, which comprised some major airline members based in different continents with fairly extensive networks. As shown in Table A1-5, there are now five global alliance groupings through which member carriers have combined their route networks and together reportedly carried about 50 per cent of the world scheduled passenger traffic. In 2000, the "Star Alliance" was joined by four new carriers. It strengthened its existing central management to facilitate the member airlines' shift of focus from expanding the alliance to deepening the degree of cooperation among its members. "Oneworld" was joined by two new

members. It also set up a central management organization to coordinate strategies. "SkyTeam" was launched in June by four carriers, which also established a comprehensive cargo alliance known as SkyTeam Cargo. Within the alliance group dubbed "Wings", Northwest Airlines and Continental Airlines agreed in November to extend their alliance agreement through 2025 in return for Northwest's disposal of a controlling stake in Continental Airlines. KLM and Northwest Airlines also concluded comprehensive agreements with Malaysian Airlines, though the Malaysian carrier has also been approached by other alliance groups. The Swissair-led European alliance group "Qualiflyer" was joined by four airlines in 2000.

2.31 Except for the newly established SkyTeam, each global alliance suffered from instability of internal partnerships in various degrees. Within Star Alliance, Thai Airways International was reluctant to accept the membership of Singapore Airlines, as the two carriers have long been direct competitors. Within oneworld, Canadian Airlines International withdrew its membership in June due to its takeover by Air Canada. In addition, the inability of British Airways and American Airlines to obtain anti-trust immunity from the U.S. DOT and the tough conditions for approval by the European Commission prevented the forming of a transatlantic alliance between the two core members. American Airlines instead built a partnership with Swissair and Sabena, core members of "Qualiflyer". Strains on oneworld were added by British Airways-KLM merger talks. Within Wings, KLM suddenly decided to terminate the partnership and proposed a merger with Alitalia in April.

2.32 The expansion and raised level of consolidation within each global alliance and the competition between them raised increasing regulatory concerns in terms of the potential adverse impact on competition and consumers. Some proposed major alliances received close examination by relevant national and regional regulatory bodies and, in some cases, certain regulatory measures were introduced to ameliorate the anti-competitive aspects of the arrangements. In 2000, the U.S. DOT approved and granted antitrust immunity to agreements between American Airlines, Sabena and Swissair, between Icelandair and SAS, and between Northwest Airlines and Malaysian Airlines, while reviewing those between American Airlines and Transportes Aéreos Centroamericanos (TACA), between Continental Airlines and Compañia Panameña de Aviación (COPA), between United Airlines, Austrian Airlines, Lauda, Lufthansa and SAS, and between United Airlines and Air New Zealand. The European Commission started its investigations into agreements between British Midland, Lufthansa and SAS, and between Austrian Airlines Group, Lufthansa and SAS, while continuing its investigations of agreements between Air France and Delta Air Lines, between British Airways and American Airlines, between KLM and Northwest Airlines, and between Lufthansa, SAS and United Airlines. The Australian Competition and Consumer Commission (ACCC) approved the expansion of the agreement between Qantas and British Airways for a further period of three years.

2.33 Along with the expansion of global alliances, moves to form alliances at the regional level were taking place, either as preparation to integrate into a global grouping at a later stage or to compete better against the global alliances. In the Caribbean area, Leeward Islands Air Transport (LIAT), Winair and Air Caraibes (formed by the merger of four carriers in July) established a strategic alliance called Carib Sky Alliance in October. The alliance aims at increasing their combined market share and reducing costs; the agreement included

code sharing, joint frequent flyer programmes and cooperation in marketing, sales, operation and maintenance. In Eastern Europe, JAT Yugoslav Airlines began talks with airlines in neighbouring countries on the formation of a south-eastern European airline alliance covering maintenance, logistics and capacity coordination. In the Middle East, five members of the Arab Air Carrier Organization (AACO) — Egyptair, Middle East Airlines, Royal Air Maroc, Royal Jordanian Airlines and Saudi Arabian Airlines — signed a joint marketing agreement in November. The objective was to boost traffic through improved coordination between their air services, starting with flights within the Middle East region and flights to Asia and Africa.

FARES AND RATES

Tariff establishment

2.34 In 2000, the IATA multilateral tariff coordination machinery continued to function against the background of uncertainty arising from government regulatory requirements, particularly implications of competition laws, and significant changes in the airline operating environment, including the surge of fuel costs and the increasing impact of the widespread use of automation technology.

2.35 Early in the year, the European Commission initiated its investigation into a block exemption from certain aspects of competition law requirements which allowed airlines of the European Union Member States to continue to participate in consultations on passenger tariffs at IATA until 30 June 2001. With respect to the antitrust immunity for tariff coordination activities, the U.S. DOT required airlines participating in one of the immunized alliance agreements to withdraw from IATA tariff coordination activities between the United States and countries designating a carrier that was granted antitrust immunity. At the end of 2000, carriers participating in one of the immunized alliances by the U.S. DOT were not allowed to attend IATA conferences to discuss fares on routes between the United States and Austria, Belgium, Chile, Denmark, Germany, Iceland, Italy, Malaysia, Netherlands, Norway, Sweden and Switzerland. The Australian Competition and Consumer Commission (ACCC) also started to review the current IATA blanket immunity from the Trade Practices Act. The ACCC requested IATA to provide necessary information on IATA's activities.

2.36 IATA continued to adjust its tariff coordination process and structure to adapt to the changing regulatory and operating environment. The first phase of the transformation of IATA tariff services started on 1 January as scheduled. This phase involved commercialization of activities and a revised payment structure. The second phase involving formal revision of the Traffic Conference Provisions to modernize the tariff conference process was, however, put on hold, taking into consideration the prevailing regulatory circumstances.

Tariff developments

2.37 The new fare construction rule for normal fares, known as the pricing unit concept adopted by IATA in 1996, was finally implemented in June. The subsequent IATA tariff

conference held in July further amended the rules to meet concerns of the Canadian Transportation Agency and the U.S. DOT, who had each disapproved different portions of the rules. The conference also discussed the so-called "Internet package", which was developed to meet the impact of Internet and electronic ticketing facilities on the application of present rules, but could not reach an agreement because of the divergent opinions among members.

2.38 In 2000, IATA convened special passenger tariff conferences in February and November to address significant increases in the cost of aviation fuel. The carriers agreed to increase IATA fare levels by 3 and 4 per cent, respectively, with some variations on routes that would come into effect in April and December, subject to government approval. Many airlines also increased their domestic fares to offset the rising cost of jet fuel. Increases in domestic fares were reported, *inter alia*, in Australia, Brazil, Canada, China, Greece, Italy, New Zealand, Nigeria, Pakistan, South Africa, Spain, Thailand and the United States.

PRODUCT DISTRIBUTION

Computer reservation systems

2.39 In 2000, there was a 2.6 per cent increase in the total number of air segments reportedly booked by the four global CRSs — Amadeus, Galileo, Sabre and Worldspan. According to the estimate by *Travel Distribution Report*, Sabre retained its lead in air bookings (33.3 per cent), while Galileo reported a small decline but retained the second rank (28.2 per cent), followed by Amadeus (24.9 per cent) and Worldspan (13.6 per cent). The increase in CRS bookings seemed to suggest that the vendors have adapted quite well to challenges posed by the fast growing use of the Internet for booking air travel. CRS bookings for other services, such as hotels, car rentals, tours and cruises, also increased by 8.2 per cent. The four global CRSs continued to develop or improve programmes to help airline participants and travel agents within their respective systems to cut down training costs and improve productivity.

2.40 At the corporate level, Amadeus completed a secondary stock offering in May. The percentage of Amadeus shares traded publicly increased from 25 to 40 per cent, while Air France kept some 23 per cent, and Iberia and Lufthansa each had 18 per cent. In April, Amadeus won a 10-year contract from British Airways to serve as its reservation host and took over the contracts of British Airways' subsidiary, Speedwing. In April, Galileo succeeded in extending its distribution contract with ARABI Automated Reservation Services until 2008. ARABI was created under the auspices of the AACO and includes nine carriers in the Middle East region. In March, AMR Corp., the parent company of American Airlines, spun off its 83 per cent shareholding in Sabre. In June, Sabre purchased a 51 per cent stake in Dillon Communication systems, a supplier of electronic distribution systems based in Germany. This gave a boost to Sabre's operation in Germany. Worldspan cut ties with Abacus and filed for arbitration, alleging that Abacus had violated its contracts. In August, an arbitration tribunal, authorized by the International Chamber of Commerce, ordered Abacus to pay Worldspan over $40 million in damages and misuse of proprietary information.

2.41 Although many of the original regulatory concerns with CRSs have diminished in recent years as ownership has moved away from air carrier owners to the public, some other concerns have emerged from the rapid development of e-commerce. The European Commission has been in the process of developing possible amendments to its existing regulation on CRSs and examined several items where implementation of the regulation was proving difficult or where new developments, especially in the area of e-commerce, necessitated some revisions. The European Civil Aviation Conference (ECAC) adopted a recommendation on a revised ECAC CRS Code of Conduct in June, replacing its 1994 code in light of the EU regulation. The U.S. DOT continued its review of rules for CRSs and, for a third time, extended the effectiveness of the current CRS rules for one year (i.e. up to 31 March 2001), to allow additional time to complete a comprehensive review of industry developments, such as the rapid growth of Internet services and airlines' cuts in travel agency commissions. In July, the U.S. DOT sought comments on whether the CRS rules remain necessary and effective in light of the airlines' diminishing control of CRSs and whether new rules covering Internet should be adopted.

2.42 At the end of 2000, 31 States either followed the ICAO CRS Code or had CRS regulations which were consistent or compatible with it. Two of these States have invoked the transitional developing country exemption aimed at delaying the entry of foreign vendors into their markets.

Electronic ticketing

2.43 Electronic ticketing increased in popularity during 2000 as more airlines introduced the practice or expanded the capability for additional routes. According to the Airline Reporting Corporation (ARC) which manages travel agents' transactions with air carriers in the United States, electronic tickets processed through ARC accounted for some 58 per cent of total volume in December 2000, compared with almost 48 per cent a year ago. Although electronic ticketing was initially offered for domestic flights, it has now become available for international flights in all regions. Major CRS vendors introduced new enhancements to their electronic ticketing products to be launched worldwide. For example, Galileo introduced electronic ticketing for the Qualiflyer group in Belgium, Portugal, Switzerland and the United Kingdom in September and for Lufthansa in the United Kingdom in November. In an era of increased competition, these developments offer considerable cost savings for airlines and travel agents, and convenience for consumers.

2.44 Although the use of electronic tickets has been normally applied to single-carrier on-line itineraries, following the initiative by America West Airlines and Continental Airlines in October 1999, reciprocal interline electronic ticketing (e-interlining, i.e. the ability to use electronic tickets on more than one airline) was introduced by Air Canada and United Airlines in June, and by Continental Airlines and Northwest Airlines in October. With the objective to enable e-interlining on an industry-wide basis, IATA adopted a resolution on e-commerce in June. While an earlier project to create a centralized electronic ticketing system by IATA and IBM was forced to be suspended because of insufficient interest to bring it to fruition, IATA continued its effort to establish an industry-wide e-interlining system in cooperation with SITA.

Travel agents

2.45 The advance of information technology, together with the liberalization of tariffs, had a significant impact on the long-established relationship between airlines and travel agents. Until recently, strict tariff regulations and the lack of the airlines' own sales outlets often discouraged airlines from introducing low fares or embarking on direct sales. Travel agents acted as distribution outlets on behalf of airlines in exchange for the commission overrides that airlines paid to them. The heavy reliance on travel agents, however, has gradually been eroded as many governments moved towards liberalized tariff regulations and as e-commerce led to the emergence of alternative cost-effective outlets. With pricing flexibility and Internet facility, airlines have been able to introduce low fares and sell them directly to consumers thereby cutting down on commission payments. IATA's worldwide remuneration rule to passenger sales agents was consequently abolished in August. In Europe, British Airways reduced its commission rate for international tickets from 9 to 7 per cent, which would be replaced by a fixed amount scheme based on sector distance from April 2001. Japan Airlines announced the change of its commission rate for international tickets from 9 to 7 per cent from April 2001. In the United States, according to the ARC, commissions for domestic and international tickets were reduced to 4 and 10 per cent respectively, compared with 6 and 12 per cent in 1999.

2.46 The reduction of commissions accelerated the move by travel agents toward product specialization, operational efficiencies and the establishment of some service fees, and sometimes brought considerable reaction from travel agents including threats of boycott and legal action. Government intervention also occurred. In Latin America, for example, it was reported that a number of legal investigations were launched by the respective competition authorities as a result of complaints by travel agents pursuant to the simultaneous reduction of commissions by carriers in Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Ecuador, Mexico, Panama, Paraguay, Peru and Venezuela.

Internet

2.47 An important development in recent years in the airline distribution area has been the rapid growth of on-line sales to consumers via the Internet. Although the majority of airline ticket sales were still being done through traditional travel agents, the share of on-line sales through the Web site of airlines and on-line travel agents continues to grow, especially in countries where Internet and credit card use is high.

2.48 A growing number of airlines continue to develop on-line booking facilities on their Web sites in order to increase the share of direct selling. For example, Delta Air Lines reported that more than 2.5 million tickets were purchased on the carrier's Web site, representing 5 per cent of its total ticket sales in 2000. Those tickets generated $775 million in revenue, up nearly 270 per cent from the $290 million in 1999. Low cost carriers tended to use Internet booking to a much wider extent than major carriers. EasyJet sold 80 per cent of all seats through the Internet in August, compared to 39 per cent of sales a year earlier.

Southwest Airlines' Web site generated more than $1 billion in passenger revenues (approximately 30 per cent of total passenger revenues) from January to August. The number of reservations booked through Southwest's Web site for this period increased by 96 per cent and revenue increased by 111 per cent over the same period last year.

2.49 In addition to their own Web sites, airlines moved to set up multi-airline Web sites, which could offer a wider product choice than the one offered by a single airline's Web site. As shown in Table A1-6, each site groups airlines belonging to different global alliances and is region-based. The characteristics of each site are quite different. Orbitz advertises Internet special fares posted by airlines on Orbitz only, which would give pricing advantage over traditional and on-line travel agents, while Hotwire.com specializes in discount tickets for price-conscious consumers, taking aim at Priceline.com, the market leader of on-line travel agents in cheaper discount ticket selling. MilePoint.com targets frequent flyers and its major competitor is AOL AAdvantage that allows American Online users, who buy online, to accumulate American Airlines' frequent flyer miles. European and Asian portals will cater to local needs and be associated with travel agents. Japan's on-line travel portal will sell international travels only, while three Japanese carriers have established a separate multi-airline site named kokunaisen.com for the sale of domestic air tickets.

2.50 All four major CRS vendors also pursued the Internet market aggressively through different strategies. In April, Amadeus bought 10 per cent in OneTravel.com, an on-line agency that sells discounted rates on air, car and hotel; and subsequently, it increased its share to 55 per cent (jointly owned by Terra Lycos). In November, Amadeus also purchased 19.9 per cent in Travel.com.au, Australia's leading Internet travel company, and Vacation.com, a U.S. e-travel consortium. Sabre is behind one of the leading on-line travel sites, Travelocity.com. In September, Sabre acquired GetThere.com, which provides direct on-line travel purchasing to major corporations. Worldspan provides reservation services to some of the other major on-line travel sites including Expedia.com and Priceline.com. In September, Galileo launched TravelGalileo.com which provides travel agents who use Galileo with customized Web booking facilities. Galileo also signed an agreement with Southwest Airlines which can use Galileo's network in order to offer car and hotel bookings on its Web site.

2.51 Giant on-line travel agents continued expanding their business. Travelocity.com, which had the largest market share, participated in the establishment of a Japan-based multi-airline Web site in August. Its Canadian affiliate, Travelocity.ca, and British Airways signed a partnership agreement in October. The second largest agent, Expedia.com, acquired Travelscape.com and VacationSpot.com in March to strengthen its Internet hotel booking. The third largest, Priceline.com, which provides "name your price" service (a reverse auction system) in discount tickets, announced its entry into European and Japanese markets. On the other hand, small- and medium-sized on-line travel agents tried hard to differentiate their business to remain competitive with airline Web sites, multi-airline Web sites and giant on-line travel agents. For example, Biztravel.com started to offer customers unprecedented refunds for late or cancelled flights on five major airlines. FairAir.com claimed to have commitments from several airlines that would allow it to issue transferable tickets. This would create secondary trading markets where passengers and speculators could buy and sell

each other's tickets. Fare1.com planned to enable travel agents to book all travel modes including discount tickets through a single Web site linking to all the major CRSs.

2.52 The above developments led to some regulatory actions. First, the U.S. DOT and the European Commission are each considering whether the CRS rules or codes should cover the Internet. Second, the U.S. DOT warned U.S. airlines in October that they could face legal action if telephone reservation agents fail to tell consumers that cheaper fares may be available on the Internet Web site or via e-mail offers. Third, the U.S. Department of Justice (DOJ) and DOT commenced an antitrust investigation into Orbitz, in response to the complaints lodged by American Society of Travel Agents (ASTA) and the Association of Retail Travel Agents (ARTA) in May and June, respectively. ASTA and ARTA were concerned that the internal rules of Orbitz contain a "most favoured nation" clause, in which the airlines agree they will not offer lower fares to any other Internet travel providers.

2.53 In the area of business-to-business (B2B), i.e. connecting buyer airlines with suppliers, two airline groups established on-line aviation purchasing portals to reduce purchasing costs and inventory through the use of Internet-based enabling technology. The first group was formed in April by Air France, American Airlines, British Airways, Continental Airlines, Delta Air Lines and United Airlines, and subsequently joined by Iberia, Qantas, SAirGroup and UPS. The portal was named AirNewco and announced in October its intent to explore a possible merger with another equipment manufactuers' portal, MyAircraft, under a new company Cordiem. The second portal, named AeroXchange, was launched in July by thirteen airlines (Air Canada, Air New Zealand, All Nippon Airways, America West Airlines, Austrian Airlines, Cathay Pacific, FedEx, Japan Airlines, KLM, Lufthansa, Northwest Airlines, SAS and Singapore Airlines). Both groups planned to use portals to purchase airframe, engine and avionics components, maintenance services, fuel and other goods and services from suppliers.

TRAFFIC

2.54 Indicators are given below of the development of airline scheduled traffic in 2000, international and domestic, including rates of growth, load factors and the ranking of airlines, States and city-pairs by volume of airline traffic, along with some estimates regarding the development of non-scheduled traffic.

Carriers

2.55 The total number of air carriers offering scheduled services at the end of 2000 is estimated to have remained at 807, the same level as in 1999. According to data published in multilateral airline schedule guides, 716 air carriers worldwide provided scheduled passenger services at the end of 2000. Another 91 carriers operated scheduled all-freight services at year's end.

Scheduled: world totals

2.56 The total scheduled traffic (domestic plus international) carried by the airlines of the 185 Contracting States of ICAO in 2000 is estimated at about 401 billion tonne-kilometres performed, an increase of about 8 per cent over 1999. The airlines carried a total of about 1 647 million passengers and some 30 million tonnes of freight in 2000, compared with 1 562 million passengers and 28 million tonnes of freight in 1999 (Table 2-2). In 2000, overall capacity increased at a slightly lower rate than traffic, hence the average passenger load factor on total scheduled services (domestic plus international) increased to 71 per cent in 2000 and the average aircraft (weighted) load factor increased to 61 per cent.

2.57 Compared to the previous year, in 2000 international scheduled traffic showed increases of about 9 per cent each in tonne-kilometres performed, in passengers carried, and in freight tonnes carried. International traffic accounted for some 59 per cent of total passenger-kilometres performed, 86 per cent of the freight tonne-kilometres performed and some 68 per cent of the total tonne-kilometres performed.

2.58 Domestic traffic increased by about 6 per cent, with some 130 billion tonne-kilometres performed in 2000 against 123 billion tonne-kilometres performed in 1999.

Table 2-2. Scheduled services of airlines of ICAO Contracting States (2000/1999)

	Passengers carried (millions)	Passenger-km performed (millions)	Passenger load factor (%)	Freight tonnes carried (millions)	Freight tonne-km performed (millions)	Mail tonne-km performed (millions)	Total tonne-km performed (millions)	Weight load factor (%)
TOTAL (International plus domestic)								
1999	1 562	2 797 800	69	28.1	108 660	5 720	370 420	60
2000	1 647	3 017 790	71	30.2	117 580	6 030	400 780	61
Percentage Change	5.4	7.9	2.0	7.5	8.2	5.4	8.2	1.0
INTERNATIONAL								
1999	493	1 622 250	70	17.3	93 280	2 480	247 610	63
2000	538	1 778 600	72	18.8	101 080	2 660	270 950	64
Percentage Change	9.1	9.6	2.0	8.7	8.4	7.3	9.4	1.0
DOMESTIC								
1999	1 069	1 175 550	68	10.8	15 380	3 240	122 810	56
2000	1 110	1 239 190	69	11.4	16 500	3 370	129 830	56
Percentage Change	3.8	5.4	1.0	5.6	7.3	4.0	5.7	0.0

Source: ICAO Air Transport Reporting Form A.

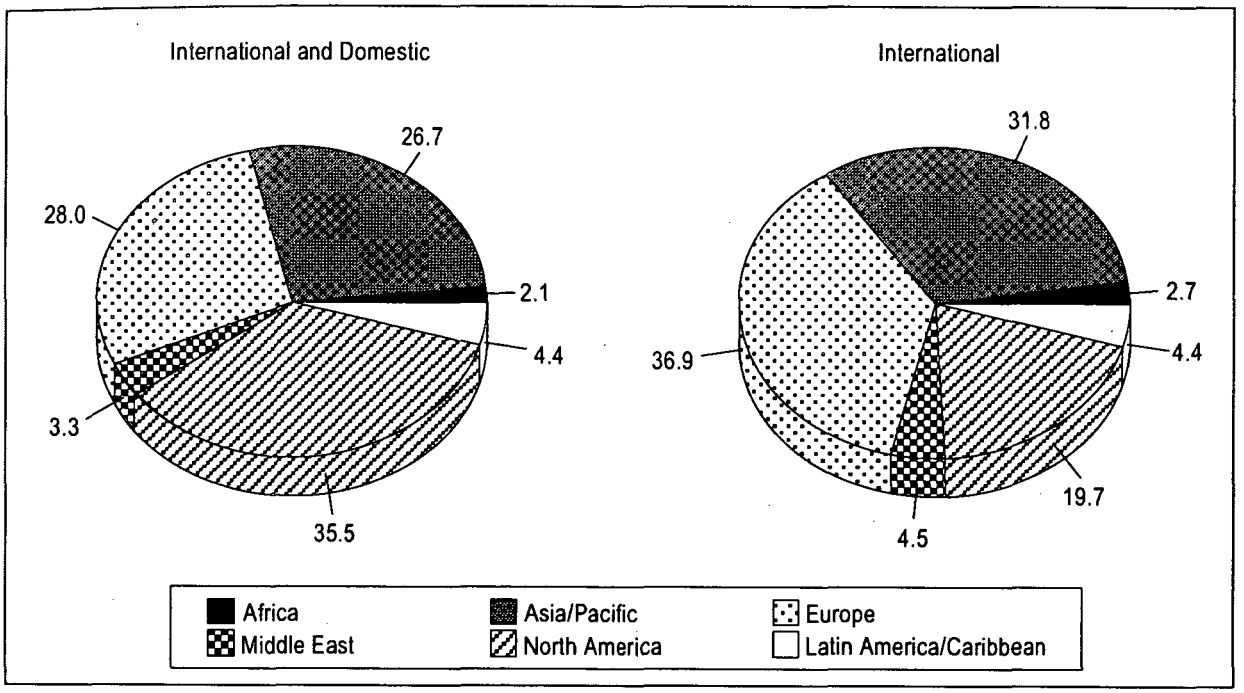
Scheduled: regional breakdown

2.59 From 1999 to 2000, increases in total and international scheduled traffic varied considerably among regions of carrier registration with respect to both passengers and freight. In terms of passenger-kilometres performed, the change in traffic ranged from some 6 per cent in total traffic for the airlines registered in North America and Latin America and the Caribbean to 11 per cent for airlines registered in the Middle East (Table 2-3). Changes in the passenger-kilometres performed on international services ranged from 7 per cent for airlines registered in Africa and Latin America and the Caribbean to almost 13 per cent for those

Table 2-3. Growth of scheduled traffic by region of airline registration: 1999-2000
(annual percentage change)

	Passengers carried	Passenger-kilometres	Freight tonne-km performed	Mail tonne-km performed	Total tonne-km performed
TOTAL (international plus domestic)					
Africa	4.0	6.5	2.9	11.9	5.9
Asia and Pacific	7.0	10.0	5.9	3.1	9.0
Europe	7.6	8.3	11.0	9.9	9.4
Middle East	6.7	11.0	3.6	3.8	8.0
North America	3.4	6.4	9.7	6.3	7.1
Latin America and Caribbean	4.6	5.7	4.7	-29.1	5.7
Total	5.4	7.9	8.2	5.5	8.2
INTERNATIONAL					
Africa	4.3	6.7	2.5	-11.1	5.8
Asia and Pacific	11.9	11.9	5.4	4.4	9.6
Europe	9.5	9.1	11.1	11.5	10.0
Middle East	11.0	12.9	3.7	5.4	8.7
North America	7.0	7.9	11.5	7.4	9.3
Latin America and Caribbean	3.4	7.1	6.6	-15.7	6.8
Total	9.1	9.6	8.4	7.1	9.4

Source: ICAO Air Transport Reporting Form A.



Source: ICAO Air Transport Reporting Form A.

Figure 2-1. Percentage distribution of scheduled traffic according to region of registration of airline — total tonne-kilometres performed (2000)

registered in the Middle East. In terms of freight tonne-kilometres performed, carriers registered in Africa showed increases both in total and in international traffic of about 3 per cent. At the other end of the scale, carriers registered in Europe showed an average increase of 11 per cent in total freight tonne-kilometres performed, while on international services the airlines of North America showed an increase of about 12 per cent.

2.60 The differences in regional traffic development between 1999 and 2000 caused some changes in the distribution of this traffic. The regional distribution for total and for international scheduled traffic in 2000 is shown in Figure 2-1 (detailed traffic data by region are shown in Table A2-1 in Appendix 2). In terms of total scheduled traffic (international plus domestic) in 2000, the airlines of North America carried some 36 per cent of total world traffic. However, the largest share of international scheduled traffic (about 37 per cent) was carried by the airlines of Europe.

2.61 In 2000, airlines registered in Asia/Pacific showed the highest average annual weight load factor on international scheduled services (about 68 per cent), while those in Africa showed the lowest average load factor (some 50 per cent). Compared with 1999, the

weight load factors for international scheduled services (shown in Table A2-1) represent an increase of about 5 percentage points for the airlines of Latin America and the Caribbean, 2 percentage points each for those of Africa and Asia/Pacific, 1 percentage point each for those of Europe and North America and little or no change for those of the Middle East.

Scheduled: carrier rankings

2.62 Table 2-4 shows the top 30 air carriers in the world in 2000 in terms of the overall volume of passenger-kilometres performed, freight and mail tonne-kilometres performed and total (passenger, freight and mail) tonne-kilometres performed, compared with the ranking of the same carriers in 1999 and in 1991. Table 2-5 shows the top 30 air carrier rankings according to the same parameters but in terms of international scheduled traffic.

2.63 In 2000, approximately 70 per cent of the total volume of scheduled passenger, freight and mail traffic was accounted for by the top 30 international and/or domestic airlines. On international services, some 73 per cent of all traffic was carried by the top 30 airlines operating international scheduled services. Of these top 30 airlines, 11 were registered in Europe, 10 in Asia /Pacific, 7 in North America and one each in the Middle East and in Latin America and the Caribbean.

Scheduled: country rankings

2.64 Rankings for the top 30 countries or groups of countries by volume of scheduled traffic generated by their airlines in 2000, 1999 and 1991 according to the same parameters of passenger-kilometres, freight and mail tonne-kilometres and total (passenger, freight and mail) tonne-kilometres, for overall and for international services, are presented in Tables 2-6 and 2-7. In 2000 approximately 45 per cent of the total volume of scheduled passenger, freight and mail traffic was accounted for by the airlines of the United States, Japan and the United Kingdom (34, 6 and 5 per cent, respectively). On international services, almost 39 per cent of all traffic was carried by the airlines of the United States, the United Kingdom, Germany and Japan (18, 8, 7 and 6 per cent, respectively).

Scheduled: city-pair rankings

2.65 The 25 largest city-pair traffic flows in terms of passengers carried on international scheduled services represented a total of about 51 million passengers in 1999 (Table 2-8; owing to confidentiality restrictions it has not been possible to include figures for 2000). This represents some 10 per cent of the world total of international scheduled passengers. The table shows that of the 25 major passenger flows, 13 involved international routes within eastern Asia, 8 routes were within Europe, 2 routes across the North Atlantic and one route each across North-Mid Pacific, and within North America. In terms of cities, London(10), Hong Kong (6) and Tokyo (5) appear most frequently. Almost all the city-pairs shown involve over-water sectors.

Table 2-4. Top 30 scheduled air carriers in 2000 and their ranking in 1999 and 1991 — TOTAL (international and domestic) scheduled traffic carried[1]

PASSENGER-KILOMETRES PERFORMED					FREIGHT AND MAIL TONNE-KILOMETRES PERFORMED					TOTAL TONNE-KILOMETRES PERFORMED				
Carrier	Estimated 2000 (millions)	Ranking 2000	1999	1991	Carrier	Estimated 2000 (millions)	Ranking 2000	1999	1991	Carrier	Estimated 2000 (millions)	Ranking 2000	1999	1991
United	204 149	1	1	2	Federal Express	10 860	1	1	1	United	23 111	1	1	2
American	188 238	2	2	3	Lufthansa	7 266	2	2	2	American	20 427	2	2	3
Delta	173 421	3	3	4	SIA	6 092	3	3	11	Delta	18 412	3	3	4
Northwest	127 274	4	4	5	Korean Air	5 634	4	4	7	Lufthansa	16 718	4	5	6
British Airways	113 328	5	5	7	Air France	5 168	5	5	4	British Airways	15 680	5	4	7
Continental	100 264	6	6	6	JAL	4 693	6	6	3	Northwest	15 184	6	6	5
Lufthansa	94 161	7	7	11	United	4 586	7	7	10	Air France	13 431	7	7	10
Air France	91 805	8	8	13	KLM	4 319	8	9	8	SIA	12 873	8	9	13
JAL	88 606	9	9	9	British Airways	4 315	9	8	9	JAL	12 614	9	8	8
US Air	75 344	10	10	8	Cathay Pacific	4 031	10	10	13	Federal Express	10 860	10	10	11
SIA	70 736	11	11	14	Northwest	3 635	11	11	5	Continental	10 656	11	12	9
Southwest	67 948	12	13	23	Cargolux	3 523	12	14	—	KLM	10 398	12	11	15
Qantas	63 495	13	12	18	American	3 346	13	12	12	Korean Air	9 704	13	13	16
KLM	60 722	14	14	17	Delta	2 676	14	13	14	Cathay Pacific	8 508	14	14	17
All Nippon Airways	58 042	15	15	12	Nippon Cargo	2 217	15	16	17	Qantas	8 013	15	15	18
Cathay Pacific	47 033	16	17	19	Asiana	2 214	16	15	122	US Air	7 411	16	16	12
Korean Air	45 778	17	18	24	United Parcel	2 161	17	20	40	All Nippon Airways	6 431	17	17	19
Air Canada	45 583	18	19	22	Swissair	1 993	18	17	20	Southwest	6 376	18	18	33
TWA	43 789	19	16	10	Qantas	1 876	19	18	16	Alitalia	5 789	19	19	22
Thai Airways	42 236	20	20	26	Malaysian Airlines	1 866	20	24	25	Thai Airways	5 571	20	20	24
Alitalia	40 618	21	21	27	Alitalia	1 768	21	21	15	Air Canada	5 515	21	22	23
Iberia	40 286	22	22	21	Thai Airways	1 764	22	19	21	Swissair	5 353	22	21	26
Malaysian Airlines	37 939	23	23	32	All Nippon Airways	1 640	23	22	27	Malaysian Airlines	5 346	23	23	30
Swissair	34 246	24	24	30	Continental	1 558	24	25	18	Iberia	4 505	24	25	25
America West	30 735	25	25	20	Air China	1 501	25	23	—	TWA	4 331	25	24	14
Virgin Atlantic	29 566	26	27	49	Polar Air Cargo	1 399	26	27	—	Virgin Atlantic	3 743	26	29	47
Varig	26 286	27	28	28	Air Canada	1 379	27	26	24	Asiana	3 720	27	26	113
Canadian	23 395	28	26	25	LAN-Chile	1 312	28	28	43	Varig	3 635	28	27	27
SAS	22 647	29	29	29	Emirates Airlines	1 304	29	31	55	Cargolux	3 523	29	36	—
Air New Zealand	22 232	30	30	36	Varig	1 238	30	29	23	Emirates Airlines	3 186	30	35	62

1. Most 2000 data are estimates, thus the ranking and the rate of increase or decrease may change when final data become available.

Source: ICAO Air Transport Reporting Form A and IATA.

Table 2-5. Top 30 scheduled air carriers in 2000 and their ranking in 1999 and 1991 — INTERNATIONAL scheduled traffic carried[1]

PASSENGER-KILOMETRES PERFORMED					FREIGHT AND MAIL TONNE-KILOMETRES PERFORMED					TOTAL TONNE-KILOMETRES PERFORMED				
Carrier	Estimated 2000 (millions)	Ranking 2000	1999	1991	Carrier	Estimated 2000 (millions)	Ranking 2000	1999	1991	Carrier	Estimated 2000 (millions)	Ranking 2000	1999	1991
British Airways	111 162	1	1	1	Lufthansa	7 215	1	1	1	Lufthansa	16 058	1	2	2
Lufthansa	87 990	2	2	4	SIA	6 092	2	3	8	British Airways	15 486	2	1	1
United	79 788	3	3	2	Korean Air	5518	3	2	4	SIA	12 873	3	3	6
JAL	71 676	4	4	3	Air France	5 027	4	4	3	Air France	11 458	4	4	4
Air France	71 452	5	6	9	JAL	4 375	5	5	2	JAL	11 025	5	5	3
SIA	70 736	6	5	6	Federal Express	4 355	6	8	5	KLM	10 396	6	6	8
American	65 067	7	7	7	KLM	4 319	7	7	6	United	10 318	7	7	7
KLM	60 699	8	8	8	British Airways	4 314	8	6	7	Korean Air	9 191	8	8	9
Northwest	57 552	9	9	5	Cathay Pacific	4 031	9	9	10	Cathay Pacific	8 508	9	9	10
Qantas	49 193	10	10	10	Cargolux	3 523	10	11	—	American	8 243	10	10	12
Cathay Pacific	47 033	11	11	11	United	3 078	11	10	14	Northwest	7 751	11	11	5
Delta	42 373	12	12	13	Northwest	2 528	12	12	9	Qantas	6 533	12	12	11
Korean Air	40 805	13	13	16	American	2 339	13	13	18	Delta	5 432	13	13	18
Thai Airways	38 676	14	14	15	Nippon Cargo	2 217	14	14	13	Swissair	5 332	14	14	15
Continental	36 600	15	15	14	Asiana	2 185	15	15	139	Thai Airways	5 215	15	15	16
Swissair	34 037	16	16	20	United Parcel	2 161	16	18	38	Alitalia	5 060	16	16	13
Alitalia	33 360	17	17	17	Swissair	1 991	17	16	15	Malaysian Airlines	4 875	17	17	24
Malaysian Airlines	32 905	18	18	25	Malaysian Airlines	1 810	18	22	19	Continental	4 445	18	19	19
Air Canada	31 715	19	20	26	Alitalia	1 757	19	19	11	Federal Express	4 355	19	18	14
Iberia	29 858	20	19	21	Qantas	1 740	20	20	12	Air Canada	4 011	20	20	27
Virgin Atlantic	29 566	21	21	34	Thai Airways	1 729	21	17	16	Virgin Atlantic	3 743	21	22	40
All Nippon Airways	23 282	22	22	31	Delta	1 587	22	21	31	Cargolux	3 523	22	27	—
Air New Zealand	20 338	23	24	28	Emirates Airlines	1 304	23	27	53	Iberia	3 468	23	24	20
Emirates Airlines	19 413	24	28	50	Air China	1 297	24	23	—	Asiana	3 456	24	23	149
Sabena	19 379	25	25	39	LAN-Chile	1 263	25	25	43	All Nippon Airways	3 349	25	21	38
Varig	18 009	26	27	24	All Nippon Airways	1 165	26	24	40	Emirates Airlines	3 186	26	26	49
SAS	17 726	27	26	22	Air Canada	1 134	27	28	23	Air New Zealand	2 762	27	25	30
SAA	15 617	28	29	44	Continental	1 123	28	30	26	Varig	2 702	28	28	21
Canadian	15 266	29	23	23	Varig	1 002	29	32	20	Sabena	2 471	29	39	34
El Al	14 125	30	31	33	Virgin Atlantic	969	30	34	41	SAS	2 448	30	29	25

1. Most 2000 data are estimates, thus the ranking and the rate of increase or decrease may change when final data become available.

Source: ICAO Air Transport Reporting Form A and IATA.

Table 2-6. Top 30 countries or group of countries in 2000 and their ranking in 1999 and 1991 — TOTAL (international and domestic) traffic carried on their airlines' scheduled services[1]

PASSENGER-KILOMETRES PERFORMED					FREIGHT AND MAIL TONNE-KILOMETRES PERFORMED					TOTAL TONNE-KILOMETRES PERFORMED				
Country or group of countries	Estimated 2000 (millions)	Ranking 2000	1999	1991	Country or group of countries	Estimated 2000 (millions)	Ranking 2000	1999	1991	Country or group of countries	Estimated 2000 (millions)	Ranking 2000	1999	1991
United States	1 110 955	1	1	1	United States	33 657	1	1	1	United States	134 464	1	1	1
Japan	173 403	2	2	3	Japan	8 933	2	2	2	Japan	23 652	2	2	3
United Kingdom	170 682	3	3	4	Republic of Korea	7 848	3	3	7	United Kingdom	21 866	3	3	4
Germany	115 614	4	4	7	Germany	7 282	4	4	3	Germany	18 554	4	4	6
France	113 032	5	5	5	Singapore	6 103	5	5	9	France	15 605	5	5	5
China[2]	90 960	6	6	10	France	5 431	6	6	5	Republic of Korea	13 425	6	6	11
Hong Kong SAR[3]	50 254	—	—	—	United Kingdom	5 340	7	7	4	Singapore	12 986	7	7	8
Macao SAR[4]	1 572	—	—	—	Netherlands	4 408	8	8	8	Netherlands	11 773	8	8	10
Australia	81 525	7	7	6	China[2]	3 994	9	9	14	China[2]	11 603	9	9	14
Netherlands	73 907	8	8	12	Hong Kong SAR[3]	4 895	—	—	—	Hong Kong SAR[3]	9 663	—	—	—
Singapore	71 786	9	10	9	Macao SAR[4]	19	—	—	—	Macao SAR[4]	176	—	—	—
Canada	70 760	10	9	8	Luxembourg	3 523	10	10	110	Australia	9 921	10	10	7
Republic of Korea	62 837	11	11	15	Australia	2 119	11	13	11	Canada	8 367	11	11	9
Spain	52 613	12	13	13	Gulf States[5]	2 071	12	15	29	Italy	6 151	12	12	13
Brazil	45 737	13	14	11	Switzerland	1 998	13	12	15	Brazil	5 697	13	13	12
Italy	44 552	14	15	14	Canada	1 949	14	11	10	Spain	5 642	14	17	15
Russian Federation	42 950	15	12	—	Malaysia	1 866	15	18	18	Thailand	5 571	15	15	16
Thailand	42 236	16	16	18	Italy	1 773	16	16	12	Switzerland	5 550	16	14	17
Malaysia	37 939	17	17	23	Thailand	1 764	17	14	16	Gulf States[5]	5 523	17	18	27
Switzerland	36 319	18	18	21	Brazil	1 584	18	17	13	Malaysia	5 346	18	19	19
Gulf States[5]	35 978	19	19	26	Chile	1 317	19	19	26	Russian Federation	4 948	19	16	—
Mexico	30 474	20	20	17	Russian Federation	1 082	20	22	—	Luxembourg	3 573	20	25	98
Scandinavia[6]	27 742	21	21	16	Belgium	1 041	21	29	22	Scandinavia[6]	3 422	21	20	18
India	26 026	22	22	20	Saudi Arabia	1 015	22	21	23	Mexico	3 088	22	21	23
New Zealand	23 045	23	23	24	Spain	913	23	23	19	New Zealand	2 976	23	22	25
South Africa	21 014	24	25	29	Israel	895	24	20	17	Belgium	2 920	24	28	29
Saudi Arabia	20 229	25	24	22	New Zealand	817	25	24	27	India	2 911	25	24	21
Belgium	19 379	26	26	32	Scandinavia[6]	750	26	25	25	Saudi Arabia	2 836	26	23	22
Indonesia	16 579	27	27	19	South Africa	709	27	26	31	South Africa	2 579	27	26	32
Turkey	16 492	28	31	41	Colombia	600	28	27	20	Chile	2 296	28	29	35
Argentina	15 744	29	28	27	India	578	29	28	21	Israel	2 191	29	27	24
Austria	15 471	30	30	42	Austria	461	30	31	52	Austria	2 045	30	30	44

1. Most 2000 data are estimates, thus the ranking and the rate of increase or decrease may change when final data become available.
2. For statistical purposes the data for China excludes the traffic for the Hong Kong and Macao Special Administrative Regions (Hong Kong SAR and Macao SAR), and that of the Taiwan province of China.
3. Traffic for the Hong Kong Special Administrative Region (SAR).
4. Traffic for the Macao Special Administrative Region (SAR).
5. Four States — Bahrain, Oman, Qatar and United Arab Emirates.
6. Three States — Denmark, Norway and Sweden.

Source: ICAO Air Transport Reporting Form A and IATA

Table 2-7. Top 30 countries or groups of countries in 2000 and their ranking in 1999 and 1991 — INTERNATIONAL traffic carried on their airlines' scheduled services[1]

PASSENGER-KILOMETRES PERFORMED					FREIGHT AND MAIL TONNE-KILOMETRES PERFORMED					TOTAL TONNE-KILOMETRES PERFORMED				
Country or group of countries	Estimated 2000 (millions)	Ranking 2000	1999	1991	Country or group of countries	Estimated 2000 (millions)	Ranking 2000	1999	1991	Country or group of countries	Estimated 2000 (millions)	Ranking 2000	1999	1991
United States	310 389	1	1	1	United States	19 719	1	1	1	United States	47 884	1	1	1
United Kingdom	163 157	2	2	2	Japan	7 957	2	3	2	United Kingdom	21 218	2	2	2
Germany	106 822	3	3	4	Republic of Korea	7 703	3	2	6	Germany	17 660	3	4	4
Japan	102 209	4	4	3	Germany	7 230	4	4	4	Japan	17 407	4	3	3
France	75 052	5	6	6	Singapore	6 103	5	5	8	Singapore	12 986	5	6	6
Netherlands	73 798	6	5	7	United Kingdom	5 331	6	6	3	Republic of Korea	12 646	6	5	8
Singapore	71 786	7	7	5	France	5 093	7	7	5	France	11 853	7	8	5
Republic of Korea	54 926	8	8	10	Netherlands	4 407	8	8	7	Netherlands	11 763	8	7	7
Australia	53 007	9	9	8	Luxembourg	3 523	9	9	106	Australia	6 936	9	9	9
Canada	48 002	10	10	9	China[3]	2 352	10	10	17	Canada	5 942	10	10	10
Thailand	38 676	11	11	11	Hong Kong SAR[4]	4 895	—	—	—	Switzerland	5 523	11	11	12
Switzerland	36 039	12	12	14	Macao SAR[5]	19	—	—	—	Gulf States[2]	5 506	12	14	21
Gulf States[2]	35 831	13	14	20	Gulf States[2]	2 071	11	12	27	Thailand	5 215	13	12	13
Spain	35 216	14	16	15	Switzerland	1 996	12	11	11	Italy	5 148	14	13	11
Italy	34 276	15	13	12	Malaysia	1 810	13	17	15	Malaysia	4 875	15	15	17
Malaysia	32 905	16	15	18	Italy	1 760	14	16	9	China[3]	4 465	16	16	27
Brazil	22 811	17	17	17	Australia	1 758	15	15	10	Hong Kong SAR[4]	9 663		—	—
China[3]	22 232	18	18	29	Thailand	1 729	16	13	13	Macao SAR[5]	176		—	—
Hong Kong SAR[4]	50 254	—	—	—	Canada	1 588	17	14	12	Spain	3 978	17	17	15
Macao SAR[5]	1 572	—	—	—	Chile	1 263	18	18	23	Luxembourg	3 573	18	20	95
New Zealand	20 338	19	19	22	Brazil	1 098	19	19	16	Brazil	3 246	19	18	14
Belgium	19 379	20	21	30	Belgium	1 041	20	28	19	Belgium	2 920	20	24	26
Scandinavia[6]	19 149	21	20	16	Saudi Arabia	930	21	21	21	New Zealand	2 762	21	19	22
Russian Federation	17 584	22	22	—	Israel	895	22	20	14	Scandinavia[6]	2 585	22	21	18
South Africa	15 856	23	23	33	Spain	808	23	23	18	Russian Federation	2 285	23	25	—
Austria	15 353	24	25	39	New Zealand	807	24	22	26	Saudi Arabia	2 173	24	23	20
Mexico	15 081	25	27	24	Scandinavia[6]	719	25	24	22	Israel	2 166	25	22	19
Israel	14 127	26	26	26	Russian Federation	702	26	26	—	South Africa	2 041	26	26	34
India	13 918	27	28	25	South Africa	636	27	25	34	Austria	2 034	27	28	42
Saudi Arabia	13 807	28	24	19	Colombia	541	28	27	20	Chile	1 955	28	27	33
Ireland	13 614	29	29	35	Austria	461	29	30	51	India	1 701	29	29	25
Turkey	12 938	30	30	43	India	405	30	29	24	Mexico	1 646	30	30	29

1. Most 2000 data are estimates, thus the ranking and the rate of increase or decrease may change when final data become available.
2. Four States — Bahrain, Oman, Qatar and United Arab Emirates.
3. For statistical purposes the data for China excludes the traffic for the Hong Kong and Macao Special Administrative Regions (Hong Kong SAR and Macao SAR), and that of the Taiwan province of China.
4. Traffic for the Hong Kong Special Administrative Region (SAR).
5. Traffic for the Macao Special Administrative Region (SAR).

Source: ICAO Air Transport Reporting Form A and IATA.

Table 2-8. Scheduled passenger traffic on world's major international city-pairs
(Top 25 city-pairs ranked by international passengers, 1999)

Rank	City-pair	Distance (km)	1999 (thousands)	1998 (thousands)	1999/98 %
1	Hong Kong[1]-Taipei	777	4 340	3 850	12.7
2	London-New York	5 539	3 948	3 674	7.5
3	Dublin-London	456	3 730	3 584	4.1
4	Amsterdam-London	369	3 180	2 915	9.1
5	London-Paris	346	2 603	2 585	0.7
6	Seoul-Tokyo	1 227	2 291	2 048	11.9
7	Jakarta-ingapore	906	2 145	1 779	20.6
8	Bangkok-Hong Kong	1 743	2 131	1 977	7.8
9	Kuala Lumpur-Singapore	335	2 055	2 131	-3.6
10	Frankfurt-London	654	1 966	1 838	7.0
11	Bangkok-Singapore	1 444	1 877	1 740	7.9
12	Honolulu-Tokyo	6 134	1 839	1 913	-3.9
13	Hong Kong-Tokyo	2 938	1 720	1 661	3.6
14	Taipei-Tokyo	2 182	1 663	1 596	4.2
15	Hong Kong-Singapore	2 578	1 650	1 600	3.1
16	London-Milan	936	1 513	1 453	4.1
17	Hong Kong-Manila	1 126	1 510	1 375	9.8
18	Brussels-London	349	1 425	1 366	4.3
19	London-Rome	1 441	1 424	1 328	7.2
20	London-Los Angeles	8 759	1 336	1 233	8.4
21	London-Madrid	1245	1 333	1 179	13.1
22	New York-Toronto	587	1 316	1 264	4.1
23	Osaka-Seoul	834	1 287	1 113	15.6
24	Bangkok-Tokyo	4 644	1 272	1 254	1.4
25	Hong Kong-Seoul	2 080	1 256	1 116	12.5
	TOTAL		50 810	47 572	6.8

1. For statistical purposes, the air transport operations between Hong Kong SAR, China and other regions of China may be treated as international operations.

Source: ICAO Air Transport Reporting Form B plus estimates for non-reporting air carriers.

Non-scheduled

2.66 It is estimated that in 2000 total international non-scheduled passenger-kilometres performed throughout the world increased by an estimated 11 per cent (Table 2-9) with the share of such traffic in overall international air passenger traffic remaining around 13 per cent. Non-scheduled traffic in Europe remains the largest single component of the world charter market. Domestic non-scheduled passenger traffic is estimated to represent some 8 per cent of total non-scheduled passenger traffic and about 2 per cent of total domestic passenger traffic worldwide. Non-scheduled cargo operations tend to be largely of an ad hoc nature and little information is available as to their volume.

Table 2-9. Estimated international non-scheduled revenue passenger traffic (1999 and 2000)

Category	1999 Pass.-kms performed (millions)	1999 Percentage of total carriers	1999 Percentage of total traffic	2000 Pass.-kms performed (millions)	2000 Percentage of total carriers	2000 Percentage of total traffic	Annual change (%) 2000/1999
Scheduled carriers	127 490	53	—	146 160	55	—	14.6
Non-scheduled carriers	110 890	47	—	118 700	45	—	7.0
TOTAL NON-SCHEDULED TRAFFIC	238 380	100	12.8	264 860	100	13.0	11.1
TOTAL SCHEDULED TRAFFIC	1 622 250	—	87.2	1 778 600	—	87.0	9.6
TOTAL TRAFFIC	1 860 630	—	100.0	2 043 460	—	100.0	9.8

Source: ICAO Air Transport Reporting Form A.

FLEETS

2.67 The evolution of the commercial air transport fleets summarized below does not generally include aircraft fleet and manufacturer data for the Russian Federation and China. However, statistics on certain types of aircraft manufactured in the Russian Federation and employed in the fleets of States other than the Russian Federation and China are included in the tables shown unless otherwise stated. Also, unless otherwise stated, statistics for aircraft having a maximum take-off mass of less than 9000 kg (20 000 lbs) are not included.

Orders and deliveries

2.68 In 2000, 1 553 turbo-jet aircraft were ordered, compared with 987 in 1999. The financial commitment represented by orders placed with the major aircraft manufacturers in 2000 for these aircraft is estimated to be about $80 billion. In 2000, 1 009 aircraft were delivered, compared with 1 074 in 1999. The backlog of unfilled orders increased from 3 306 aircraft at the end of 1999 to 3 649 aircraft at the end of 2000. The status of orders and deliveries for the year 2000 is shown in Table A2-2, which gives data by manufacturer and model for turbo-jet and turboprop aircraft.

2.69 The turbo-jet types shown in Table 2-10 were most active in 2000 in terms of orders and deliveries, accounting for about 85 per cent of the orders, 76 per cent of the deliveries

made, and 83 per cent of the backlog of unfilled orders. The number of turboprop aircraft ordered in 2000 was 68, and 57 aircraft were delivered during the year. The backlog of turboprop aircraft was 73 at the end of the year.

Composition

2.70 Between 1991 and 2000, the number of commercial air transport fixed-wing aircraft in service with a take-off mass of 9 000 kg and over increased by about 36 per cent, from 14 308 to 19 469, as shown in Table 2-11. During this period, the number of jet aircraft increased from 11 459 to 16 045, rising from about 80 per cent to 82 per cent of the fleet, while turboprop aircraft increased from 2 654 to 3 267, falling from about 19 per cent to 17 per cent of the fleet. On the other hand, the number of piston-engined aircraft declined from 195 to 157, and now constitutes less than 1 per cent of the total world fleet.

Table 2-10. Main aircraft types ordered and delivered (2000)

Aircraft	Orders	Deliveries	Backlog
Airbus A319/320/321	324	236	1 083
Boeing 737	379	271	963
Canadair RJ	259	94	505
Embraer EMB-145	252	109	252
Boeing 777	111	55	243

Source: Aircraft manufacturers.

Table 2-11. Commercial transport fleet[1] in active service at year end (1991, 1999, 2000)

	TURBO-JET		TURBOPROP		PISTON ENGINE		
Year	Number	Percentage	Number	Percentage	Number	Percentage	TOTAL (aircraft all types)
1991	11 459	80	2 654	18.5	195	1.5	14 308
1999	15 192	81.9	3 191	17.2	161	0.9	18 544
2000	16 045	82.4	3 267	16.8	157	0.8	19 469

1. Aircraft having a maximum take-off mass of less than 9 000 kg (20 000 lb) are not included.

Source: BACK Associates/Lundkvist.

2.71 BACK Information Services reported that, as at the end of 2000, there were 609 western-built commercial jets in storage, compared with 633 jets at the end of the previous year. The number of wide-bodies in storage increased slightly (221 in 2000 against 204 in 1999) with A300s, 747s, D-10s and L1011s accounting for 88 per cent of aircraft in the group. Among narrow-bodies, 727s and 737s contributed nearly half the aircraft in the group. The number of western-built jets available for sale or lease increased for the fourth year in a row, from 459 in December 1999 to 614 in December 2000. Available wide-bodies were up by 22 to 201.

PERSONNEL

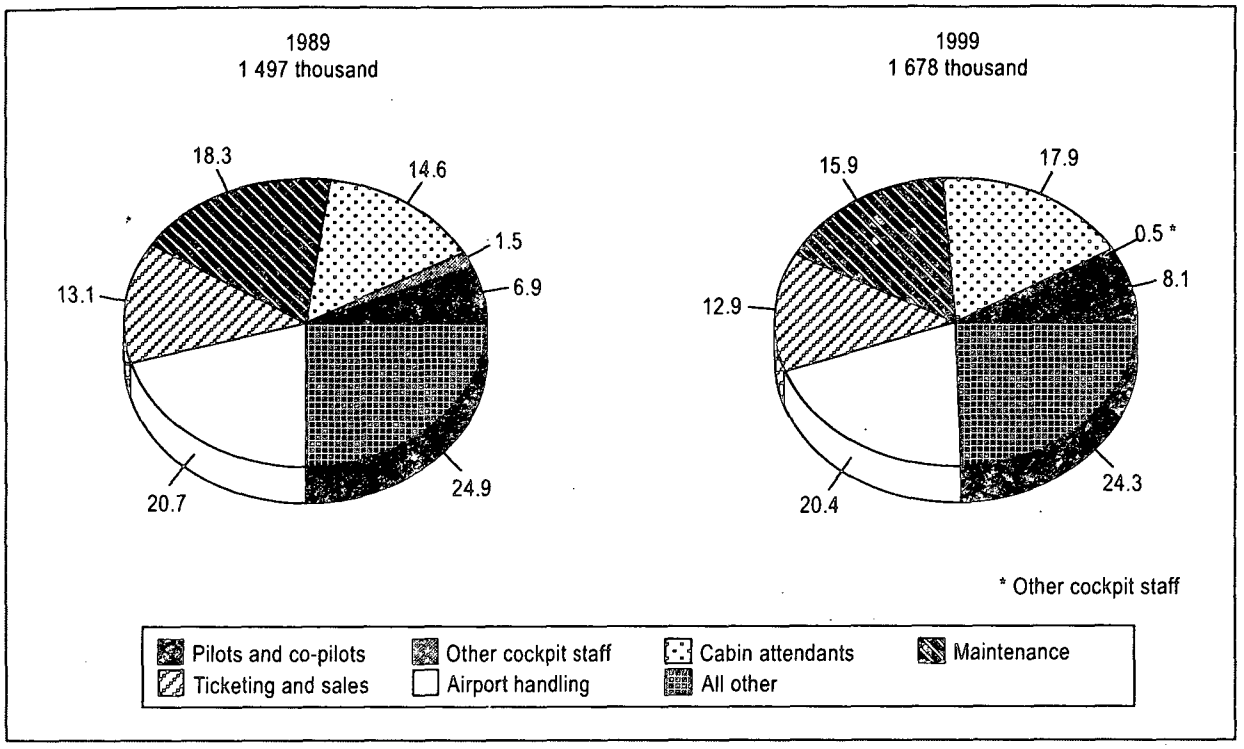
2.72 In 1999 an estimated 2 million employees worked for just under 3 000 commercial air carriers around the world (2000 data were not available at the time of writing). Overall labour productivity (tonne-kilometres performed/per employee) rose at an average 5 per cent annually from 1989 to 1999.

2.73 For 1989 and 1999, Figure 2-2 compares the composition of airline personnel of IATA member airlines by occupational groups. The increase in pilots/co-pilots and cabin attendants employed is a direct reflection of the expansion in worldwide air transport services, which rose during that period at a rate of 5.2 per cent per annum in terms of total tonne-kilometres performed and notably at 7.2 per cent on international routes. The introduction of fly-by-wire avionics and other automated equipment as well as procedures on flight decks of modern aircraft contributed to redundancy affecting "Other cockpit staff". Despite growing fleets, passenger numbers and air cargo volumes, the share of airport handling staff remained unchanged (just slightly increasing in absolute terms), while the share of maintenance personnel decreased (virtually unchanged in absolute terms). The number of airline personnel required in these functions has been trimmed through technologically-induced productivity gains and subcontracting to independent corporations; in particular, repair and maintenance functions were streamlined through computer-based diagnostic procedures, exchange of pre-manufactured components and outsourcing to specialized maintenance bases.

FINANCES

Financial results

2.74 Preliminary estimates for 2000 indicate that the world's scheduled airlines as a whole experienced an operating profit of 3.3 per cent of total operating revenues, compared with 4 per cent in 1999. The operating revenues of scheduled airlines are tentatively estimated at $328.7 billion in 2000, an increase of about 7 per cent compared with the $305.5 billion earned in 1999. Expressed in United States currency, operating revenues per tonne-kilometre performed decreased from 77.9 cents in 1999 to an estimated 77.6 cents in 2000. The operating expenses for the same airlines are tentatively estimated at $317.7 billion in 2000, an increase of about 8 per cent over the $293.2 billion incurred in 1999. Operating expenses per tonne-kilometre performed increased from 74.7 cents in 1999 to 75 cents in 2000.



Source: IATA

Figure 2-2. Airline personnel of IATA members by occupational group — World (1989 and 1999)

Continuing efforts by airlines around the world to reduce their costs contributed to the operating expenses per tonne-kilometre performed remaining at almost the same levels as in 1999, despite greatly increased aviation fuel prices.

2.75 The estimated operating result for the world's scheduled airlines is the difference between estimated operating revenues and expenses and is therefore subject to a relatively wide margin of error. For 2000, the estimated operating profit of about $11 billion was lower than the 1999 operating profit of $12.3 billion. The positive operating profit in 2000 reflects a generally healthy economy for most of the year, leading to strong traffic growth. At the same time, capacity increases for passenger services continued to be kept in check and hence the average passenger load factor marginally increased from 69 per cent in 1999 to 71 percent in 2000. However, soaring fuel prices coupled with a decline in yields (revenues per tonne-kilometre) in all regions except North America negatively affected the world's airlines.

2.76 The strong economic situation in the United States had a major impact on financial results in 2000 with airlines based in North America producing almost 70 per cent of operating profit. The United States scheduled airlines ("majors" and "nationals") as a group accounted for about 38 per cent of the total operating revenues of the scheduled airlines of ICAO Contracting States. Preliminary data indicate that their operating result in 2000 was

a profit of $7.4 billion, marginally lower than the profit of $7.6 billion experienced in 1999. For the airlines of the rest of the world combined, the preliminary estimated operating profit in 2000 was $3.6 billion, lower than the operating profit of $4.7 billion shown for 1999.

2.77 The net result is derived from the operating result by taking into account non-operating items and taxes. Preliminary estimates suggest that in 2000 the net result for the world's scheduled airlines would be lower than in 1999 due to lower operating profits and currency exchange losses. Information on both operating and net results over the period 1989-2000 and distribution of operating revenues and expenses by item in 1989 and 1999 can be found in Tables 5-4 and 5-5 in Chapter 5, respectively.

2.78 The estimates of the world's scheduled airlines as a whole do not portray the considerable difference in results achieved by individual airlines. In 1999 (complete data were not available for 2000 at the time of writing) it is estimated that about 68 per cent of airlines experienced operating profits, with 32 per cent reporting operating losses. On a regional basis airlines in all ICAO statistical regions, with the exception of Latin America and the Caribbean, experienced positive aggregated operating results in 1999, with operating profits expressed as a percentage of operating revenues ranging from 6.5 per cent for the airlines of North America to an operating loss of 1.1 per cent of operating revenues for those in the Latin America and the Caribbean region. Net results ranged from a surplus of 4.4 per cent of operating revenues for the airlines based in North America to a net loss of 2.9 per cent of operating revenues for those in the Latin America and the Caribbean region (Figure 2-3).

2.79 Available data on non-scheduled carriers are insufficient to produce accurate financial estimates for 2000. In 1999 the operating revenues of the non-scheduled carriers are tentatively estimated at $7.9 billion compared with $9.5 billion earned in 1998. In 1999 these carriers, as a group, had an operating profit estimated at $480 million and a net result, after taking into account non-operating items and taxes, of some $300 million.

Consolidated balance sheet

2.80 At the end of the fiscal year 1999, the total assets of the scheduled airlines of ICAO Contracting States stood at $394.6 billion, compared with $362.5 billion at the end of the fiscal year 1998 (Table 2-12). Of these, 24 per cent were represented by current assets, some 60 per cent by fixed assets and the remainder by other assets.

2.81 At the end of 1999, the net value of the aircraft fleet (i.e. after depreciation charges) was $182.3 billion, compared with $170 billion at the end of 1998, representing an increase of 7 per cent, accounting for about 46 per cent of total assets. Accumulated depreciation charges stood at about $140.9 billion of which $106.7 billion were for the aircraft fleet, representing some 37 per cent of the gross value of the fleet. The remaining accumulated depreciation charges covered ground property and equipment and represented some 50 per cent of their gross value.

2.82 Between the fiscal years 1998 and 1999, the value of stockholders' equity increased by some 23 per cent (from $77.8 billion to $95.7 billion), and in relative terms it increased from 21 to 24 per cent of total liabilities. During the same period, long-term debt increased from $116 billion to $125.2 billion and, in relative terms, remained at 32 per cent of total liabilities

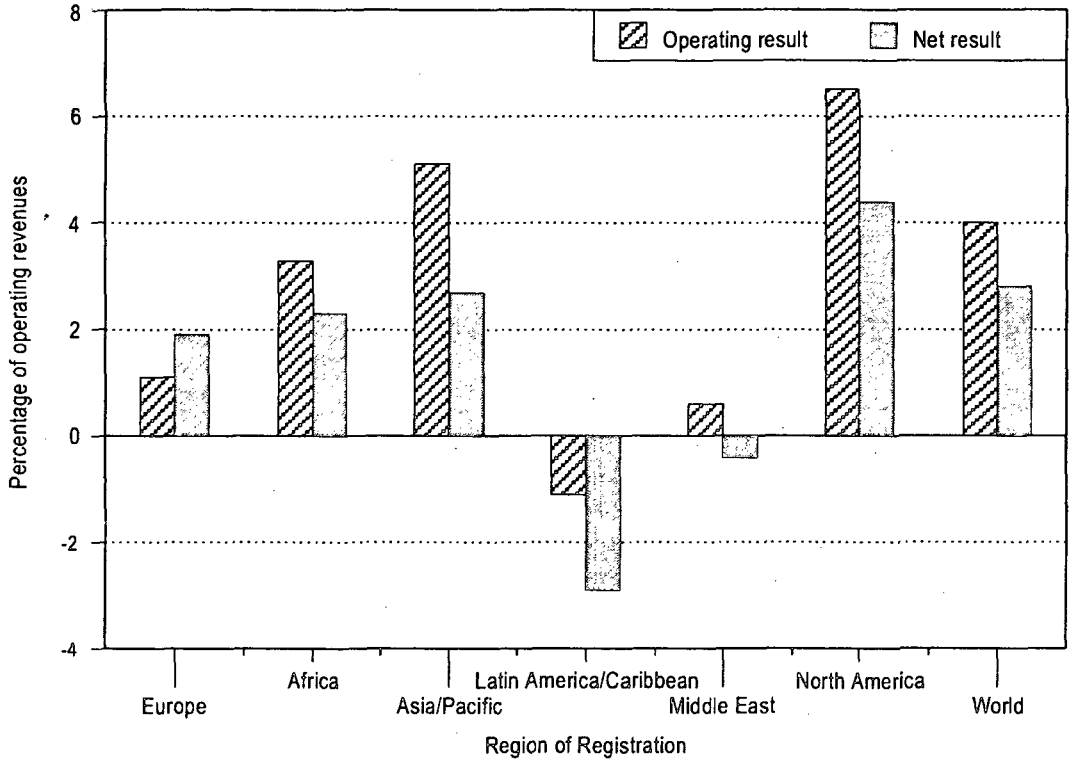


Figure 2-3. Financial results of scheduled airlines by region (1999)

in 1999, the same as in 1998. At the end of the fiscal year 1999 current liabilities, including unearned transportation revenue, stood at $107.5 billion, or some 27 per cent of total liabilities, compared with some 28 per cent in 1998. Unearned transportation revenue represented about 6 per cent of total liabilities and some 8 per cent of the total traffic revenue for 1999.

2.83 Long-term trends in the balance sheet elements may be discerned from comparing the figures for 1999 with those for 1991, which are also contained in Table 2-12. At the end of the 1999 fiscal year, total assets stood at $394.6 billion compared with $243.6 billion at the end of 1991. Relative to the totals, the most significant difference between 1991 and 1999 is the decrease in the proportion of current assets (from 26 to 24 per cent of the total) and the corresponding increase in other assets. The proportion of other assets increased (from 15 per cent of total assets in 1991 to 17 per cent in 1999); however, there was a slight relative decrease in investment in affiliated companies (from about 5 per cent of total assets in 1991 to 4 per cent in 1999), an increase in the relative amounts represented by flight equipment and a reduction in the relative amounts represented by ground property and equipment.

2.84 As regards liabilities, between 1991 and 1999 there was a reduction in the proportion of current liabilities including unearned transportation revenue (from 32 to 27 per cent of total liabilities), long-term debt (from 33 to 32 per cent) and a significant increase in stockholders' equity (from 17 to 24 per cent) and advances from affiliated companies and other liabilities. With regard to stockholders' equity, the increase in relative terms was mostly due to the bigger net balance of unappropriated retained earnings (i.e. cumulative profit) at the end of fiscal year 1999.

Table 2-12. Consolidated balance sheet — Scheduled airlines of ICAO Contracting States[1] (End of fiscal years 1991, 1998 and 1999)

	1991		1998		1999	
	U.S.$ (millions)	% of total	U.S.$ (millions)	% of total	U.S.$ (millions)	% of total
ASSETS						
Current assets	62 600	26	92 000	25	93 160	24
Fixed assets	143 800	59	212 600	59	235 670	60
Flight equipment	107 880	44	170 000	47	182 300	46
Ground property and equipment	23 080	9	28 000	8	33 300	8
Land	1 640	1	3 800	1	4 140	1
Investments in affiliated companies	11 200	5	10 800	3	15 930	4
Other assets	37 170	15	57 900	16	65 720	17
TOTAL ASSETS	243 570	100	362 500	100	394 550	100
LIABILITIES						
Current liabilities	77 920	32	102 500	28	107 530	27
Current liabilities	63 750	26	82 000	23	85 570	22
Unearned transportation revenues	14 170	6	20 500	6	21 960	6
Long-/medium-term liabilities	123 860	51	182 250	50	191 310	48
Long-term debt	80 150	33	116 000	32	125 250	32
Other medium-/long-term liabilities	43 710	18	66 250	18	66 060	17
Stockholders' equity	41 790	17	77 750	21	95 710	24
Share capital	18 200	7	27 200	8	25 040	6
Other capital	23 590	10	50 550	14	70 670	18
TOTAL LIABILITIES	243 570	100	362 500	100	394 550	100
ACCUMULATED DEPRECIATION						
Flight equipment	72 810	76	105 000	76	106 720	76
Ground property and equipment	22 870	24	32 500	24	34 240	24
TOTAL ACCUMULATED DEPRECIATION	95 680	100	137 500	100	140 960	100

1. Excludes domestic operations within the CIS for 1991.

Source: ICAO Air Transport Reporting Form EF-1.

Chapter 3
Airports and Air Navigation Services

3.1 This chapter discusses developments in 2000 in the management and organization of airports and air navigation facilities and services, with regard to infrastructure, traffic and financing of airports, and focuses on basic financial and technical aspects of air navigation services.

MANAGEMENT AND ORGANIZATION

Airports

3.2 The year 2000 saw a continuation in the establishment of autonomous authorities to operate airports and further acceleration in the involvement of private participation in airport operations, management and financing. The interest shown over the last years by some airports and private airport management companies in Europe and North America in various airport privatization projects around the world continued. The new trend of airport cooperating strategies or alliances also continued. The agreement originally initiated between the Schiphol Group (Amsterdam airport) (Netherlands) and Fraport (Frankfurt airport, formerly known as FAG) (Germany) was transformed in 2000 into an alliance offering a wide range of services to the global airport market under the brand name of "Pantares" and could be joined by other members in the near future. The cargo alliance between founding airport members Washington-Dulles (United States) and Chateauroux (France) was joined by several other airports, greatly diverse in traffic volume handled, on other continents and was named "Galaxy". Finally a new international alliance (named "World Airports") for business conducted through the Internet was created by major airports including BAA plc (United Kingdom), Aéroports de Paris (ADP) (France), Copenhagen (Denmark), Melbourne (Australia) and several airports in the United States (Dallas, Houston, Pittsburgh, Indianapolis).

3.3 Secondary airports, located either in the vicinity of large conurbations or in provincial cities, were, especially in Europe, increasingly used by low cost carriers in order to benefit from lower airport charges and non-congested facilities. This phenomenon had the result of reviving activity at some airports that had experienced financial difficulties in recent years due to the loss of regular air services by established carriers.

3.4 As to developments at the State level, in Canada, further implementation of government plans added Halifax (Nova Scotia) and Quebec City (Quebec) airports to those previously transferred from the Federal Government to local autonomous authorities, while discussions were being finalized for such transfer of Gander (Newfoundland) in 2001. In the

United States, under the FAA's pilot project for private involvement in five airports, a 99-year lease contract was awarded for the management of Niagara Falls airport (New York) to the Spanish infrastructure management company Cintra, and an operating and development contract for Aguadilla airport (formerly an air force base) in Puerto Rico was awarded to a consortium led by Fraport of Germany and Raytheon of the United States (plans for two of the other airports in this pilot project remain to be announced). Change of ownership leading to increased private involvement occurred in Europe at ADR, the company managing Rome airports and at SAGAT, the company managing Turin airport (Italy). All equity capital of the company managing Bristol airport (United Kingdom) was purchased by an Australian bank and Cintra of Spain. A bi-national agreement in the form of a 40-year contract was concluded between Italy and San Marino for the joint use of Rimini/San Marino airport. Privatization plans were underway at Bologna (Italy); Bournemouth, East Midlands, and London-Luton (United Kingdom); while plans further advanced at Vienna (Austria); Copenhagen (Denmark); and Zurich (Switzerland); and were under consideration at some other European airports, including, the CSL company, which manages Czech airports; provincial airports in France; the SEA company, which manages Milan airports (Italy); Malta; and Amsterdam (Netherlands). In Spain a privatization plan for 42 airports presently managed by AENA was opposed by local governments in four autonomous regions. In the Russian Federation the creation of a unified body to manage three of the airports serving Moscow was under consideration.

3.5 Latin America was a very active region in 2000 with regard to privatization/commercialization of airports. In Brazil the privatization of three small airports was announced by the State of São Paulo. In Colombia a 20-year management contract for Cali airport was awarded to a consortium of Spanish (AENA) and Colombian interests. In Costa Rica a 20-year management contract for San José airport was awarded to the TBI airports group from the United Kingdom. In Honduras a 20-year management contract related to four airports (including Tegucigalpa) was awarded to the consortium Inter Airport of the United States. In Mexico a 15-year concession contract was awarded to a Franco-Mexican consortium comprising the Mexican construction group ICA and the two French companies Vinci (formerly SGE) and ADP to operate a group of thirteen airports, including Acapulco and Monterrey in the central-northern part of the State. In Peru a 30-year management contract for Lima airport was awarded to a consortium including Fraport of Germany, Bechtel of the United States and a Peruvian construction company. Privatization was also underway or considered: in Argentina for a group of eighteen secondary airports; in Chile for the concession of half of that State's airports; in Guyana (Georgetown); in Jamaica (Kingston and Montego Bay); and in El Salvador (San Salvador-Ilopango). However, in Uruguay the privatization of Montevideo airport was cancelled and its management awarded to the Ministry of Tourism.

3.6 In Africa, commercialization was considered for Algiers (Algeria), Accra (Ghana) and Maputo (Mozambique), while the establishment of autonomous airport authorities was under study in Ghana and Malawi. In Cameroon the government announced that the existing contract for the management of several airports would be cancelled and a new management concession awarded. In Nigeria a 10-year Build-Operate-Transfer (BOT) contract has been awarded to Canadian interests (including Toronto airport) to operate the new domestic terminal at Lagos airport. In the United Republic of Tanzania, the management of 53 airports was transferred to a newly created semi-commercial entity. In Asia and the Pacific, plans are

still underway for a number of privatization/corporatization projects including Australia, where the sale of Sydney airport should take place during the first half of 2001, and where the TBI airports group is selling its participation in some Northern Territory airports; and Thailand, for the management of 29 secondary airports, while in the same State the privatization of AAT (the company managing the main airports) was postponed to the end of 2001. Among the projects completed in this region in 2000, reference should be made to the awarding of a management and development contract for two airports in the Cook Islands to the Canadian operator YVRAS (Vancouver airport); to the awarding of a management contract for the new Seoul-Incheon airport to a consortium led by Fraport of Germany; and to the corporatization of four airports and 25 airfields in Vanuatu. Only two projects were reported in the Middle East region, where the entity managing Doha airport (Qatar) was corporatized in view of its forthcoming privatization, and a decision on the privatization of Muscat and Salalah airports (Oman) is expected.

Air navigation services

3.7 The trend towards providing air navigation services through autonomous authorities continued in 2000. However, private involvement has not been as actively pursued by governments or industry as it has in the case of airports. In the United States, plans for air traffic services to be provided by a self-financing autonomous unit (separate from the FAA) remained under consideration, but opposition to a totally privatized air traffic control (ATC) system has been voiced. Autonomous ATC entities have been established in Hungary, Nigeria and Norway and are under consideration in Italy and Sweden. The privatization of National Air Traffic Services (NATS) in the United Kingdom was far advanced. In eastern and southern Africa the joint management of upper airspace over COMESA (Common Market for Eastern and Southern Africa) States is under consideration.

MAJOR AIRPORT PROJECTS

3.8 ICAO regional air navigation plans listed 1 196 airports in the world at the end of 2000 as being open to international civil aviation. At the global level, projects completed, under construction or projected in 2000 that were aimed at providing more capacity at major airports were reported in 90 States and were related to 242 airports. The majority of these projects (85 per cent) were concentrated in four regions. Half the projects were reported in Europe, involving 115 airports in 34 States. Ranking second was Asia, where projects were reported for 34 airports in 19 States. Projects in North America involved 28 airports in two States. The African region registered in 2000 an important number of new projects, involving 27 airports in 17 States. Other regions of the world combined had projects involving 38 airports in 20 States and territories. The majority of the projects were aimed at increasing passenger capacity by adding new terminals (115 projects) or expanding existing terminals (108 projects) and/or augmenting cargo handling capacity (45 projects). Similarly to what was noted in 1999, 20 projects were underway to establish rail links between airports and the cities they serve or connecting airports with the rail network at large.

3.9 During the year, the new major airport of Shanghai-Pudong (China) became operational, as did regional airports at Alexandria-Borg el Arab (Egypt) and Mandalay (Myanmar); a second airport serving the region of Istanbul (Turkey) was opened at Sabiha Gökçen on the Asian side of the metropolis, initially to receive domestic traffic and some international charter flights. A new airport destined to serve primarily tourist traffic was completed at La Romana (Dominican Republic). Work was nearing completion on major projects at Athens-Spata (Greece), Tehran-Imam Khomeini (Islamic Republic of Iran), Seoul-Incheon (Republic of Korea), as well as on regional airports at Cayo Coco (Cuba), El Alamein and Mersa Alam (both in Egypt), with the opening of all these new airports planned for 2001. Work started or continued on major new airport projects (planned completion dates shown in brackets) at Guangzhou-Huadu (2005) (China); Bangalore (2004) (India); Kobe (2005) and Nagoya-Chubu (2005) (both in Japan); and Bangkok-Nong Ngu Hao (2005) (Thailand). Plans were also announced or continued to be studied for new international airports to serve the following cities: Kabul (Afghanistan); Cotonou (Benin); Boa Vista (Cape Verde); a new long-haul international airport in Dominica; a third airport for Paris (France); Berlin-Brandenburg and Frankfurt (Germany); Mumbai (India); Tokyo (Japan); Lagos (Nigeria); Warsaw (Poland); Lisbon-Ota (Portugal); Dakar (Senegal); Madrid-Campo Real (Spain); Manzini (Swaziland); Payerne (Switzerland), where a military base could be converted to civil use to replace both Geneva and Zurich airports, with a high speed rail link (dubbed "Swissmetro") serving both cities; Tunis-Enfidha (Tunisia); and Las Vegas (United States). However, the idea of a second airport for Sydney (Australia) was abandoned, at least until 2005. With regard to secondary airports serving international traffic between regional centres, plans were also announced for the following new international airport developments: Kukes (Albania); Trinidad (Cuba); Saffaya (Egypt); Nantes (France); Medan (Indonesia); Eilat (Israel); Jericho (Palestine); Ziguinchor (Senegal); Durban and Nelspruit (South Africa); a second international airport in Sri Lanka; Gabes and Hammamet/Sousse (Tunisia); and Panama City, Florida (United States).

3.10 Major airport expansion projects were underway in all regions in 2000, although concentrated, as noted above, in Europe, Asia, North America and Africa. New passenger terminals were completed during the year, notably at the airports of San Carlos de Bariloche (Argentina), Melbourne (Australia), Cologne/Bonn, Dortmund, Hahn and Stuttgart (Germany), Shannon (Ireland), Bologna (Italy), Beirut (Lebanon), Queen Beatrix airport (Aruba), Praslin (Seychelles), Bilbao (Spain) and Istanbul (Turkey). Significant passenger terminal expansions were completed at more than 25 airports, notably at Buenos Aires-Ezeiza (Argentina); Sofia (Bulgaria); Dubrovnik (Croatia); Clermont-Ferrand (France); Frankfurt, Friedrichshafen and Saarbrucken (Germany); Bali (Indonesia); Tokyo-Narita (Japan); Mauritius (Mauritius); Amsterdam (Netherlands); Moscow-Domodedovo (Russian Federation); Ljubljana (Slovenia); Cape Town (South Africa); Geneva (Switzerland); Abu Dhabi (United Arab Emirates); Birmingham, Liverpool and London-Luton (United Kingdom); Dallas-Fort Worth, New York-La Guardia and San Francisco (United States); and Pristina (Yugoslavia). New terminals or significant passenger terminal expansions were under construction at about 90 major airports all around the world: notably at Yerevan (Armenia); Adelaide and Brisbane (Australia); Vienna (Austria); Bridgetown (Barbados); Brussels (Belgium); Gaborone (Botswana); Recife (Brazil); Abidjan (Côte d'Ivoire); Pnomh Penh (Cambodia); Halifax and Toronto (Canada); Santiago (Chile); Xi'an (China); Prague (Czech Republic); Billund and Copenhagen (Denmark); Cairo, Hurghada and Luxor (Egypt); Addis Ababa (Ethiopia);

Helsinki (Finland); Montpellier, Nice, Paris-Charles De Gaulle and Toulouse (France); Berlin-Tegel, Dresden, Dusseldorf, Leipzig, Munich and Stuttgart (Germany); Keflavik (Iceland); Mumbai and Trivandrum (India); Dublin (Ireland); Tel Aviv (Israel); Almaty (Kazakhstan); Riga (Latvia); Tripoli (Libya); Male (Maldives); Maputo (Mozambique); Katmandu (Nepal); Amsterdam and Rotterdam (Netherlands); Kano and Lagos (Nigeria); Oslo (Norway); Manila (Philippines); Faro and Porto (Portugal); Singapore (Singapore); Durban and Johannesburg (South Africa); Madrid and Palma de Majorca (Spain); Stockholm-Arlanda (Sweden); Djerba (Tunisia); Belfast-City, Liverpool, London-Gatwick and London-Stansted (United Kingdom); Detroit, New York-Newark, Orlando International, Orlando-Sanford, Salt Lake City, San Jose and Seattle (United States); Caracas (Venezuela); Hanoi (Viet Nam); and Harare (Zimbabwe). In addition, a number of expansion or new terminal projects were planned for another 130 major airports around the world.

3.11 Runway capacity was added at Leipzig (Germany); Kazan (Russian Federation); Dubai (United Arab Emirates) and Phoenix (United States) in 2000, with additions under construction at Buenos Aires (Argentina); Helsinki (Finland); Paris-Charles De Gaulle (France); Osaka (Japan); Amsterdam (Netherlands); Stockholm-Arlanda (Sweden); Antalya (Turkey); Abu Dhabi (United Arab Emirates); Manchester (United Kingdom); Detroit and Seattle (United States). A number of new runway projects were announced, notably at Vienna (Austria); Nadi (Fiji); Milan-Malpensa (Italy); Astana (Kazakhstan); Barcelona and Madrid (Spain); London-Heathrow (United Kingdom); and Atlanta, San Francisco, St Louis and Washington-Dulles (United States). In addition, another 32 runway extension projects are underway or planned.

AIRPORT TRAFFIC

3.12 The 25 largest airports in the world in terms of passenger throughput, 16 of which are located in the United States, handled a combined total of about 1 090 million passengers in 2000 (Table 3-1). This represents about 31 per cent of the world total of scheduled and non-scheduled passengers or an average per airport of some 119 000 passengers every twenty-four hours. These 25 airports also handled a combined total of just over 11.7 million aircraft movements in 2000, corresponding to an average per airport of one take-off or landing every 67 seconds.

3.13 There are significant differences between the rankings of airports by passengers and by movements. For example, Tokyo-Haneda ranks sixth in terms of passengers handled but 47th in terms of aircraft movements, Seoul is 14th by passengers but 51st by movements, Hong Kong 22nd by passengers but 67th by movements, and London Gatwick 23rd by passengers but 44th by movements, illustrating that a substantial part of traffic at these airports is carried on wide-body aircraft. Airports that do not make the listing by passengers but would make a top 25 listing by movements are Cincinnati (15), Boston (16), Seattle (17), Philadelphia (19), Pittsburgh (20) and Charlotte (22) in the United States and Toronto (25), Canada.

3.14 Table 3-1 also includes 1991 data to illustrate the longer-term rate of growth of airport traffic. The number of passengers handled at the large airports concerned increased

at about 5.2 per cent per annum on average over the 1991-2000 period, while aircraft movements increased at some 3.4 per cent per annum, illustrating a trend towards the use of larger aircraft. There were substantial differences in the rates of growth among individual airports.

3.15 Table 3-2 lists the 25 largest airports in the world in terms of *international* passengers handled. In marked contrast to Table 3-1, only three of the 25 airports are located in the United States. The 25 airports together, representing about 2 per cent of airports serving international operations, handled about 577 million passengers in 2000, or about 42 per cent of the world total of international scheduled and non-scheduled passengers.

3.16 Over the 1991-2000 period, the number of international passengers handled at these airports increased at a rate of about 7.3 per cent per annum, and the number of international aircraft movements increased at about 6.2 per cent per annum. Over this period, the highest annual growth rates in terms of individual passengers were recorded for Milan-Malpensa (25 per cent) and Brussels (12.6 per cent). Milan-Malpensa also achieved the highest annual growth rate in terms of international aircraft movements (about 23.4 per cent) followed by Munich (9.9 per cent).

AIRPORT FINANCES

3.17 The financial situation of international airports continued to improve. More and more airports worldwide recover their expenses through charges on air traffic and income from concessions, rentals and other non-aeronautical sources. However, a large number of the 1 196 airports open to international civil aviation still do not recover all their expenses, principally owing to low traffic volumes as well as problems of organizational structure (common to most financially viable airports is that they are operated by autonomous bodies or entities), with inadequate financial control and accounting procedures frequently being a major contributing factor. The proportion of income from non-aeronautical sources has continued to increase and is now the main source of income (more than 50 per cent) for major airports in Europe and North America as well as the Middle East, Asia and the Pacific regions. As in previous years, airports with high traffic volumes generally show higher shares of non-aeronautical revenues and the share tends to increase as traffic increases.

3.18 Over the last ten years the share which landing and associated airport charges represent of total airline operating expenses has increased from 3.7 per cent in 1989 to 4.4 per cent in 1999. After reaching 4.5 per cent in 1995 there was a decline of this share during the next two years down to 4.1 per cent in1997, before stabilization at 4.4 per cent in 1998.

AIR NAVIGATION FACILITIES AND SERVICES

3.19 The financial situation of air navigation services also continued to improve, particularly where they were operated by autonomous authorities. The improvement has been worldwide and is primarily due to the growing emphasis States at large are placing on

Table 3-1. Scheduled and non-scheduled traffic at world's major airports (top 25 airports ranked by TOTAL passengers, 2000)

Rank No.	Airport (ranking by total commercial aircraft movements given in brackets)	Passengers embarked and disembarked				Aircraft movements			
		2000 (thousands)	1999 (thousands)	Change 2000/1999 (%)	Average change per annum 2000/1991 (%)	2000[1] (thousands)	1999 (thousands)	Change 2000/1999 (%)	Average change per annum 2000/1991 (%)
1	Atlanta (1)	79 832	77 744	2.7	8.6	891.0	880.0	1.3	5.2
2	Chicago (2)	71 657	72 157	-0.7	2.0	873.0	855.9	2.0	1.1
3	Los Angeles (4)	65 546	62 491	4.9	4.1	764.0	743.5	2.8	2.9
4	London-Heathrow (11)	64 279	61 979	3.7	5.3	461.0	450.7	2.3	2.7
5	Dallas/Ft.Worth (3)	60 412	59 729	1.1	2.5	822.0	817.8	0.5	1.5
6	Tokyo-Haneda (47)	56 379	54 307	3.8	3.3	249.0	234.5	6.2	3.7
7	Frankfurt (14)	48 965	45 349	8.0	6.7	447.0	421.9	5.9	4.5
8	Paris-Charles de Gaulle (5)	47 801	43 439	10.0	9.2	509.0	466.8	9.0	8.1
9	Amsterdam (21)	40 371	36 434	10.8	10.7	415.0	393.6	5.4	8.1
10	San Francisco (23)	40 280	39 587	1.8	2.7	401.0	409.5	-2.1	0.3
11	Denver (6)	38 752	38 034	1.9	3.6	504.0	470.4	7.1	1.3
12	Las Vegas (24)	36 866	33 815	9.0	6.9	394.0	393.7	0.1	3.4
13	Minneapolis (9)	36 752	34 722	5.8	6.6	463.0	457.8	1.1	3.9
14	Seoul (51)	36 639	33 284	10.1	7.9	233.0	212.4	9.7	7.4
15	Phoenix (7)	36 040	33 554	7.4	5.6	504.0	476.3	5.8	3.4
16	Detroit (8)	35 535	34 038	4.4	5.8	488.0	486.3	0.3	3.9
17	Houston (10)	35 251	33 051	6.7	7.7	461.0	437.4	5.4	6.6
18	New York-Newark (18)	34 188	33 623	1.7	4.5	430.0	437.5	-1.7	2.1
19	Miami (13)	33 621	33 899	-0.8	2.6	448.0	438.1	2.3	1.8
20	New York-Kennedy (29)	32 856	31 701	3.6	2.0	332.0	327.8	1.3	2.8
21	Madrid (28)	32 566	27 591	18.0	8.2	350.0	302.6	15.7	8.8
22	Hong Kong (67)	32 131	29 063	10.6	5.9	182.0	165.0	10.3	6.1
23	London-Gatwick (44)	31 949	30 410	5.1	6.1	253.0	246.8	2.5	5.0
24	Orlando (30)	30 824	29 204	5.5	5.9	323.0	314.2	2.8	3.1
25	St Louis (12)	30 561	30 189	1.2	5.3	457.0	474.2	-3.6	1.5
	TOTAL	1 090 053	1 039 394	4.9	5.2	11 654.0	11 314.7	3.0	3.4

1. 2000 data are still preliminary; actual ranking and percentage change may differ when final data become available.

Source: ICAO Air Transport Reporting Form I and Airports Council International.

Table 3-2. Scheduled and non-scheduled traffic at world's major airports
(top 25 airports ranked by INTERNATIONAL passengers, 2000)

Rank No.	Airport (ranking by international commercial aircraft movements given in brackets)	International passengers embarked and disembarked				International aircraft movements			
		2000 (thousands)	1999 (thousands)	Change 2000/1999 (%)	Average change per annum 2000/1991 (%)	2000[1] (thousands)	1999 (thousands)	Change 2000/1999 (%)	Average change per annum 2000/1991 (%)
1	London-Heathrow (3)	56 875	54 838	3.7	6.0	393	381	3.1	3.9
2	Paris-Charles de Gaulle (1)	42 506	38 157	11.4	9.1	448	404	10.9	8.1
3	Frankfurt (4)	40 282	37 114	8.5	7.6	354	334	6.0	5.5
4	Amsterdam-Schiphol (2)	40 196	36 271	10.8	10.7	407	385	5.7	8.3
5	Hong Kong (12)	32 131	29 063	10.6	5.9	182	167	9.0	5.8
6	London-Gatwick (8)	29 037	27 635	5.1	5.7	211	203	3.9	4.5
7	Singapore (14)	26 963	24 490	10.1	6.7	174	166	4.8	5.4
8	Tokyo-Narita (22)	24 022	22 503	6.8	3.4	127	126	0.8	1.3
9	Brussels (5)	21 515	19 967	7.8	12.6	287	275	4.4	5.0
10	Zurich (6)	21 192	19 385	9.3	7.4	263	247	6.5	5.8
11	Bangkok (22)	20 966	18 856	11.2	8.1	127	118	7.6	4.3
12	New York-Kennedy (26)	18 646	18 197	2.5	1.3	120	119	0.8	2.1
13	Seoul (31)	17 900	15 474	15.7	7.9	98	86	14.0	7.1
14	Taipei (27)	16 705	15 015	11.3	6.7	113	107	5.4	7.3
15	Toronto (10)	16 612	15 404	7.8	7.0	201	198	1.5	5.1
16	Los Angeles (28)	16 574	15 815	4.8	5.8	113	113	0.0	6.2
17	Miami (9)	16 180	15 757	2.7	4.5	206	206	0.0	5.8
18	Copenhagen (7)	16 173	15 197	6.4	7.1	247	243	1.6	5.9
19	Madrid (16)	16 049	13 795	16.3	8.9	168	147	14.3	8.7
20	Manchester (21)	15 485	14 736	5.1	7.3	129	120	7.5	5.3
21	Milan-Malpensa (13)	15 109	12 050	25.4	25.0	179	158	13.3	23.4
22	Munich (11)	14 600	13 417	8.8	9.8	194	179	8.4	9.9
23	Palma de Mallorca (32)	14 461	14 660	-1.4	6.5	96	95	1.1	6.6
24	Rome-Fiumicino(20)	13 446	12 155	10.6		130	122	6.6	5.1
25	Dublin (18)	13 030	12 046	8.2	11.7	149	141	5.8	8.2
	TOTAL	576 655	531 997	8.4	7.3	5 116	4 840	5.7	6.2

1. 2000 data are still preliminary; actual ranking and percentage change may differ when final data become available.

Source: ICAO Air Transport Reporting Form I and Airports Council International.

recovering their air navigation services costs and the continued growth of air traffic. Also of relevance has been the increase in the number of States levying approach and aerodrome control charges. However, many States are still not including all their air navigation services costs in the cost basis for charges, notably the costs of meteorological services, nor are they allowing for depreciation and/or amortization in establishing the cost basis thereby forfeiting an opportunity of building reserves for facility renewal and expansion. In contrast to airports, charges on air traffic are the prevailing source of income for air navigation services providers, accounting in general for more than 95 per cent of their total income.

3.20 The share which route facility charges represent of total airline operating expenses has increased from 1.5 per cent in 1989 to 2.9 per cent in 1999. Most of the increase occurred in the first half of the period with this share reaching 2.6 per cent in 1994. This is explained by the growing number of States levying air navigation services charges and the efforts of States already levying such charges to recover a higher share of their costs of providing air navigation facilities and services, including costs for meteorological services.

Communications, navigation and surveillance

3.21 Implementation of communications, navigation, surveillance/air traffic management (CNS/ATM) systems continued at an increased pace in 2000. Communication via data link was being widely used for transmission of ATM-related information, for example, for the delivery of oceanic clearances, pre-departure clearances and weather information. Significant technical and operational experience had been gained through trials and implementation of interim CNS/ATM systems. Past performance of controller-pilot data link communications (CPDLC) and automatic dependent surveillance (ADS) systems in oceanic airspace had proven their suitability for application with the initial objective of replacing high frequency (HF) voice communications. Programmes to implement CPDLC for use in continental high density airspace commenced in Europe and the United States with the initial objective of relieving congestion on very high frequency (VHF) voice communications.

3.22 Work continued in a number of States and international organizations, with industry input, on developing certifiable aeronautical telecommunication network (ATN) subsystems. In particular, the air traffic services message handling service (ATSMHS) has been implemented in Spain and Thailand (for domestic use) and was being actively developed for operational use in Asia, Europe, Japan and the United States. Work also continued in the development and assessment of digital technologies to improve VHF communication spectrum utilization.

3.23 Significant progress continued in a number of States and international organizations in global navigation satellite system (GNSS) development and implementation. The ICAO GNSS Panel completed development and validation of Standards and Recommended Practices (SARPs) for GNSS. This work included the initial development of SARPs for GPS second civil frequency (GPS L5) and for a new civil satellite navigation system based in Europe and known as Galileo.

3.24 Development of satellite-based augmentation systems (SBAS) continued in Europe (EGNOS), Japan (MSAS) and the United States (WAAS). This form of augmentation has the potential to support the use of GNSS for all phases of flight down to Category I precision approach. Several architectures of ground-based augmentation systems (GBAS) which have the potential to support Category II/III precision approach applications also continue to be developed and tested. This type of augmentation will be used by some States as an alternative to SBAS in support of Category I operations. A number of States have approved the global positioning system (GPS) for supplemental or primary use for some operations and types of airspace.

3.25 A number of multinational facilities and services have been developed in line with ICAO worldwide provisions. Some of these, such as the world area forecast centres in London and Washington and the three ICAO satellite broadcasts known as the satellite distribution system for information relating to air navigation (SADIS), and the international satellite communication systems (ISCS1 and ISCS2), serve air navigation systems in all ICAO regions.

3.26 During 1999-2000 preparation for the International Telecommunication Union (ITU) World Radiocommunication Conference (2000) (WRC-2000) was completed and particular emphasis was placed on the protection of the aeronautical spectrum used for radio navigation systems. ICAO's participation in WRC-2000 was very effective and the ICAO position received significant support. The outcome was very successful to ICAO with almost all of the elements of the ICAO position being approved by the Conference. The ICAO position for WRC-2003 has already been drafted and is expected to be approved by the ICAO Council in 2001.

Air traffic management

3.27 Air traffic control (ATC) systems around the world continued to be updated as part of an evolutionary process leading to a more seamless and integrated global air traffic management (ATM) system. In most cases, supporting CNS/ATM systems were being implemented incrementally as part of systems upgrades, with a view to achieving early benefits as well as meeting long-term objectives. The expansive airspace over Siberia in the Russian Federation airspace, including the polar regions, became increasingly available for international civil aviation due to the implementation of CNS/ATM functionalities into ATS systems. In particular, CPDLC and ADS allowed for more efficient communications and surveillance in remote airspaces. Significant progress was made toward implementation of a series of ATS transit routes across the Arctic and northern regions of the Earth. This progress has been made possible through the combined efforts of the States that control this airspace.

3.28 Several ATM operational concepts, aimed at the progressive introduction of CNS technologies in support of seamless ATM systems, have been developed. The organizations developing these concepts continued to work closely with each other toward a coordinated implementation of ATM systems. To facilitate the goal of a global, seamless ATM system, ICAO established the Air Traffic Management Operational Concept Panel to facilitate the development of a common ATM concept for implementation of CNS/ATM systems. The panel met as a working group of the whole four times in the year 2000 and made significant

progress toward the development of a global ATM operational concept. The first version of the operational concept will be available in 2002.

3.29 Progress continued in the implementation of required navigation performance (RNP) and in the introduction of reduced separation minima based on RNP. The European Civil Aviation Conference (ECAC) States introduced RNP 5 on the entire ATS route network in designated flight information regions (FIRs). In the Asia/Pacific region, RNP 10 was implemented in April 1998 on ATS routes in the Pacific. Planning was underway to revise the route structure for the South Atlantic to introduce additional area navigation (RNAV) routes based on RNP 10 and to implement lateral and longitudinal separation of 50 NM. In the Middle East Region, planning was underway for the implementation of RNP 5 on selected routes in 2001. Work was underway to introduce RNP 4 in the airspace over the Gulf of Mexico. Additionally, work on a 30 NM lateral and longitudinal separation minima, which also requires use of automatic dependent surveillance (ADS), was well underway.

3.30 Reduced vertical separation minima (RVSM) airspace was expanded in the North Atlantic Region to the airspace between FL 310 and FL 390 inclusive. The increased capacity and flexibility provided a significant bonus to aircraft operations. The Pacific Region implemented RVSM in 2000. The European Region will implement RVSM in 2002 and several other regions, namely Asia, the Caribbean, the Middle East and parts of the West and South Atlantic area are preparing for implementation of RVSM over the next several years.

Aerodromes

3.31 Revised specifications on airport physical characteristics are available to States for planning their airport developments as needed to accommodate the future larger aeroplanes with wing spans from 65 m up to but not including 80 m. The impact of these very heavy aeroplanes on airport pavements is being studied concurrently with two full-scale pavement testing projects in progress in two States. Since these aeroplanes are likely to have full-length upper decks, the adequacy of the quantities of extinguishing agents currently specified in Annex 14, Volume I, continues to be studied. The emergency evacuation times of future larger aeroplanes is another issue that needs further study. The work on developing new specifications on rescue and fire fighting in difficult environments has just been completed. Studies have also been completed on further improving the safety of aircraft operations at airports by revising the related specifications on aerodrome rescue and fire fighting services response to an emergency call. Studies for identifying a suitable alternative to halons (halogenated hydrocarbons) as a complementary fire extinguishing agent are ongoing.

3.32 Based on studies and trials undertaken in States, ICAO specifications on visual aids for navigation were updated to reflect current technology. Further studies are underway. To ensure operational safety at airports, specifications on frangibility were also revised.

3.33 While there is a growing trend towards privatization of airports in many parts of the world, the obligations of States with regard to ensuring the safety of civil aviation in their sovereign territory remain unchanged. In this context, many States would need to have

appropriate legislation and regulations in place to be able to carry out safety inspections for ensuring that airports continue to provide adequate and safe facilities and services. In 2001, ICAO introduced in Annex 14, Volume I, a new requirement for States to certify aerodromes in accordance with the applicable specifications and national regulations.

Aeronautical information and charts services

3.34 The objective of an aeronautical information service (AIS) is to ensure the flow of information necessary for the safety, regularity and efficiency of international air navigation. The role and importance of aeronautical information/data changed significantly with the implementation of modern, airborne computer-based navigation systems. The use of Area Navigation (RNAV) in the RNP environment depends on timely and high-quality aeronautical information/data. Corrupt or erroneous aeronautical information/data can potentially affect the safety of air navigation. For this reason, requirements for the quality system that were introduced in Annex 15 were further enhanced with an amendment in 2000. On that basis, many States have implemented or are working towards implementing a properly organized quality system that contains procedures, processes and resources that would satisfy all the functional stages required in the origin and maintenance of aeronautical information/data.

3.35 To support the CNS/ATM systems, it is required that the AIS provide quality aeronautical information to all users at all times. It would not be possible to achieve this very important AIS goal without automation. Developments in automation in both ground-based and airborne equipment, as well as the established requirements for quality aeronautical information, are increasing the need for the provision to users of aeronautical information/data in electronic format. For the above reasons, many States have already established or are planning to establish aeronautical data bases in their AIS to meet the needs for storing, accessing, transferring and archiving aeronautical information/data.

3.36 In the electronic environment, the generation and use of aeronautical information may involve many computer systems. To support and facilitate the use of aeronautical information contained in such systems, the requirement for international civil aviation is to be able to promulgate aeronautical information in a common, computer-interpretable form that will remain complete and consistent even when the information is exchanged among different computer systems. To meet these requirements, ICAO continued the development of recommendations for a future standardized aeronautical information conceptual model. To facilitate the promulgation of information in electronic and paper form, new Annex 15 provisions were introduced in 2000 concerning copyright, cost recovery, data exchange and the Aeronautical Information Regulation and Control (AIRAC) system. Further provisions introduced in 2001 included automated aeronautical information systems and harmonized AIS/MET preflight briefing.

3.37 To satisfy the requirements for the provision of quality aeronautical information to users in graphical form, new specifications for Annex 4 – *Aeronautical Charts* dealing with electronic aeronautical charts for cockpit display, symbology, the portrayal of terrain and minimum flight altitudes, airspace classes, air defence identification zones, and flight

procedures and obstacle clearance based on RNAV systems were introduced in 2001. Further provisions for electronic aeronautical charts for cockpit display and the provision of electronic terrain data are under development by ICAO. Bearing in mind that one quality system comprises procedures, processes and resources, due account is given to the development of new ICAO training guidelines for AIS/MAP personnel based on the task analysis of AIS/MAP functions. New provisions for an AIS/MAP licence for inclusion in Annex 1 – *Personnel Licensing* are also under development.

Aeronautical meteorology

3.38 Considerable progress was achieved in the computer preparation of global forecasts of significant weather (SIGWX) by the two world area forecast centres (WAFCs) in London and Washington. As a result, SIGWX charts for Europe, the Middle East, the North Atlantic, Africa and Western Asia, prepared by means of an interactive computer workstation, are being issued by WAFC London. SIGWX charts for other regions are being issued as part of regional transition plans to the final phase of the world area forecast system (WAFS). Global coverage by three ICAO satellite broadcasts has been achieved, and very small aperture terminals have been installed in approximately 160 States. These broadcasts provide global world area forecast system products and operational meteorological information, such as METARs, TAFs and SIGMETs, directly to States. The implementation of the satellite broadcasts and the provision of SIGWX forecasts by the WAFCs have so far permitted the closure of five of the original 15 regional area forecast centres (RAFCs).

3.39 The privatization, to varying degrees, of an increasing number of meteorological services prompted requests from States for clarification of the role of the designated meteorological authority in terms of Annex 3 — *Meteorological Service for International Air Navigation.*

3.40 Within the international airways volcano watch (IAVW), work continued in States responsible for volcanic ash advisory centres (VAACs) to develop and issue graphical volcanic ash advisories for provision to area control centres and meteorological watch offices, in addition to the existing alphanumeric advisory messages.

Search and rescue

3.41 The satellite-based COSPAS-SARSAT[1] system continued to play an important role in detecting emergency locator transmitters (ELTs) and in locating aviation distress sites.

3.42 The system continued to expand its capability. There were eight low-altitude and three geostationary satellites in operation. At year's end, 37 local user terminals (LUTs) and 22 mission control centres (MCCs) were in operation. Although global coverage was

1. COSPAS — Space system for search of vessels in distress;
SARSAT — Search and rescue satellite-aided tracking.

already provided on 406 MHz, the growing number of LUTs and MCCs increased the real-time coverage of the system and reduced overall response time. The geostationary component of the system provided for almost instantaneous alert between approximately 70° North and 70° South.

3.43 Since it began trial operations in September 1982, the COSPAS-SARSAT system has contributed to the rescue of over 12 000 persons in aeronautical, maritime and terrestrial incidents.

Controlled flight into terrain (CFIT)

3.44 In 2000 the ICAO Council adopted amendments to Annex 6, Parts I, II and III to provide that an instrument approach shall not be continued unless the visibility or runway visual range (RVR) is above that specified in the aerodrome operating minima and to require RVR information to be provided for Category II and III instrument approach and landing operations. Amendments to Annexes 3 and 11 to support the provision of RVR information were adopted in 2001.

3.45 Further amendments to Annex 3, adopted in 2001, require QNH and QFE to be provided in four digits to reduce the possibility of confusion between the different units used by States for atmospheric pressure values. Amendments to Annex 4, adopted in 2001, require terrain contours, with layer tinting printed in brown, on instrument approach charts for aerodromes affected by higher terrain. Recommended Practices cover other aerodromes, where the terrain is not considered a problem and the provision of terrain contours on Area Charts, the Standard Departure Chart (SID) and the Standard Arrival Chart (STAR). Amendments to Annex 6, Parts I, II and III, adopted in 2001, revise the definitions for aerodrome/heliport operating minima, decision altitude or decision height and instrument approach and landing operations using instrument approach procedures, to allow for the addition of a definition for "approach and landing with vertical guidance".

3.46 Amendments to PANS-OPS, Volume I, scheduled for approval in 2001, include material on: area navigation (RNAV) departure procedures for GNSS receivers; revision of the RNAV approach procedures for basic GNSS receivers; new instrument approach procedures for RNAV/barometric vertical navigation (RNAV/Baro-VNAV); constant approach slopes and maximum and minimum descents on reversal procedures; and altimeter corrections, specifically for pressure, temperature and mountainous terrain, both en-route and in the terminal area. Other material for Volume I concerns the stabilized approach, standard operating procedures, the design and use of checklists and flight crew briefings for departure and arrival. Amendments to PANS-OPS, Volume II, include instrument approach procedures for RNAV/Baro-VNAV.

3.47 Proposals under development for applicability in 2002 and later include: for Annexes 4 and 15, requirements for the provision of electronic terrain data, proposals for a terminal area radar vector chart and proposals for the Aerodrome Obstacle Chart-ICAO Type C in an electronic format; review of the Annex 6, Parts I and II requirements for ground proximity warning systems with the forward looking terrain avoidance function, to allow the use of less

complex and expensive systems in operations with the smaller turbine-engined aeroplanes and all piston-engined aeroplanes in commercial operations, and in all aeroplanes in general aviation; and for PANS-OPS, Volumes I and II, to enhance the RNAV/Baro-VNAV instrument approach criteria to provide lower operating minima and to introduce satellite based augmentation systems (SBAS) and ground based augmentation systems (GBAS) criteria to support GNSS instrument approach procedures for Category I instrument approach and landing operations.

Flight safety and Human Factors

3.48 The Fourth Regional Seminar on Human Factors Training Implementation was held in Casablanca, Morocco, from 20 to 22 June 2000. This was another in a series of regional seminars aimed at supporting States in implementing the Human Factors-related requirements in Annexes 1 and 6.

3.49 The first joint ICAO/IATA Regional Flight Safety and Human Factors Seminar was held in Río de Janeiro, Brazil, from 16 to 18 August 2000, with a focus on the exchange of safety information and cultural factors.

3.50 ICAO participated in most Human Factors-related key international events, exchanging information on the latest developments in the field of aviation Human Factors, thus maintaining a leadership role in this field.

Training

3.51 The Eighth Global TRAINAIR Conference and Training Symposium (GTC/8) was held in Madrid, Spain, from 25 to 29 September 2000. The Sociedad Estatal para las Enseñanzas Aeronáuticas (SENASA — Spanish National Civil Aviation Training Centre) hosted the conference and symposium. The conference was the single largest ICAO meeting strictly dedicated to human resource development and training. Over 320 participants attended from 57 States and 11 international organizations. Steps were taken during the conference that will nurture international cooperation among all civil aviation training centres and enhance the ability of the TRAINAIR Programme to meet future civil aviation training challenges. The President of the Council gave an opening address to the conference and symposium.

Chapter 4
User and Public Interest

4.1 This chapter reviews the levels of safety and security in air transport in 2000, efforts during the year to improve compensation for passengers involved in aircraft accidents, and air transport aspects of the broader social issues of environmental protection and aviation medicine.

SAFETY

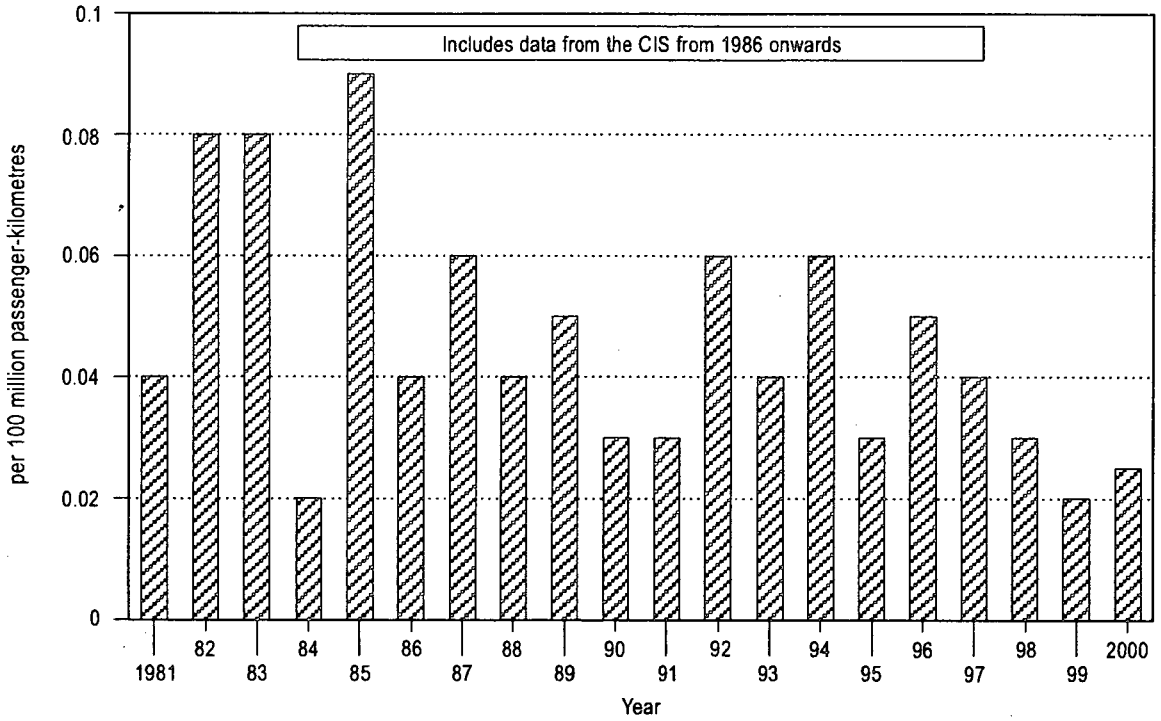
Scheduled operations

4.2 Preliminary information on aircraft accidents involving passenger fatalities in scheduled air services worldwide shows that in 2000 there were 18 aircraft accidents with passenger fatalities involving aircraft with a certificated maximum take-off mass of more than 2 250 kg. The number of passenger fatalities involved was 755. This compares with 21 fatal accidents and 499 passenger fatalities in 1999 (Table A2-3 in Appendix 2). Relating passenger fatalities to the volume of traffic, the number of passenger fatalities per 100 million passenger-kilometres increased to 0.025 from 0.02 in 1999 . However, the number of fatal aircraft accidents per 100 million aircraft-kilometres flown decreased to 0.07 from 0.09 in 1999 and the number of fatal aircraft accidents per 100 000 landings decreased to 0.09 from 0.10 in 1999 (Figures 4-1 to 4-3).

4.3 The safety levels are significantly different for the various types of aircraft operated on scheduled passenger services. For instance, in turbo-jet aircraft operations, which account for about 95 per cent of the total volume of scheduled traffic (in terms of passenger-kilometres performed), there were 6 accidents in 2000 with 625 passenger fatalities; in turboprop and piston-engined aircraft operations, which account for about 5 per cent of the scheduled traffic volume, there were 12 accidents with 130 passenger fatalities. The fatality rate for turbo-jet aircraft operations was, therefore, far lower than for propeller-driven aircraft.

Non-scheduled commercial operations

4.4 Non-scheduled commercial operations include both the non-scheduled flights of scheduled airlines and all air transport flights of non-scheduled commercial operators. Data available to ICAO on the safety of non-scheduled passenger operations show that there were 22 fatal accidents involving aircraft with a certificated maximum take-off mass of more than



Source: ICAO Air Transport Reporting Form G and other reports.

Figure 4-1. Passenger fatalities per 100 million passenger-kilometres on scheduled services (1981-2000)

2 250 kg both in 2000 and 1999 (the latter including 6 accidents involving aircraft operating all-cargo services with passengers on board). These accidents accounted for 291 passenger fatalities in 2000 compared with 129 in 1999.

4.5 In non-scheduled operations performed with aircraft of more than 9 000 kg take-off mass, whether by scheduled airlines or non-scheduled operators, there were 10 fatal accidents with 238 passenger fatalities in 2000.

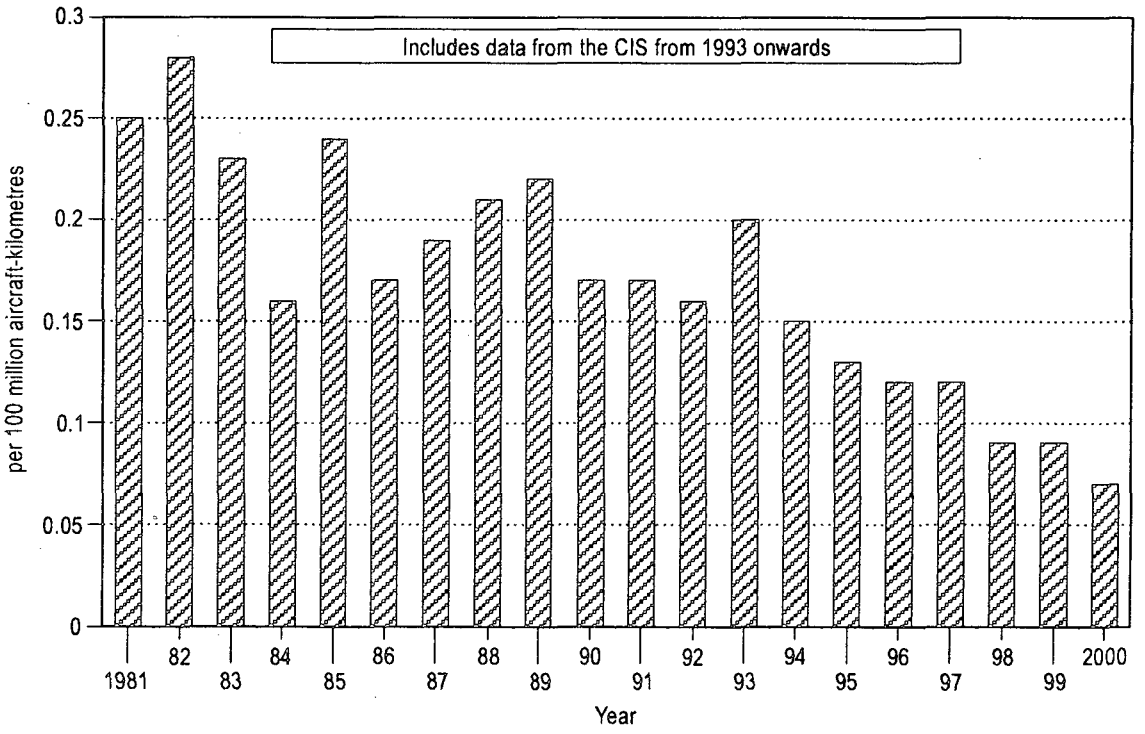
Safety oversight

4.6 The ICAO Universal Safety Oversight Audit Programme (USOAP), launched on 1 January 1999, continued its auditing activities in 2000, with 131 audits completed at the end of the year. The USOAP provides for the conduct by ICAO of mandatory and regular safety audits of all Contracting States, with the first cycle of audits scheduled to be completed in mid-2001.

4.7 The Programme has been, and remains, one of the highest priorities of the Organization, and has been very well received by Contracting States and the international aviation community in general. Contracting States have been diligent in submitting their corrective action plans to address the audit findings. Summary reports on the results of the audits and the actions taken by States are regularly distributed to all Contracting States.

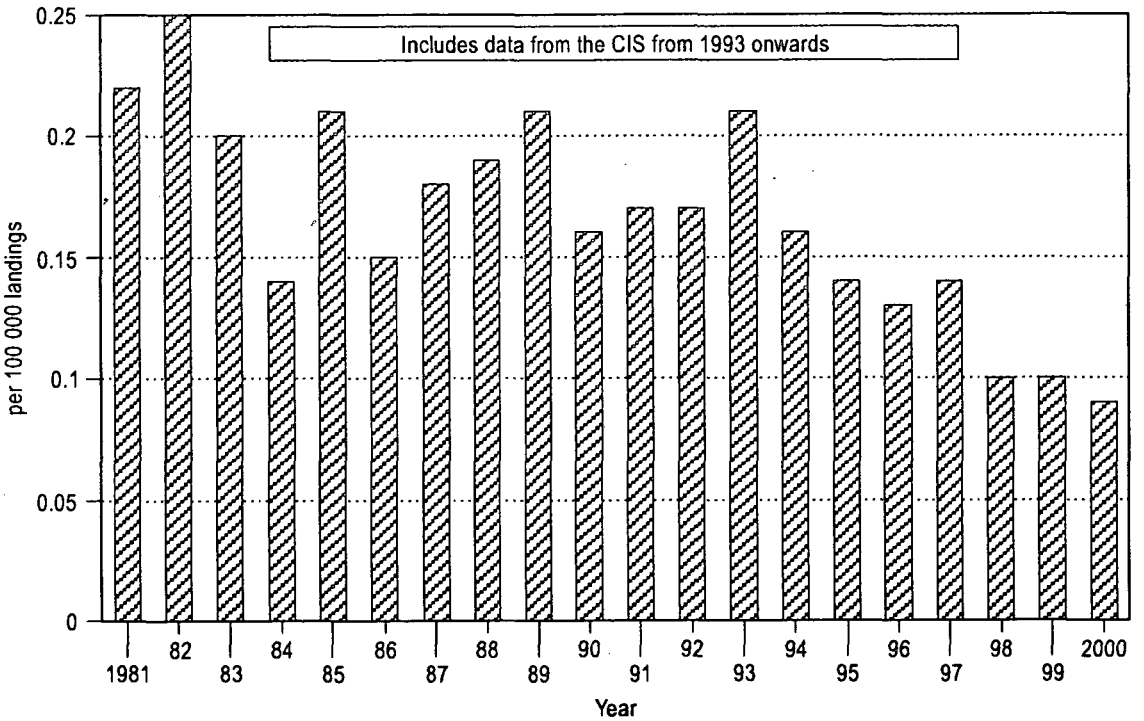
4.8 An Audit Findings and Differences Database (AFDD) was developed to record actual findings and differences identified during the audits. The data collected and analysed by ICAO will allow the Organization to determine the level of implementation of Annex provisions and the impact of identified safety concerns on the safety of aircraft operations, with a view to prioritizing corrective actions to be taken.

4.9 Preliminary work towards the expansion of the Programme to other technical fields progressed as planned.



Source: ICAO Air Transport Reporting Form G and other reports.

Figure 4-2. Fatal accidents per 100 million aircraft-kilometres flown on scheduled services (1981-2000)



Source: ICAO Air Transport Reporting Form G and other reports.

Figure 4-3. Fatal accidents per 100 000 landings by aircraft on scheduled services (1981-2000)

SECURITY

4.10 During the reporting period, 11 acts of unlawful interference were officially reported or confirmed by concerned States. These included 4 unlawful seizures of domestic aircraft and 7 incidents involving international flights. Developments in acts of unlawful interference since 1981 are shown in Figures 4-4 to 4-6 and in Appendix 2, Table A2–4.

4.11 In the light of the positive response from donor States, the ICAO Council approved the extension of the Aviation Security (AVSEC) Mechanism until the end of 2004. To date, 138 States requested assistance under the Mechanism. Since its commencement in 1989, 111 States have been the subject of technical evaluation missions and 35 States have been the subject of follow-up missions in order to monitor their progress in implementing recommendations, provide specific assistance as identified in the technical evaluations and determine further assistance strategies. In order to restate the objective of the Mechanism, the Council, when reviewing the progress report on its implementation, agreed to define this programme as a Mechanism for effective implementation of Standards and Recommended Practices (SARPs) contained in Annex 17.

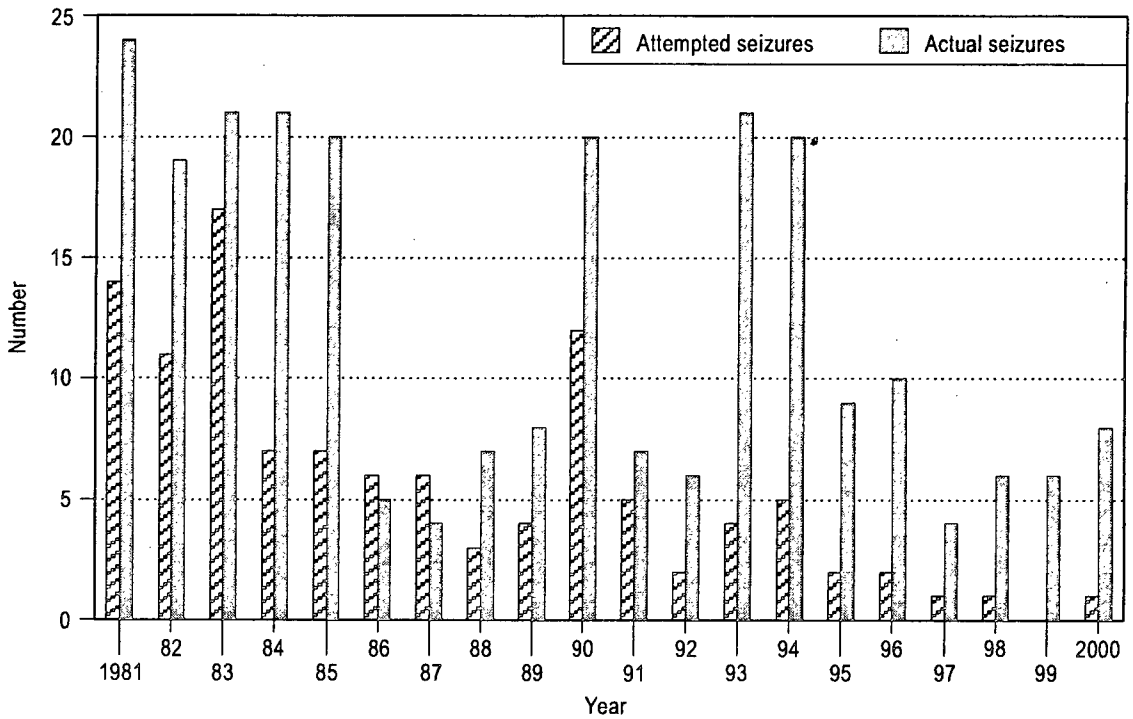


Figure 4-4. Acts of unlawful seizure (1981 to 2000)

4.12 Consistent with the implementation strategy approved by the Council, a regional initiative was developed with the objective to strengthen regional partnerships and assist in the implementation of Annex 17. One aspect of the regional partnership initiative is the acceptance by States of an AVSEC audit and the subsequent dissemination of the findings to all partners. A second aspect of the regional partnership is the possibility for all industry partners such as airlines and airports to contribute to the partnership, either financially or in kind.

4.13 The Aviation Security Training Packages (ASTPs), namely ASTPs 123/Management, 123/Instructors, 123/Crisis Management, 123/Airline, 123/Supervisors and 123/Cargo, were finalized and distributed to all ICAO aviation security training centres, ICAO regional offices and concerned international organizations. The ASTPs were also distributed to all Mechanism States, ICAO Contracting States and industry partners, upon request. The ASTPs are available in the English language only; however, other ICAO language versions (i.e. Arabic, Chinese, French, Russian and Spanish) will be issued as soon as they become available.

Convention on the Marking of Plastic Explosives

4.14 Pursuant to the entry into force of the *Convention on the Marking of Plastic Explosives for the Purpose of Detection* on 21 June 1998, the Council examined a list of experts

nominated for membership on the International Explosives Technical Commission (IETC). In accordance with the Council decision, members of the Commission were appointed from the following States: Argentina, Austria, Canada, Czech Republic, Egypt, France, Germany, India, Japan, Kuwait, Mexico, Saudi Arabia, Switzerland, United Kingdom, United States and Zambia. The first and the second sessions of the IETC were held at ICAO Headquarters from 13 to 15 December 1999 and from 14 to 15 December 2000, respectively.

4.15 During the second session of the Commission, a recommendation was made to amend the Technical Annex to the *Convention on the Marking of Plastic Explosives for the Purpose of Detection* by deleting ortho-Mononitrotoluene (o-MNT) from the list of detection agents. The Council, at the second meeting of its 162nd Session, approved the recommendation of the IETC. In order to assist States in the implementation of the Convention, the IETC will develop appropriate guidance material regarding all aspects of the Convention, such as national legislation arising from the Convention, production of marked explosives, wrapping and storage conditions for marked explosives, monitoring import/export of marked explosives, destruction/recycling of unmarked explosives, and means of detecting marked explosives.

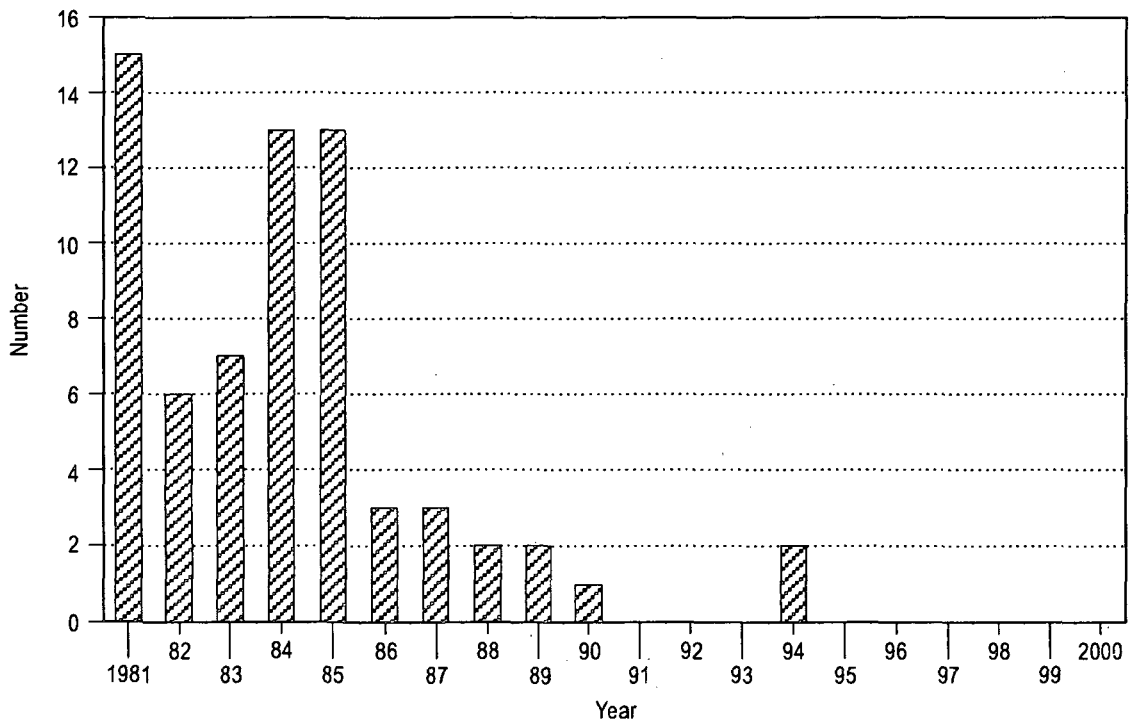


Figure 4-5. Incidents of sabotage (1981 to 2000)

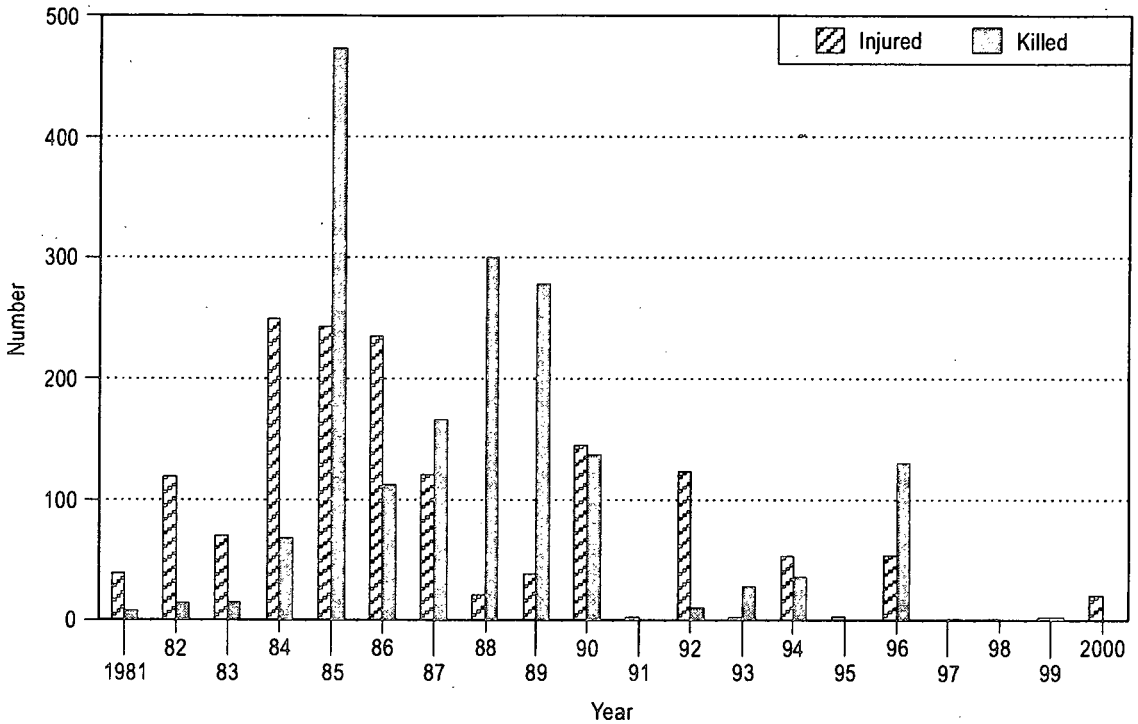


Figure 4-6. Number of persons killed or injured in acts of unlawful interference (1981 to 2000)

AIR CARRIER LIABILITY

Status of Ratification of the Montreal Convention of 1999

4.16 The *Convention for the Unification of Certain Rules for International Carriage by Air*, done at Montreal on 28 May 1999, has to date been ratified or otherwise been accepted by the following 11 States: Bahrain, Belize, Botswana, Czech Republic, Japan, Mexico, Paraguay, Romania, Slovakia, The former Yugoslav Republic of Macedonia, and United Arab Emirates. Ratification procedures are currently under way in a number of other States. The Convention requires 30 ratifications in order to enter into force.

FACILITATION

4.17 Recent ICAO work in the field of facilitation has been aimed at helping Contracting States develop their border control systems in order to accommodate the increased passenger volumes which are foreseen.

4.18 All regions are expected to see growth. A 4 per cent growth rate means that in 10 years, traffic levels will be 50 per cent higher than today; a 7 per cent growth rate means that the number of international passengers will double in 10 years. Around the world, 50 to 100 per cent more people will have to be cleared through immigration and customs in airport facilities, many of which are already strained.

4.19 It may be safely assumed that expansion of airport arrival and departure facilities and the staffing levels of border inspection agencies will not keep pace with the growth of passenger traffic. It may also be assumed that the problems of illegal migration and smuggling by air will not diminish; on the contrary, they may increase, bringing additional challenges to every State's border control system. States in all regions need to plan and equip themselves to meet these challenges so that border inspection processes do not slow down, exacerbating congestion and delays.

4.20 To help States address these challenges, ICAO has recently updated its specifications for machine readable passport and card-format official travel documents (MRTDs), offering an unprecedented level of security against travel document fraud. Approximately 100 Contracting States either issue machine readable passports currently or plan to do so in the near future. The next step is for States to adopt the use of reading machines at airports in order to take full advantage of the "global interoperability" of these documents.

4.21 Reading machines, linked to systems to capture and process information from travel documents, enhance the speed and efficiency of passenger clearance because they help the authorities to quickly perform tasks which, when done manually, cause passengers to stand and wait. For example, a reading machine helps the human inspector verify that a document is valid and has not been altered. Checks against "lookout" lists can be done automatically, and in advanced systems MRTD data can be compared against visa files or enrolment lists of persons pre-authorized for admission. In the near future, the machine reading of an encoded biometric can help confirm that the presenter of a document is the rightful holder. Furthermore, systems can be designed to produce automatically and accurately a record of entry or departure (now done manually with an embarkation/disembarkation card) from the machine readable data on the travel document.

4.22 The widespread installation of reading machines and systems to confirm the identity of travellers and verify the authenticity of their documents will be a gradual process. However, administrations should plan now for the acquisition and use of these valuable tools, so that as passenger volumes increase, they may continue to be able to effectively manage their border control systems at airports.

ENVIRONMENTAL PROTECTION

4.23 In 2000, the aviation community continued to address the environmental problems associated with aircraft noise and with both the global and local impact of aircraft engine emissions.

Aircraft noise

4.24 The phasing out of operations by Chapter 2 aircraft (subsonic jet aircraft that meet the noise certification levels in Annex 16, Volume I, Chapter 2, but exceed those in Chapter 3) at noise-sensitive airports neared completion, in accordance with the policy framework established by the ICAO Assembly in 1990.

4.25 States and airports are now considering what further steps may be needed. In May, Council Regulation (EC) No. 925/1999 became applicable within the European Union, limiting the use of former Chapter 2 aircraft which have been modified to meet Chapter 3 requirements.

Aircraft engine emissions

4.26 According to a special report on *Aviation and the Global Atmosphere* prepared by the Intergovernmental Panel on Climate Change in 1999 at ICAO's request, aircraft emit gases and particles which alter the atmospheric concentration of greenhouse gases, trigger the formation of condensation trails and may increase cirrus cloudiness, all of which contribute to climate change. Aircraft are estimated to contribute about 3.5 per cent of the total radiative forcing (a measure of change in climate) by all human activities. This percentage excludes the effects of possible changes in cirrus and it is projected to grow, primarily because of aviation's rapid rate of growth. Although improvements in aircraft and engine technology and in the efficiency of the air traffic system will bring environmental benefits, these will not fully offset the effects of the increased emissions resulting from the projected growth in aviation.

4.27 Policy-making regarding aircraft engine emissions is being given increased attention by States following the adoption in December 1997 of the Kyoto Protocol to the *United Nations Framework Convention on Climate Change*, which included a provision that developed countries, working through ICAO, shall pursue limitation or reduction of greenhouse gases from aviation bunker fuels. During the year, ICAO's work on emissions continued to address both global and local concerns, but with particular emphasis on developing policy options to limit or reduce greenhouse gas emissions from civil aviation. Some of the possibilities that are being explored include the further development of Annex 16 to specifically address emissions of global concern; the development of guidance material on operational measures to reduce emissions; and the potential role of market-based options, such as emissions trading, emissions-related levies (charges or taxes) and voluntary agreements.

AVIATION MEDICINE

Smoking restrictions

4.28 The implementation of a complete ban on smoking on all international flights in accordance with ICAO Assembly Resolution A29-15 which had called for a 1 July 1996 deadline was still not achieved by the end of 2000, but considerable advancement towards this

goal had been made, both by legislation and by airline policies, and further progress was expected. As a measure of success of these efforts on certain markets, the United States Department of Transportation (DOT) reported that by mid-1997 about 97 per cent of non-stop scheduled U.S. airline flights between that country and foreign points were smoke-free compared to around 80 per cent one year earlier. In 1998 that figure became 100 per cent. In 1997, major European airlines British Airways and KLM had, respectively, 90 and 85 per cent of their international services non-smoking and went on in 1998 to prohibit smoking worldwide. By the end of 2000, all Scandinavian and the vast majority of the European airlines were smoke-free net-wide.

TECHNICAL COOPERATION

Recruitment of field personnel

4.29 ICAO's Technical Co-operation Bureau (TCB) employed 361 experts from 43 countries during all or part of the year 2000 on projects. Some of these experts were employed in two or more programmes during the year. The figures in this paragraph therefore total 364 instead of 361. There were also 18 United Nations Volunteers and 651 National Professionals in the TCB Programme.

Fellowships training

4.30 During the year 2000, 565 fellowships were awarded to staff of Civil Aviation Departments of developing countries through the ICAO Fellowships Programme. The Programme was almost entirely funded by developing countries themselves, reflecting their commitment to train their own civil aviation staff and filling the gap created by the continuing decline in traditional United Nations Development Programme (UNDP) funding of human resource development in the civil aviation subsector.

4.31 Furthermore, 286 fellows or 54 per cent of total fellowships implemented, attended courses in training centres in developing countries that were established or expanded with the cooperation of ICAO, while the remaining 240 or 46 per cent were trained at other training centres throughout the world. The average duration of a fellowship was 0.8 months.

Purchase of equipment

4.32 During the year 2000, 490 purchase orders and contracts were issued, representing total commitments of $20.5 million. The procurements include 266 purchase orders and contracts worth $18.6 million for the Technical Co-operation Programme. Meanwhile, procurement under the Civil Aviation Purchasing Services (CAPS) continued to attract interest with two more countries subscribing to this plan and bringing the total number of participating countries to 87.

ICAO — Singapore Developing Country Training Programme

4.33 Sponsored by the Singapore Cooperation Programme, Ministry of Foreign Affairs, Singapore, ICAO's Technical Co-operation Bureau is awarding Fellowships Training at the Singapore Aviation Academy. The awards, totaling 100, will be offered to all ICAO Contracting and Developing States in the second half of 2001 and will continue through 2002, 2003 and up to March 2004.

4.34 The training will concentrate on the field of flight safety and will include the following courses: Safety Oversight Managers Course; Safety Oversight Airworthiness Inspectors (Engineering) Course / Safety Oversight Airworthiness Inspectors (Maintenance) Course / Safety Oversight Flight Operations Inspectors Course; Seminar on FANS CNS/ATM (including latest developments in GNSS); Air Traffic Services Managers and Investigators Workshop; and Civil Aviation Management Programme.

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PART II

WORLD ECONOMIC AND TRAFFIC TRENDS

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Chapter 5
Global Trends

5.1 This chapter reviews historical developments in the world economy since 1989 and examines trends in airline traffic, productivity, prices and finances.

ECONOMIC TRENDS

5.2 The demand for air passenger travel is primarily determined by income levels, demographics and the cost of air travel. World energy demand, supply and prices are critically important both to economic progress and to the cost of travel. Hence the airline industry is highly vulnerable to economic cycles and fluctuations in fuel prices.

5.3 Between 1989 and 1999, the aggregate world economy measured in terms of Gross Domestic Product (GDP) grew at an average annual rate of 2.3 per cent in real terms. Growth rates varied across regions, from a high of 4 per cent for Asia/Pacific to a low of zero for Europe including the "countries-in-transition" in Eastern Europe and the Commonwealth of Independent States (CIS) (see Chapter 6 for further details). World population growth between 1989 and 1999 increased at an average annual rate of 1.5 per cent. Hence growth of the world's GDP per capita between 1989 and 1999 increased at an average annual rate of 0.8 per cent, significantly lower than the growth of GDP itself, as indicated in Figure 5-1.

5.4 The years 1983 to 1989 saw the world economy experience its longest period of sustained progress since World War II, achieving an average annual growth rate of 3.7 per cent. This extended period of growth in the world economy came to a halt during 1990. The economies of the United States, the United Kingdom and Canada entered into a recession, followed later by slowdowns in Germany and Japan. In addition, the former centrally planned economies of Eastern Europe and the CIS went into serious decline. As a result, 1991 was the most difficult year for the global economy since 1982. Recovery commenced in North America in 1992, but it was not until 1994 that it took hold in most of Western Europe. In 1998 the world economy experienced some slowdown resulting from the financial crisis in several Asian countries, but it rebounded in 1999 and posted a 3.1 per cent growth. The economy continued to grow in 2000, by 4.4 per cent, led by the United States, the European Union and Japan, especially in the first part of the year. However, the latter part of 2000 and the first months of 2001 witnessed a marked slowdown in the United States, a stalling recovery in Japan and moderate growth in Europe and in some emerging market economies.

5.5 Developing countries as a group (excluding the "countries-in-transition") have generally maintained an annual GDP growth of 4 to 6 per cent since the mid-1980s. However,

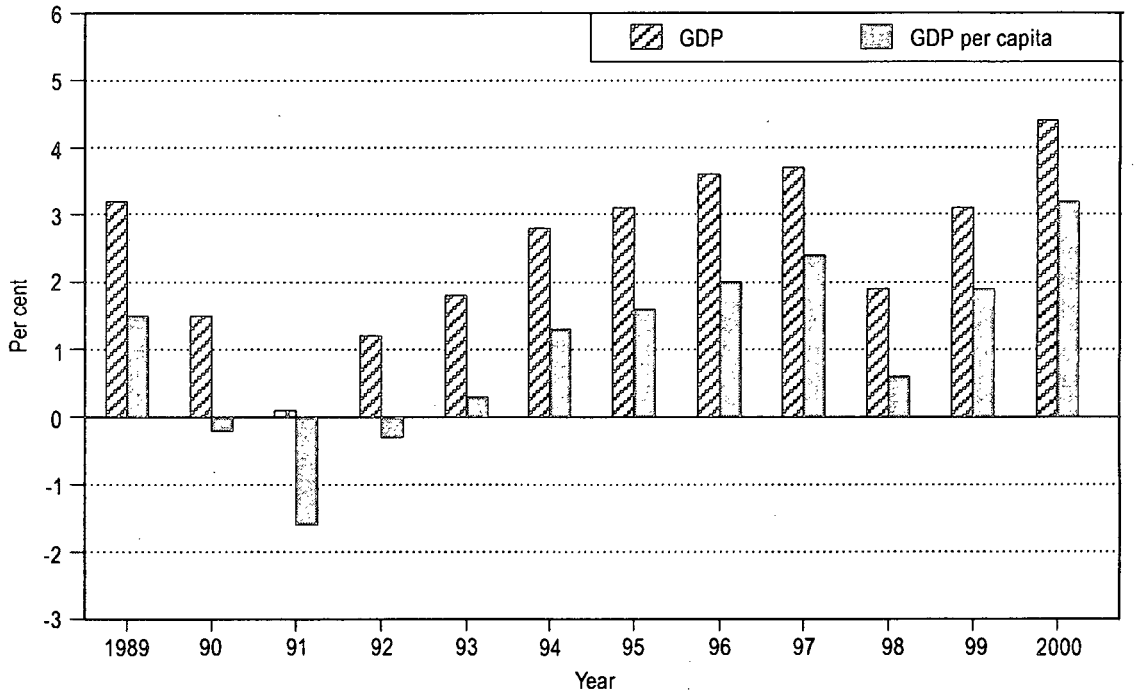
the economies of Latin America, Africa and the Middle East have all had significant periods of difficulty and low growth during the past decade. Structural reform and the sustained implementation of prudent macroeconomic policies together with large capital inflows supported consistently strong growth in East and South-East Asia through to 1997 when there were substantial financial and economic setbacks in several countries. The slowdown in the aggregate GDP growth of developing countries from 5.8 per cent in 1997 to 3.2 per cent in 1998 resulted primarily from contractions in output in several South-East Asian countries and a weakening performance in Latin America and the Caribbean. The economic performance of developing countries amounted to about 3.8 per cent in 1999 and 5.6 per cent in 2000 GDP growth in real terms. This reflects the consolidation of recovery in Asia and a rebound from slowdowns in emerging markets in Latin America and the Middle East.

5.6 On several occasions in the last quarter century, sharp movements in crude oil prices have impacted powerfully on the world economy. In particular, the recessions of the mid-1970s and early 1980s were linked to the oil price increases of 1973 and 1979/80. Oil market conditions are therefore of great interest when assessing global economic performance. However, the capability of the economies of the industrialized countries to cope with oil price increases has improved because of reduced energy dependency and the effects of structural reforms in the 1980s. Furthermore, world oil prices have settled into lower levels in recent years as markets have adjusted to shifts in supply and demand. In 1996, a significant and sustained increase in oil prices did occur, which resulted in increased costs to air transport, but by early 1997 oil prices had returned to pre-1996 levels, and they declined further in 1998. This two-year downward trend was reversed during 1999 when the world trade price of crude oil in U.S. dollars more than doubled from about $10 a barrel at the beginning of the year to almost $25 a barrel towards the end, reaching a nine-year high. The crude oil prices continued to pick up in 2000, especially in the third and fourth quarters. For the whole year the crude oil price is estimated to have averaged at about $28 a barrel, the highest level since 1989.

5.7 Oil price rises and accommodating monetary policies contributed to double-digit inflation in industrial countries in the 1970s and early 1980s. Since 1983, average inflation in these countries has moderated to the 3 to 5 per cent range. During 2000, inflation in most industrial countries increased moderately, resulting in an aggregate rate of 2.3 per cent. Inflation rates in developing countries as a group continued to follow a similar overall declining trend; in 2000, a historically low average rate of 6.1 per cent was achieved, although large variations prevailed from region to region and among countries within regional groupings.

AIRLINE TRAFFIC TRENDS

5.8 Total scheduled airline traffic, measured in terms of total tonne-kilometres performed, grew at an average annual rate of 5.5 per cent between 1989 and 2000. Passenger-kilometres grew at an average rate of 4.9 per cent per annum (see Figure 5-2) and freight tonne-kilometres at 6.8 per cent per annum. Global traffic data for each year of the period 1989-2000 are given in Tables 5-1 (total traffic) and 5-2 (international traffic).



Source: IMF, WEFA Group.

Figure 5-1. Annual change in real GDP and GDP per capita — World (1989-2000)

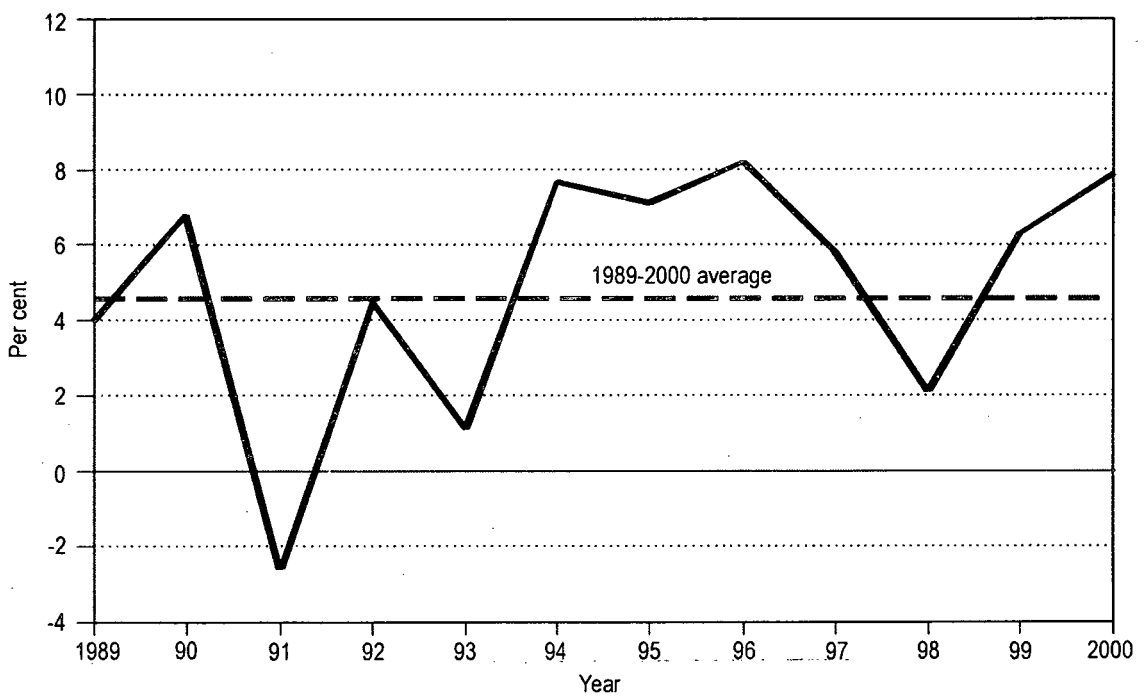


Figure 5-2. World scheduled passenger traffic growth — passenger-kilometres performed (1989-2000)

Table 5-1. World total international and domestic revenue traffic
(Scheduled services of airlines of ICAO Contracting States, 1989-2000)

Year	Passengers carried		Passenger-km		Freight tonnes carried		Freight tonne-km performed		Mail tonne-km performed		Total tonne-km performed	
	Millions	Annual increase (%)	Millions	Annual increase (%)	Millions	Annual increase (%)	Millions	Annual increase (%)	Millions	Annual increase (%)	Millions	Annual increase (%)
1989	1 109	2.5	1 778 900	4.0	18.1	5.2	57 150	7.3	5 060	4.8	223 000	5.1
1990	1 165	5.0	1 894 250	6.8	18.4	1.7	58 800	2.9	5 330	5.3	235 220	5.5
1991	1 135	-2.6	1 845 420	-2.6	17.5	-4.9	58 560	-0.4	5 070	-4.9	230 720	-1.9
1992	1 146	1.0	1 928 920	4.5	17.6	0.6	62 640	7.0	5 130	1.2	242 140	4.9
1993	1 142	-0.3	1 949 420	1.1	18.1	2.8	68 450	9.3	5 230	1.9	250 630	3.5
1994	1 233	8.0	2 099 940	7.7	20.5	13.3	77 220	12.8	5 410	3.4	273 420	9.1
1995	1 304	5.8	2 248 210	7.1	22.2	8.3	83 130	7.7	5 630	4.1	293 930	7.5
1996	1 391	6.7	2 431 690	8.2	23.2	4.5	89 200	7.3	5 800	3.0	317 150	7.9
1997	1 457	4.7	2 573 010	5.8	26.4	13.8	102 880	15.3	5 990	3.3	344 190	8.5
1998	1 471	1.0	2 628 120	2.1	26.5	0.4	101 820	-1.0	5 760	-3.8	348 600	1.3
1999	1 562	6.2	2 797 800	6.5	28.1	6.0	108 660	6.7	5 720	-0.7	370 420	6.3
2000	1 647	5.4	3 017 790	7.9	30.2	7.5	117 580	8.2	6 030	5.4	400 780	8.2

Source: ICAO Air Transport Reporting Form A.

Table 5-2. World international revenue traffic
(Scheduled services of airlines of ICAO Contracting States, 1989-2000)

Year	Passengers carried		Passenger-km		Freight tonnes carried		Freight tonne-km performed		Mail tonne-km performed		Total tonne-km performed	
	Millions	Annual increase (%)	Millions	Annual increase (%)	Millions	Annual increase (%)	Millions	Annual increase (%)	Millions	Annual increase (%)	Millions	Annual increase (%)
1989	262	7.8	823 760	8.2	8.6	10.3	44 930	9.5	2 080	4.5	123 020	8.7
1990	280	6.9	893 500	8.5	8.6	0.0	46 320	3.1	2 190	5.3	130 730	6.3
1991	266	-5.0	861 530	-3.6	8.5	-1.2	46 410	0.2	2 190	0.0	128 280	-1.9
1992	299	12.4	982 490	14.0	9.3	9.4	50 750	9.4	2 190	0.0	143 600	11.9
1993	319	6.7	1 047 380	6.6	10.3	10.8	56 050	10.4	2 200	0.5	155 490	8.3
1994	347	8.8	1 143 180	9.1	11.8	14.6	64 700	15.4	2 240	1.8	173 080	11.3
1995	375	8.1	1 249 160	9.3	13.0	10.2	70 340	8.7	2 400	7.1	189 430	9.4
1996	412	9.9	1 380 680	10.5	13.6	4.6	75 510	7.4	2 450	2.1	206 870	9.2
1997	438	6.3	1 468 150	6.3	15.7	15.4	87 740	16.2	2 490	1.6	227 390	9.9
1998	458	4.6	1 512 040	3.0	15.8	0.6	87 050	-0.8	2 480	-0.4	231 440	1.8
1999	493	7.6	1 622 250	7.3	17.3	9.5	93 280	7.2	2 480	0.0	247 610	7.0
2000	538	9.1	1 778 600	9.6	18.8	8.7	101 080	8.4	2 660	7.3	270 950	9.4

Source: ICAO Air Transport Reporting Form A.

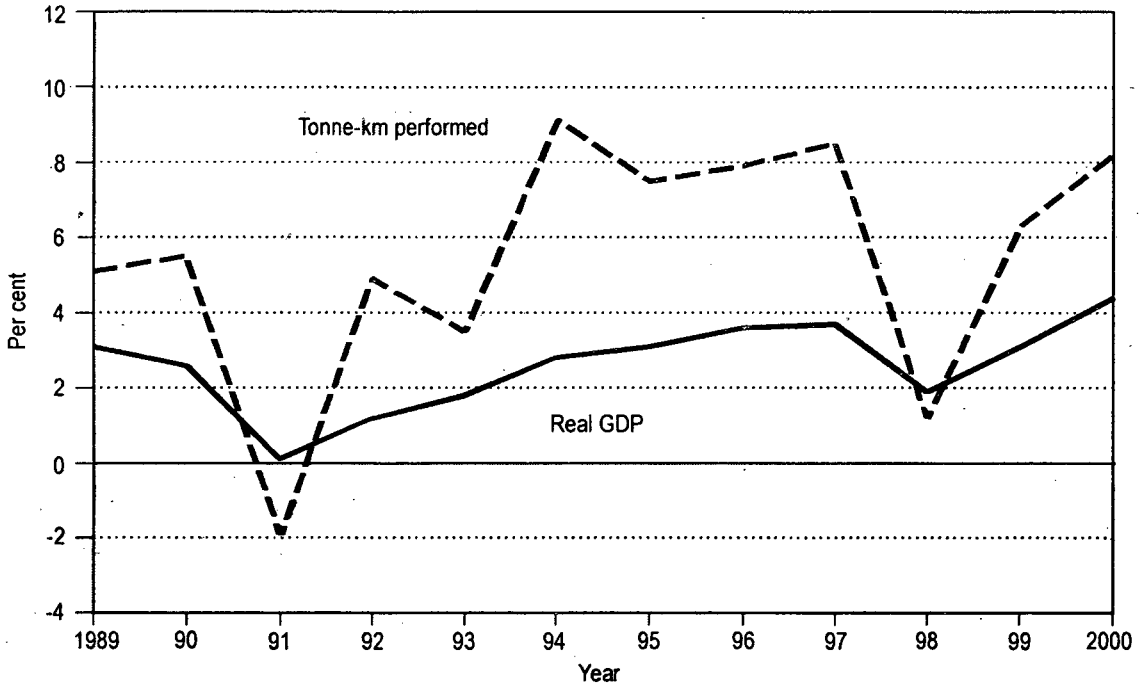
5.9 In broad terms, the pattern of traffic growth over the 1989-2000 period was a reflection of economic conditions experienced over this period. As depicted in Figure 5-3, in the middle of 1990 the relatively buoyant economic and air traffic performance during most of the 1980s came to an end. The economic recession in 1991 had a serious effect on air traffic. The recovery in traffic in 1992, which occurred despite continuing poor economic performance, was achieved at a cost of significantly reduced yield. Although real yields declined further in 1993 and 1994, the stimulating effect on traffic demand was less dramatic than in 1992. On the other hand, economic growth began to provide a more solid foundation for traffic growth. These trends continued until 1997 but reversed in 1998 when GDP grew at only 1.9 per cent, providing for a simultaneous growth of total scheduled passenger traffic of only 2.1 per cent. However, a strong economic performance resulted in 6.5 and 7.9 per cent traffic growth in 1999 and 2000, respectively.

5.10 The regional distribution of scheduled passenger traffic for the years 1989 and 2000 is illustrated in Figure 5-4. The airlines of the North American and European regions dominate, contributing 72.4 per cent to the total traffic in 1989, although this share had declined to 65.7 per cent by 2000. Passenger traffic performed by airlines registered in the Asia/Pacific region increased from 17.9 per cent of the total world traffic in 1989 to about 24.3 per cent in 2000. Other regions contributed 9.7 per cent of the traffic in 1989 and 10 per cent in 2000.

AIRLINE PRODUCTIVITY, PRICES AND FINANCIAL PERFORMANCE

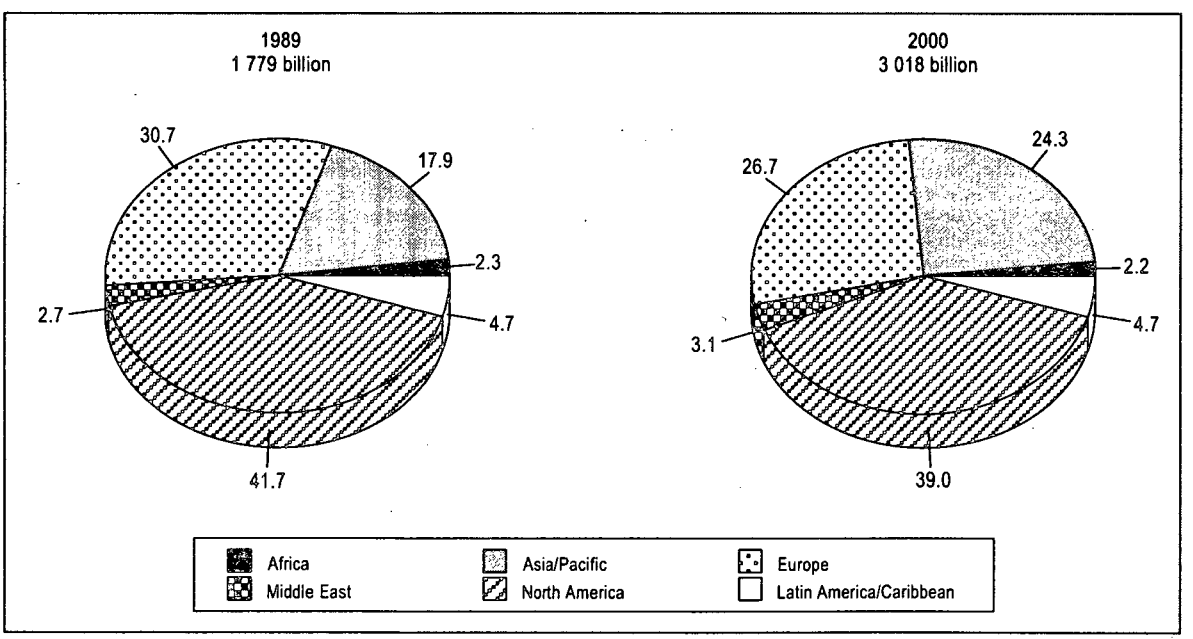
5.11 The scheduled airline industry has a long history of improving productivity. As a result, the growth in the output of the industry (traffic volumes measured by tonne-kilometres performed or TKP) has been greater than the growth in the various inputs used by the industry (mainly labour, fuel and aircraft). Separate partial productivity measures for labour (TKP per employee), fuel (TKP per tonne of fuel consumed) and aircraft (TKP per tonne of fleet payload) have been developed. The trend in total productivity, which is a combination of the partial productivities, is shown in Figure 5-5. The average annual growth in productivity since 1989 has been about 3.4 per cent. The progressive absorption of new technology aircraft into airline fleets has been a major reason for the improvement in productivity. In particular, the new aircraft are more fuel- and labour-efficient. Improved aircraft utilization and load factors have also made important contributions.

5.12 Improvements in productivity can, in principle, be used to reduce the real fares and rates paid by passengers and shippers, to pay for increases in real input prices (e.g. wage rates, fuel prices), or to provide airlines with improved financial results. The trends in airline yields (revenue per tonne-kilometre performed) and input prices, deflated by the Consumer Price Index of industrial countries, are presented in Figure 5-5, together with the trend in the revenue/expense ratio representing the financial performance of the scheduled airline industry. Expenses are defined here as operating expenses, excluding taxes and interest on debt. It is clear that, over the past decade, airline customers have benefited from lower real yields made possible by the combined impact of productivity growth and declines in the index of real input prices (primarily resulting from reductions in fuel prices).



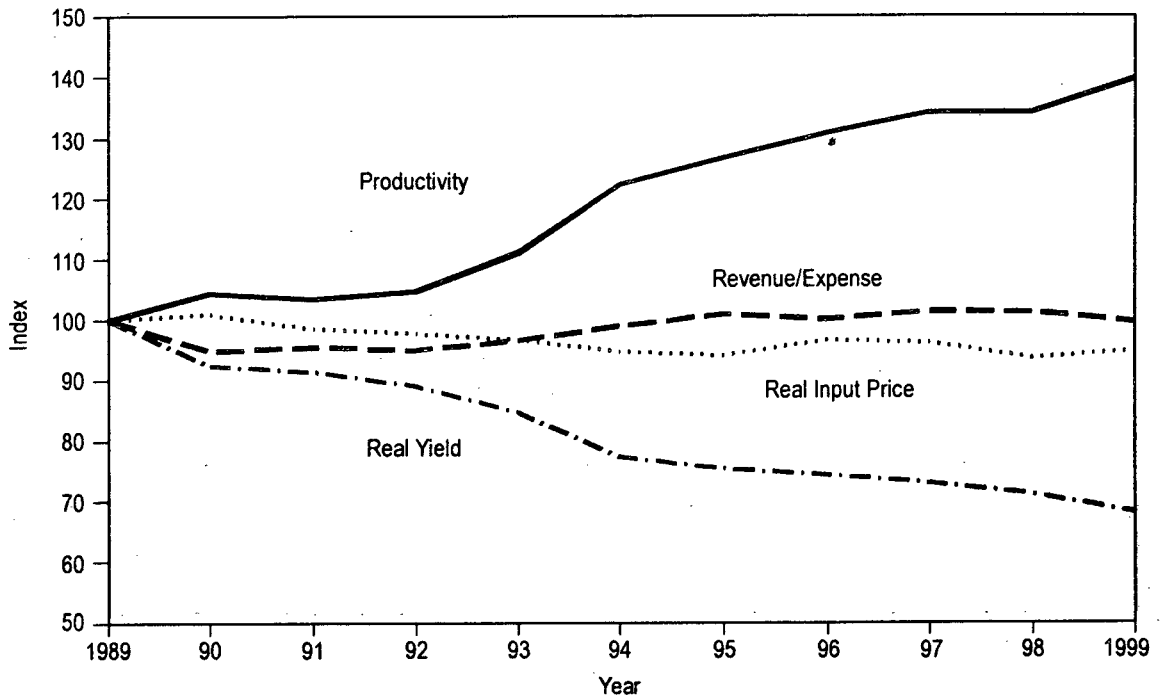
Source: IMF, ICAO Air Transport Reporting Form A.

Figure 5-3. GDP and scheduled traffic growth — World (1989-2000)



Source: ICAO Air Transport Reporting Form A.

Figure 5-4. Regional distribution of scheduled passenger traffic — percentage of passenger-kilometres performed (1989 and 2000)



Source: IMF, ICAO Air Transport Reporting Forms A and EF-1.

Figure 5-5. Trends in performance of scheduled airline industry — World (1989-1999)

5.13 Although there has been neither an improvement nor a decline in the long-term trend in the financial performance of scheduled airlines as a whole, there have been relatively large changes in the operating results over the medium term. Table 5-3 shows the annual development since 1989 in operating revenues and expenses, the operating result (earnings before interest, other non-operating items and taxes) and the net result (earnings after interest, other non-operating items and taxes). The growth in revenues and expenses over the period reflects an expansion in activity levels and general inflationary pressures, offset by improvements in the efficiency of the industry. However, the impact of these factors has varied considerably over the business cycle. During the buoyant years of the 1980s, rapid growth in demand resulted in a more intensive use of airline resources and strong productivity growth. Airlines were able to improve their operating results and also offer relatively low fares and rates to their customers. In the early 1990s, market conditions changed as demand weakened and the utilization of airline resources tended to decline. The emergence of excess capacity and consequent competitive pressures depressed yields. These factors combined to produce negative operating results in three consecutive years (1990-1992). In 1993, the airline industry started to move towards a more appropriate balance of supply and demand and achieved a small operating surplus. A much better operating result was obtained in 1994, and by 1995 the industry delivered an operating surplus of $13.5 billion and obtained a positive net result of about $4.5 billion. In 1996, a reduced operating surplus of about $12.3 billion was achieved, with a net result of $5.3 billion, while in 1997, there was an operating surplus of

Table 5-3. Operating and net results[1] (scheduled airlines of ICAO Contracting States[2])

Year	Operating revenues U.S.$ (millions)	Operating expenses U.S.$ (millions)	Operating result		Net result[3]		Direct subsidies U.S.$ (millions)	Income taxes U.S.$ (millions)
			Amount U.S.$ (millions)	Percentage of operating revenues	Amount U.S.$ (millions)	Percentage of operating revenues		
1989	177 800	170 200	7 600	4.3	3 500	2.0	170	-2 950
1990	199 500	201 000	-1 500	-0.8	-4 500	-2.3	230	-300
1991	205 500	206 000	-500	-0.2	-3 500	-1.7	100	550
1992	217 800	219 600	-1 800	-0.8	-7 900	-3.6	140	1 040
1993	226 000	223 700	2 300	1.0	-4 400	-1.9	150	-270
1994	244 700	237 000	7 700	3.1	-200	-0.1	70	-1 300
1995	267 000	253 500	13 500	5.1	4 500	1.7	100	-2 170
1996	282 500	270 200	12 300	4.4	5 300	1.9	30	-2 500
1997	291 000	274 700	16 300	5.6	8 550	2.9	180	-4 200
1998	295 500	279 600	15 900	5.4	8 200	2.8	10	-4 800
1999	305 500	293 200	12 300	4.0	8 500	2.8	10	-4 300
2000[4]	328 700	317 700	11 000	3.3				

1. Revenues and expenses are estimated for non-reporting airlines.
2. Up to and including 1997 operations within the Commonwealth of Independent States are excluded.
3. The net result is derived from the operating result by adding (with plus or minus sign as appropriate) non-operating items (such as interest and direct subsidies) and income tax. The operating and net results quoted, particularly the net results, are the small differences between the estimates of large figures (revenues and expenses) and are therefore susceptible to substantial uncertainties.
4. Preliminary data — net results are not yet available.

Source: ICAO Air Transport Reporting Form EF-1.

$16.3 billion and a net result of almost $8.6 billion. In 1998, the operating surplus reached $15.9 billion with a net result of $8.2 billion and in 1999 the industry generated an operating surplus of $12.3 billion and a net profit of $8.5 billion. According to preliminary estimates for 2000, an operating surplus of about $11 billion is expected.

5.14 The change in the structure of operating revenues and expenses over the past decade is illustrated in Table 5-4. The share of incidental revenues (which include sales of services and maintenance, and the leasing of aircraft to other airlines) has increased from 7.9 per cent to 9.8 per cent, while there has been a comparable decline in the share of revenues from scheduled services. The counterpart of some of these changes on the expense side was an increase in the share of "Flight operations — Other", which includes rental of aircraft from other companies. This suggests some restructuring within the airline industry. The share of indirect expenses and especially ticketing, sales and promotion expenses has decreased slightly, with a corresponding increase in the share of direct aircraft expenses which resulted from the increases in flight operations expenses.

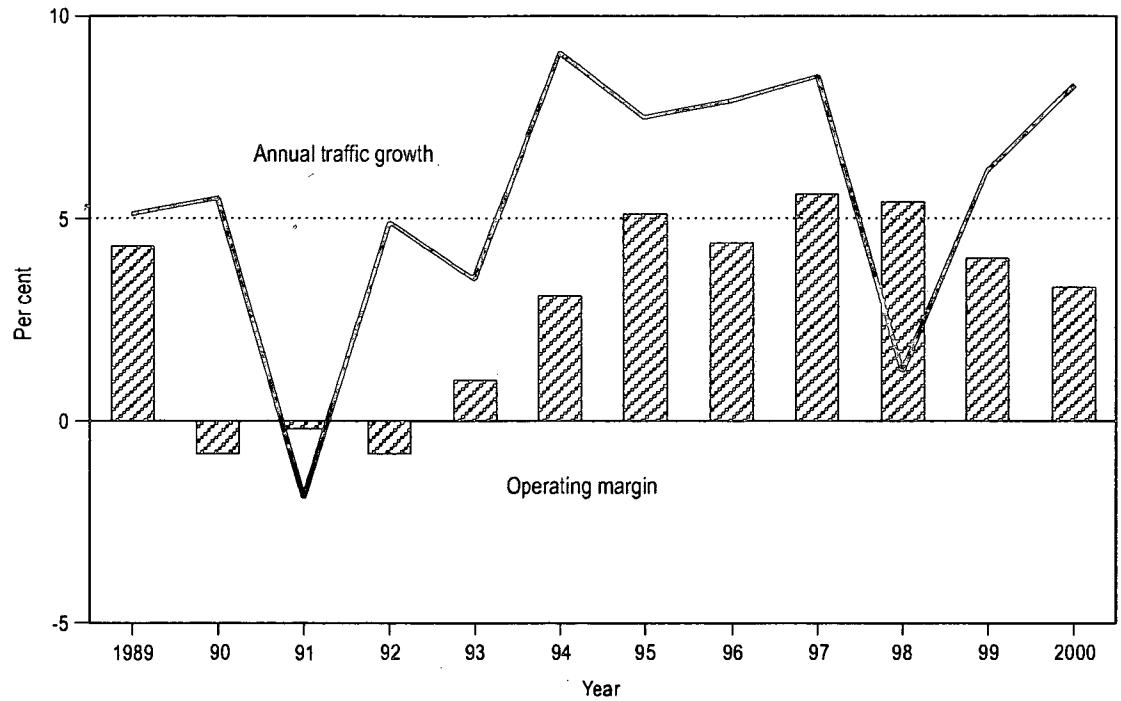
5.15 The variations in the annual operating result, measured as a percentage of airline revenue, are illustrated graphically for the period 1989-2000 in Figure 5-6, which also shows the fluctuations in traffic growth over the same period. There is a positive correlation between

Table 5-4. Distribution of operating revenues and expenses
(Scheduled airlines of ICAO Contracting States[1]
total domestic and international services, 1989 and 1999)

Description	Distribution by item (per cent) 1989	1999	Change in per cent share of item 1989 to 1999
OPERATING REVENUES			
Scheduled services (total)	88.6	86.5	-2.1
Passenger	77.1	75.8	-1.3
Freight	10.4	10.0	-0.4
Mail	1.1	0.7	-0.4
Non-scheduled operations	3.5	3.7	0.2
Incidental	7.9	9.8	1.9
TOTAL	100.0	100.0	—
OPERATING EXPENSES			
Direct aircraft			
Flight operations (total)	25.9	28.0	2.1
Flight crew	6.7	8.3	1.6
Fuel and oil	13.6	11.0	-2.6
Other	5.6	8.7	3.1
Maintenance	11.5	10.8	-0.7
Depreciation and amortization	7.3	6.6	-0.7
Sub-total	44.7	45.4	0.7
Indirect			
User charges and station expenses (total)	17.2	17.6	0.4
Landing and associated airport charges	3.7	4.3	0.6
En-route facility charges	1.5	2.9	1.4
Station expenses	12.0	10.4	-1.6
Passenger service	10.3	10.8	0.5
Ticketing, sales, promotion	17.3	13.7	-3.6
General, administrative and other operating expenses	10.5	12.5	2.0
Sub-total	55.3	54.6	-0.7
TOTAL	100.0	100.0	—

1: Excludes operations within the Commonwealth of Independent States.

Source: ICAO Air Transport Reporting Form EF-1.

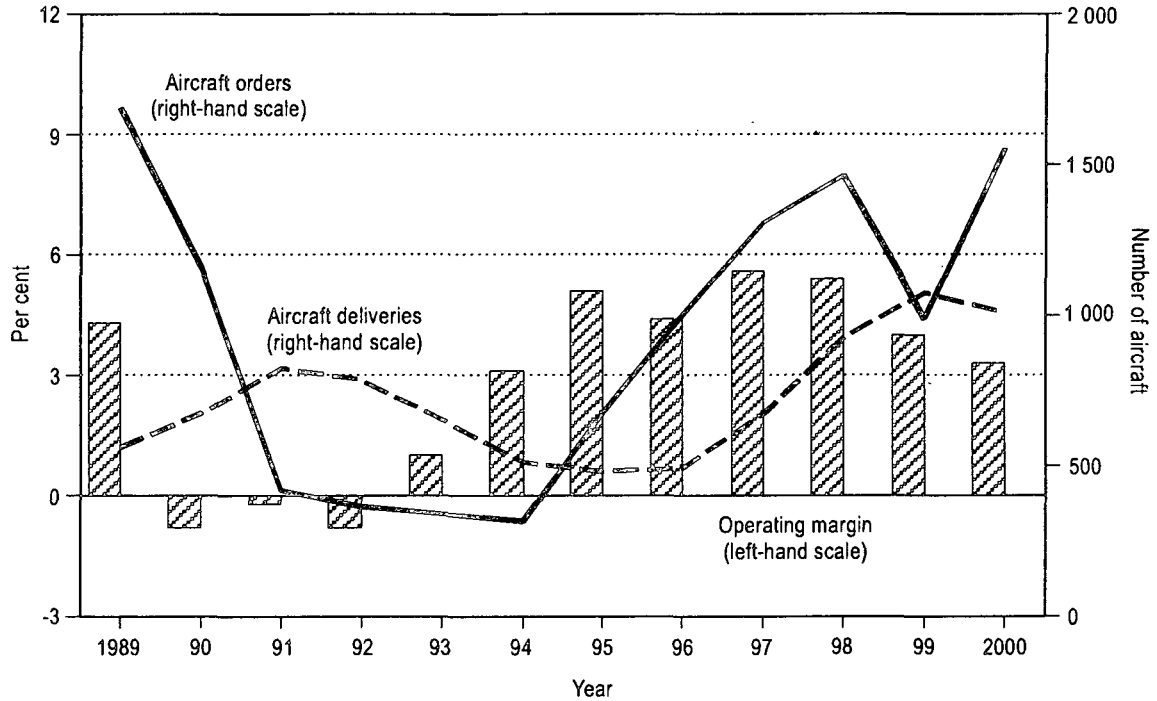


Source: ICAO Air Transport Reporting Forms A and EF-1.

Figure 5-6. Financial return and traffic growth of scheduled airline industry — World (1989-2000)

this measure of financial return and the growth in traffic. However, close examination of annual changes reveals that the recession in financial results began in 1990 when traffic growth was 5 per cent. Furthermore, traffic rebounded in 1992 after a decline in 1991, while the operating result remained in deficit. Part of the explanation of the financial outcome in 1990 lies in a substantial increase in fuel prices (and hence operating expenses), without compensating increases in yields. In 1992, yields declined significantly in nominal terms, helping to boost traffic but having a depressing effect on financial return. In 1993 and 1994, yields became somewhat more stable and cost efficiency increased progressively, resulting in successive improvements in financial performance. Financial performance continued to improve in 1995 but was hampered slightly in 1996 by the increase in fuel prices. Financial performance improved further in 1997 and 1998 due to increases in average passenger load factors in 1997 and declines in fuel prices both in 1997 and 1998. In 1999 the financial performance was less buoyant than in preceding years and according to preliminary estimates it further deteriorated in 2000, mainly due to substantial increases in fuel prices.

5.16 The pattern of investment in aircraft is related to the cycle of financial performance. Annual aircraft orders and deliveries are shown in Figure 5-7, together with the annual financial return of the carriers. The high levels of aircraft deliveries in the early 1990s were



Source: ICAO Air Transport Reporting Form EF-1 and aircraft manufacturers.

Figure 5-7. Financial return and aircraft supply — World (1989-2000)

accompanied by introductory costs and higher depreciation expenses and hence increased expense per unit of output. Furthermore, the arrival of large amounts of new capacity, combined with softening demand during the recessionary period, encouraged competitive reductions in fares and hence reduced revenue per unit of output.

5.17 The high rates of aircraft deliveries in the early 1990s resulted from very high volumes of aircraft orders in earlier years, which were generated by strong traffic growth and a ready availability of financing. Because of the lag between orders and deliveries, the buoyant market conditions which existed at the time of peak order levels had changed by the time the peak deliveries were made, which exacerbated the mismatch between supply and demand in the industry. With aircraft orders at low levels after 1990, aircraft deliveries returned to moderate levels in 1994 and 1995. Together with improved demand, this helped to reduce excess capacity in the industry. Aircraft orders started to increase again from 1996, surpassing aircraft deliveries for the first time since 1990. This trend reversed in 1999 when orders dropped almost to the level of deliveries but in 2000 the growth of orders rebounded again and significantly surpassed the level of deliveries as illustrated in Figure 5-7.

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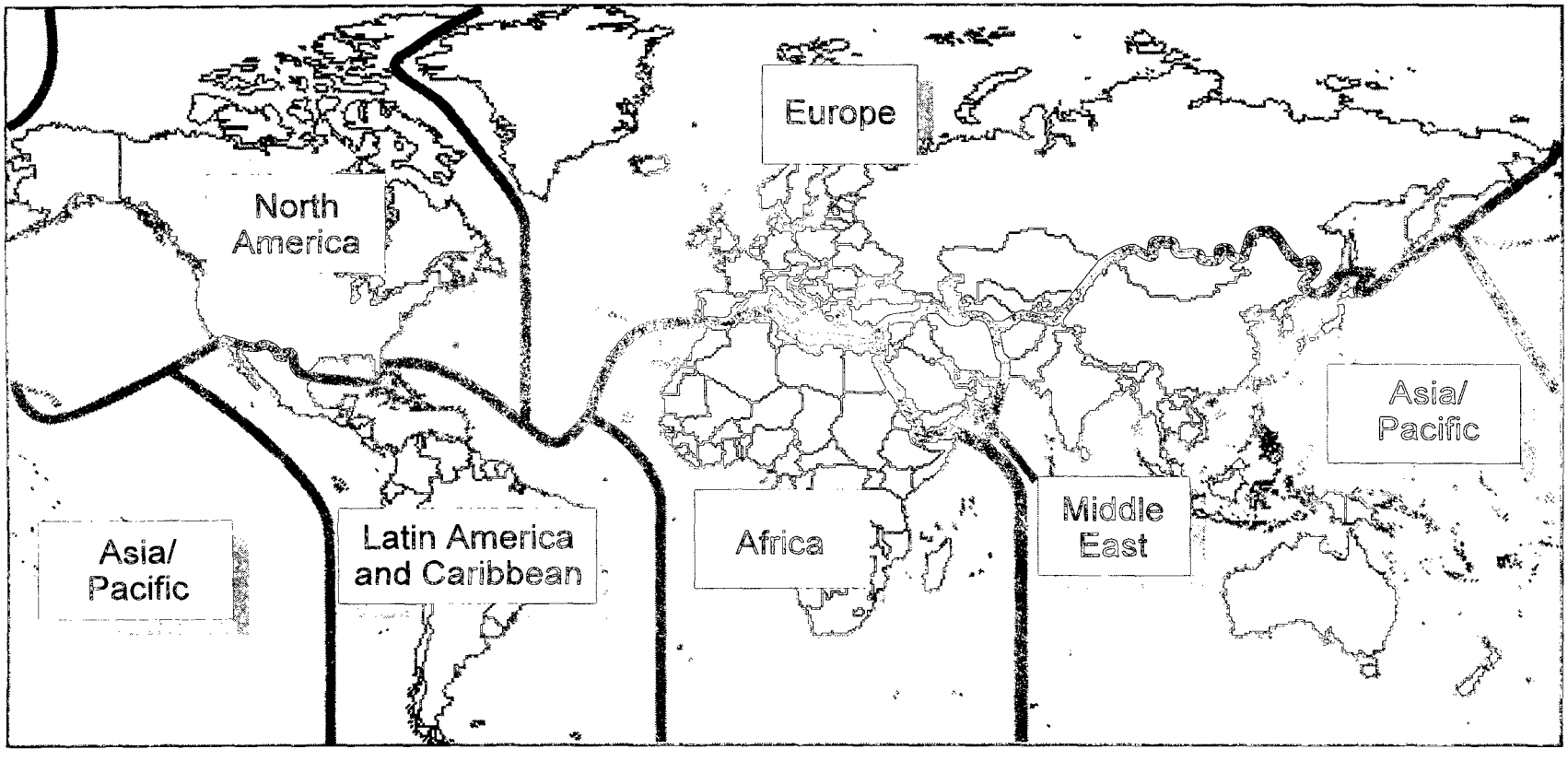
PART III

REGIONAL PERSPECTIVES

ICAO STATISTICAL REGIONS



International boundaries shown on this map do not imply official endorsement or acceptance by ICAO.

Chapter 6
Regional Highlights and Trends

6.1 This chapter reviews, on a region-by-region basis, some key developments affecting air transport in 2000, the economic environment over the period since 1989 and airline finances and passenger traffic trends over the same period. The regional basis is that of the ICAO statistical regions (see map), presented as follows: Africa; Asia/Pacific; Europe; the Middle East; North America; Latin America and the Caribbean.

AFRICA

The region in 2000

Table 6-1. Scheduled airline traffic — Africa (2000/1999)

	INTERNATIONAL			TOTAL		
	2000	Increase over 1999 (%)	Share of world traffic (%)	2000	Increase over 1999 (%)	Share of world traffic (%)
Passengers carried (thousands)	18 450	4.3	3.4	32 180	4.0	2.0
Passenger-kilometres performed (millions)	56 870	6.7	3.2	66 470	6.5	2.2
Freight and mail tonne-km performed (millions)	2 050	2.3	2.0	2 160	3.1	1.7

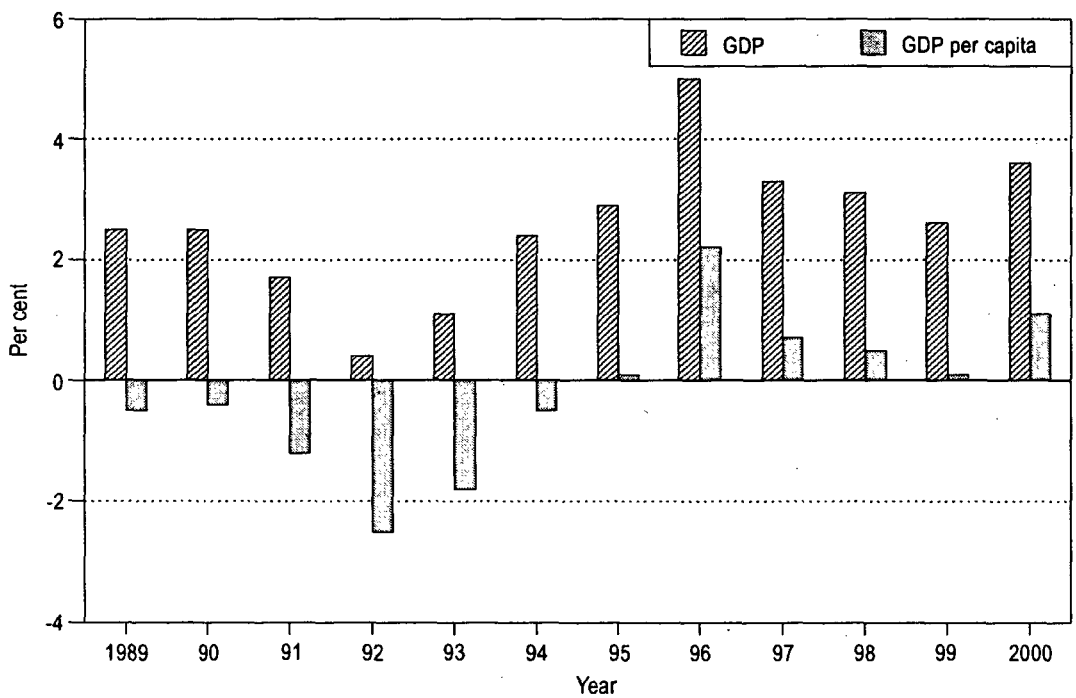
Source: ICAO Air Transport Reporting Form A.

6.2 During 2000, air transport liberalization activity continued to develop at the national, subregional and regional levels. Ten States concluded bilateral "open skies" agreements (nine with the United States). The Heads of States and Governments of the Organization for African Unity (OAU) met in August and endorsed a regional provisional aviation agreement reached in 1999 by the African Transport Ministers (known as the Yamoussoukro Decision) which would gradually liberalize the African skies with the aim to achieve full integration by 2002. Member States of the Common Market for Eastern and Southern Africa (COMESA), having achieved full liberalization of cargo services in the first phase of the air services liberalization programme, moved to the second phase of liberalization

involving passenger services. However, the COMESA Council of Ministers decided in December to put in abeyance further implementation of the programme pending establishment of the COMESA Air Transport Regulatory Board and the formulation and implementation of the COMESA Air Transport Competition Rules; nevertheless, Member States which were in a position to implement the programme could continue to do so.

Economic trends

6.3 Over the 1989-1999 period, the aggregate African economy grew at an average annual rate of 2.5 per cent (GDP in real terms), although GDP per capita declined at a rate of 0.3 per cent over the decade. Figure 6-1 illustrates the year-to-year changes in the region's GDP and GDP per capita. Domestic factors ranging from a lower incidence of civil strife in some countries to greater macroeconomic stability and modest progress in liberalizing markets and privatizing state enterprises helped the region's improved economic performance significantly in the second part of the 1990s. Favourable external conditions also contributed, most notably the rapid growth in world trade, surging private capital flows and a mini-boom in commodity prices (1994-95). However, the rate of growth decreased significantly later in the decade, particularly in sub-Saharan Africa. This can be attributed to the rising incidence of



Source: IMF, WEFA Group.

Figure 6-1. Annual change in real GDP and GDP per capita — Africa (1989-2000)

civil conflict and, to a lesser extent, to the losses from terms of trade resulting from weak commodity prices and most recently from high oil prices. The aggregate African economy is estimated to have grown at 3.6 per cent in 2000.

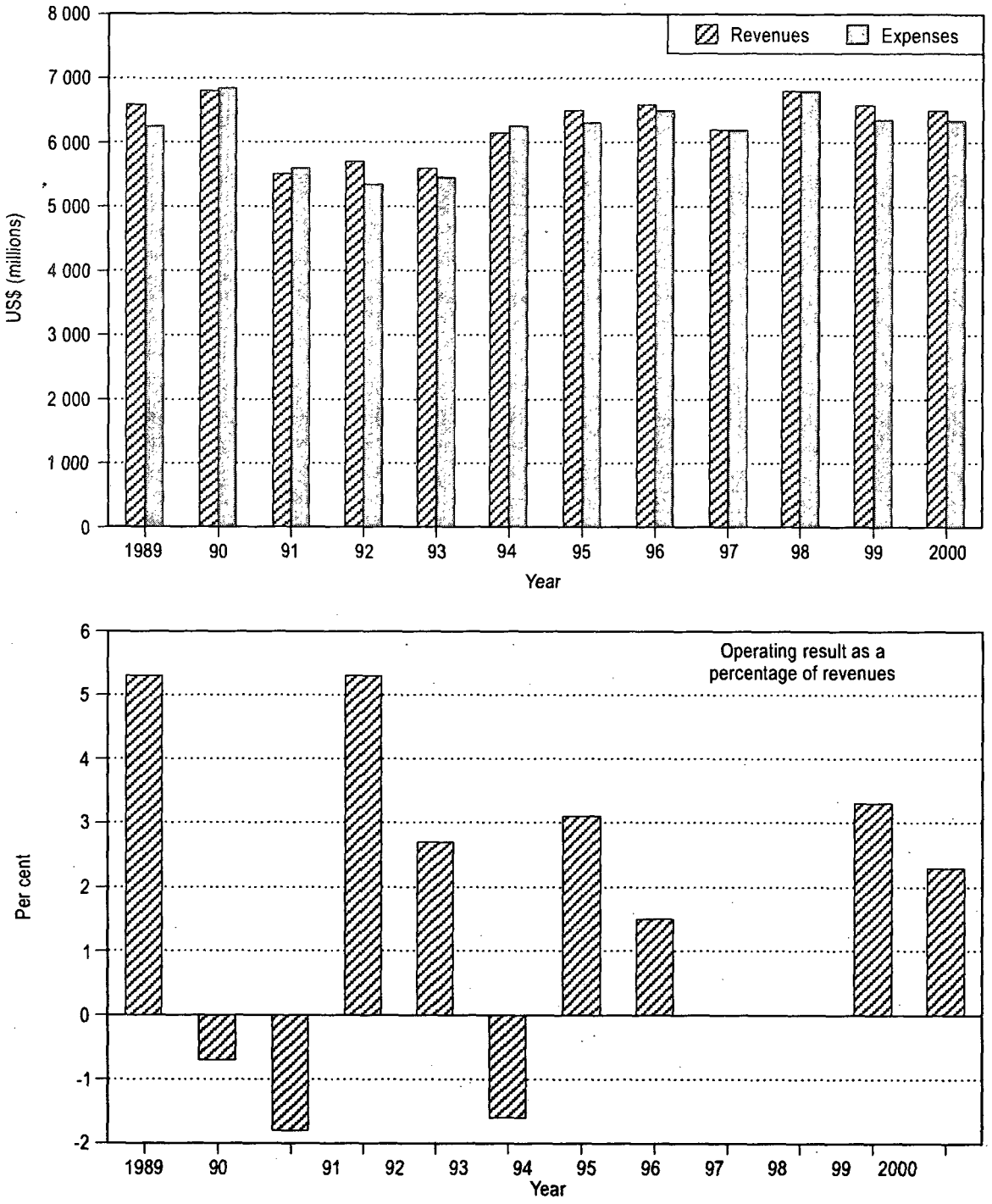
Airline financial trends

6.4 Over the 1989-1999 period, operating revenues (in dollars) of the scheduled airlines of the African region decreased at an average annual rate of 0.2 per cent (compared to the world annual average increase of 5.6 per cent). Operating expenses for the same period also decreased by 0.2 per cent per annum. These rates reflect the relatively low traffic growth experienced over most of the period, but also the efforts by African airlines to improve efficiency and financial performance. Since 1989, negative operating results have been achieved only for 1990, 1991 and 1994 as illustrated in Figure 6-2.

6.5 For the 1989-1999 period, average scheduled passenger yields for airlines of the region, measured in terms of cents per passenger-kilometres performed (PKPs), declined at an average annual rate of 6.7 per cent in real terms (compared to a 3.4 per cent decline for the world). The year-to-year comparisons of the changes in real passenger yield of African and world airlines are illustrated in Figure 6-3. Since 1990, average yields of the region's airlines have decreased more than the world average yields each year, except 1998.

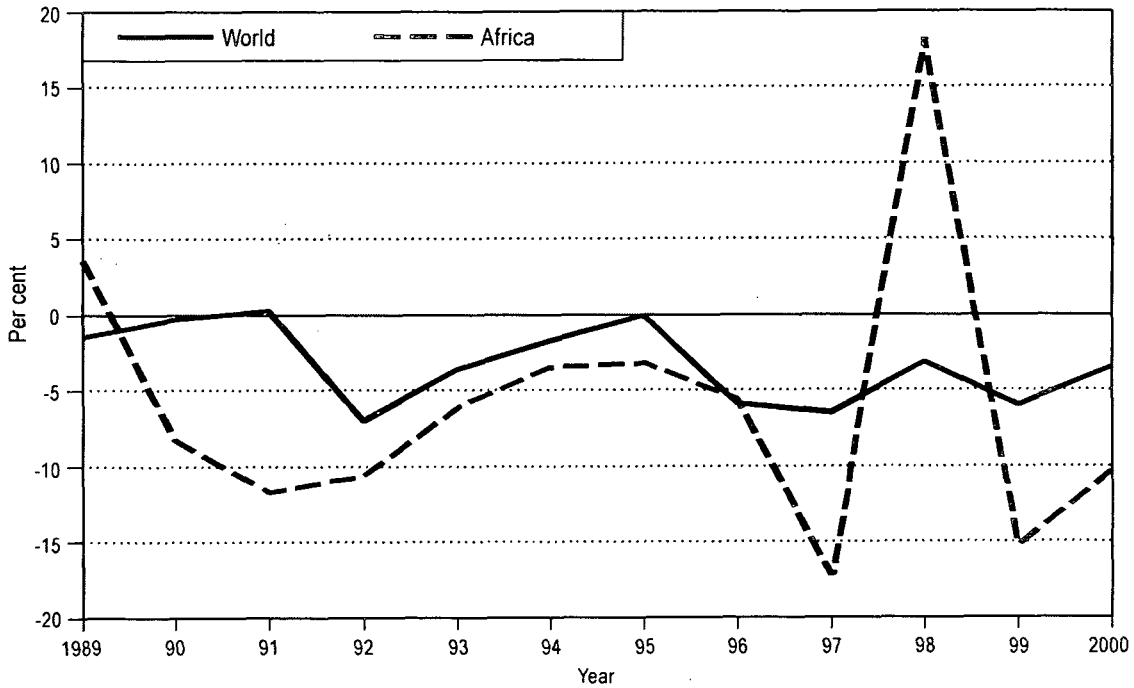
Airline passenger traffic trends

6.6 Over the 1989-1999 period, scheduled passenger traffic (in PKPs) of the airlines of the African region increased at an average annual rate of 4.3 per cent (compared to the world annual average of 4.6 per cent). Traffic growth in recent years markedly exceeded this decade's average; 6.2 per cent growth was recorded in 1996 followed by a 6.1 per cent growth in 1997. While there was a reversal in 1998 with traffic declining by 0.1 per cent (compared to world average growth of 2.1 per cent), traffic rebounded in 1999, with an 11 per cent growth and continued to grow in 2000 with a 6.6 per cent increase. The year-to-year traffic growth comparison between world and African airlines is shown in Figure 6-4.



Note.— 2000 figures are from estimated data.
Source: ICAO Air Transport Reporting Form EF-1.

Figure 6-2. Scheduled airline operating revenues and expenses — Africa (1989-2000)



Notes. — 2000 figures are from estimated data.
— Real yield for scheduled airlines measured in U.S. cents per PKP deflated by U.S. Consumer Price Index.

Source: ICAO Air Transport Reporting Forms A and EF-1.

Figure 6-3. Annual change in real scheduled passenger yield — Africa and World (1989-2000)

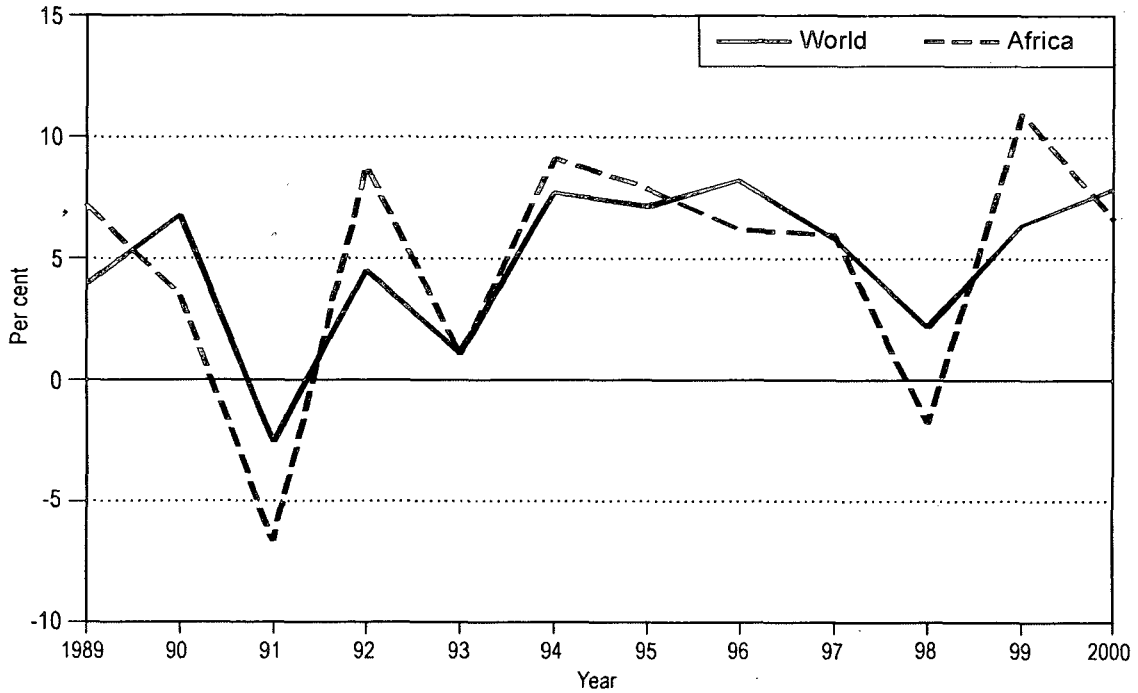


Figure 6-4. Scheduled passenger traffic growth (PKPs) — Africa and World (1989-2000)

ASIA/PACIFIC

The region in 2000

Table 6-2. Scheduled airline traffic — Asia/Pacific (2000/1999)

	INTERNATIONAL			TOTAL		
	2000	Increase over 1999 (%)	Share of world traffic (%)	2000	Increase over 1999 (%)	Share of world traffic (%)
Passengers carried (thousands)	120 600	11.9	22.4	365 880	7.0	22.2
Passenger-kilometres performed (millions)	518 810	11.9	29.2	733 310	10.0	24.3
Freight and mail tonne-kms performed (millions)	37 270	5.4	35.9	40 950	5.9	33.1

Source: ICAO Air Transport Reporting Form A.

6.7 The Fourth Meeting of the Regional Cooperation Forum for International Air Transport in Asia and Oceania was held in Hanoi in September 2000. The meeting examined the future prospects for air transport in Asia and Oceania, current policies in each of the economies and regulatory aspects for international air transport aiming at more competitive air services. The meeting recognized the need for greater harmonization of procedures for general aviation and agreed to address this matter, inter alia, at its next meeting in 2002.

6.8 Work continued within the Pacific Islands Forum on a policy framework to manage the airspace of the subregion as a unified airspace and on a multilateral agreement for the liberalization of air services among the Forum island countries. However, meetings to progress both these issues had to be postponed to 2001.

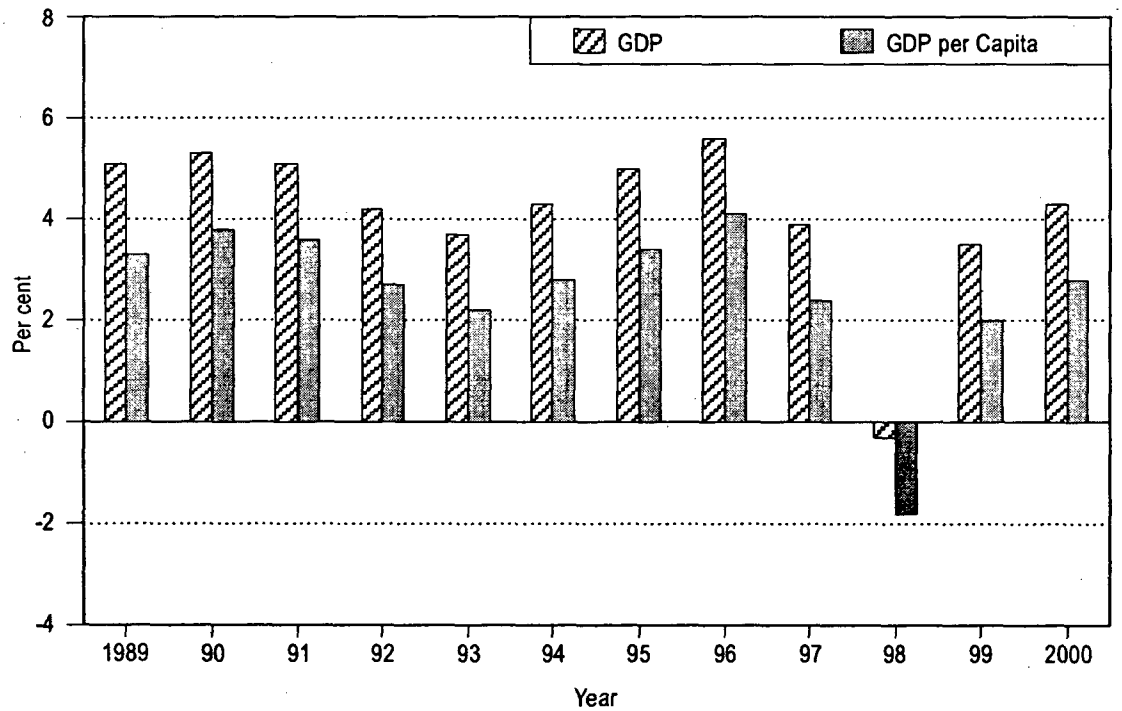
6.9 A Plurilateral Air Services Agreement providing for the open skies regime between Brunei Darussalam, Chile, New Zealand, Singapore and the United States was agreed and initialled in Brunei in November 2000.

6.10 Among certain States of the Association of South East Asian Nations (ASEAN) a number of liberalization initiatives involving small groupings of member States continued to make significant progress. Agreements were implemented to liberalize third and fourth freedom air services between provincial cities within so-called growth areas among Brunei Darussalam, Indonesia, Malaysia, the Philippines, Singapore and Thailand. In March 2000, a meeting of Directors General of Cambodia, Lao People's Democratic Republic, Myanmar and Viet Nam adopted a long-term plan of action to implement the sub-regional agreement on cooperation signed in January 1998. The action plan provides a timetable for progressive liberalization of air services and civil aviation cooperation among these States and also includes the objective of developing a multilateral air services agreement to replace the individual bilateral agreements.

Economic trends

6.11 Over the 1989-1999 period, the Asia/Pacific economy (GDP) grew at an average annual rate of 4 per cent in real terms, and GDP per capita increased at 2.5 per cent, the highest growth rates of all ICAO regions. Asia/Pacific has been the fastest growing region over more than a decade despite a slowdown and recession when GDP growth dropped from 5.6 per cent in 1996 to 3.9 per cent in 1997 and further to –0.3 per cent in 1998. In 1999 the region regained some of its economic strength with a GDP growth of 3.5 per cent and the economy continued to expand in 2000, at an estimated 4.3 per cent. The year-to-year changes in the region's GDP and GDP per capita are illustrated in Figure 6-5.

6.12 Growth in the majority of developing countries of Asia weakened towards the end of 2000 and in early 2001 as a result of higher oil prices, a slowdown in the United States economy, the downturn in the electronic sector and, in the case of some countries, the lagging pace of corporate and financial restructuring. Also, the Japanese economy which showed improvement in its performance in 2000 has been experiencing a setback to recovery in the early months of 2001. Although this reflects the slowdown in other parts of the world, it also results from continued weak consumer confidence and underlying structural weakness, especially in the corporate and financial sectors.



Source: IMF, WEFA Group.

Figure 6-5. Annual change in real GDP and GDP per capita — Asia/Pacific (1989-2000)

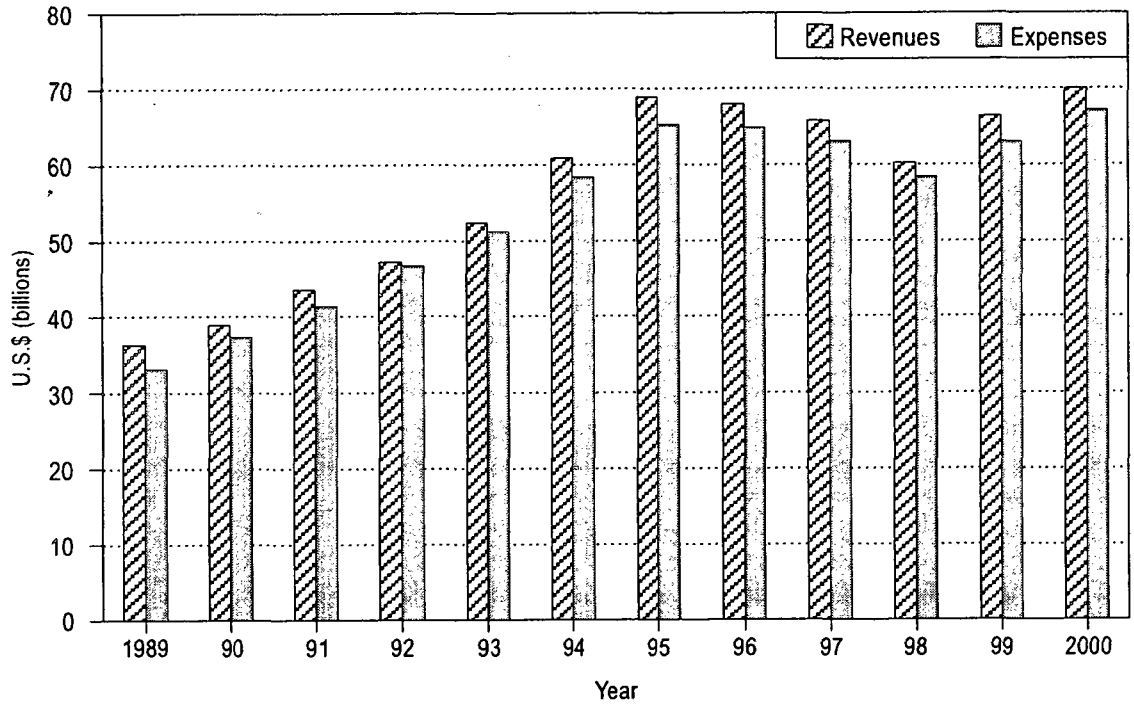
Airline financial trends

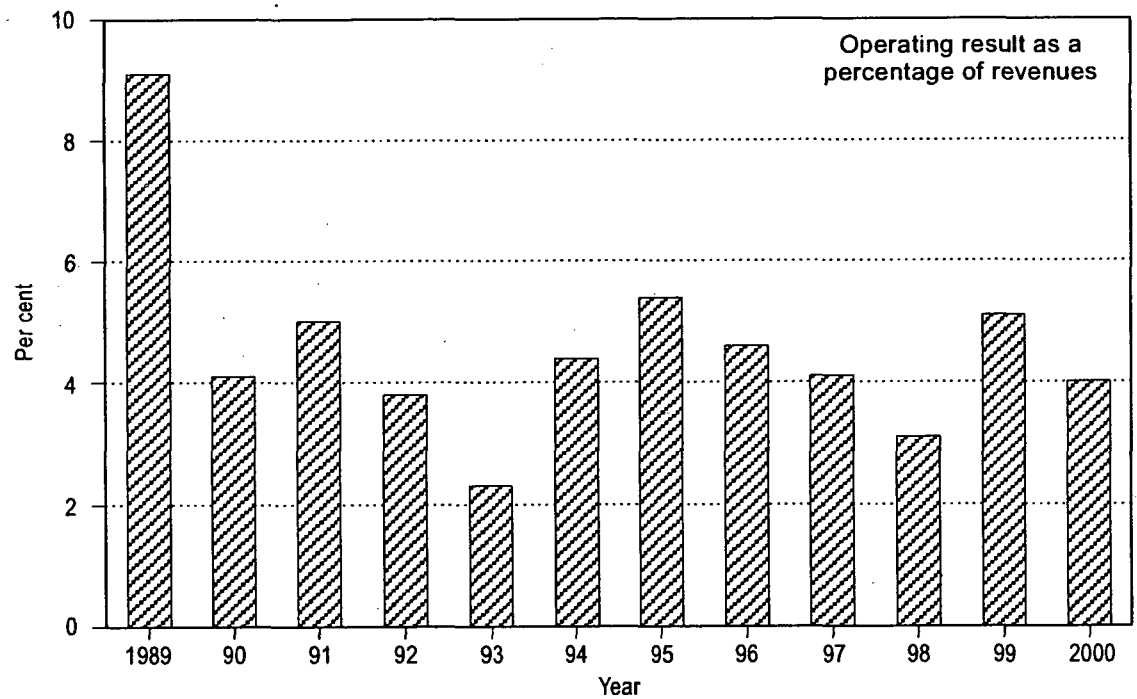
6.13 Over the 1989-1999 period, operating revenues of the scheduled airlines of the Asia/Pacific region increased at an average annual rate of 6.4 per cent (compared to the world average annual growth rate of 5.6 per cent). Operating expenses for the same period increased by 6.9 per cent per annum. Airlines in the region enjoyed positive operating results throughout the last decade as illustrated in Figure 6-6. It is estimated that the aggregate operating profit for 2000 of the Asia/Pacific airlines was around $2.8 billion, about $ 0.6 billion lower than that of 1999.

6.14 Average scheduled passenger yields for airlines of the region, measured in terms of cents per PKP, have fluctuated significantly since 1989 and resulted in an annualized decline of 4.2 per cent during the 1989-1999 period. Figure 6-7 compares the annual changes in real yield for the Asia/Pacific scheduled airlines with those for the world's airlines in total. The sharp fluctuations in airline yield reflect, in part, the fluctuation of the Japanese yen and other Asian currencies against the U.S. dollar.

Airline passenger traffic trends

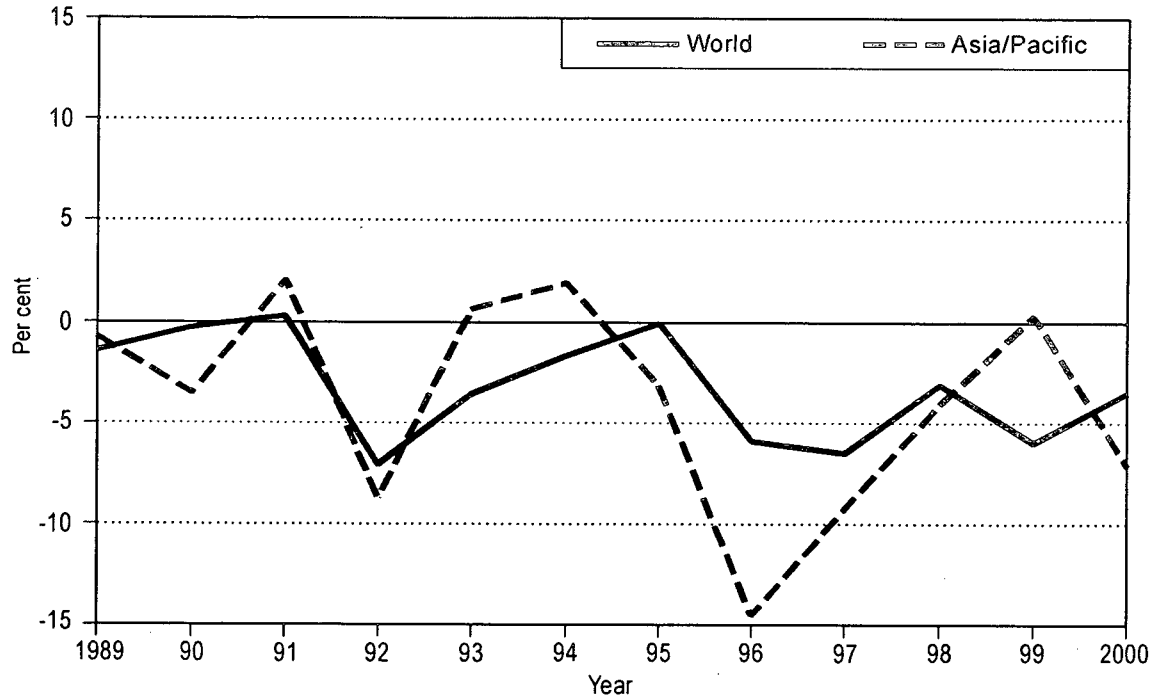
6.15 Over the 1989-1999 period, scheduled passenger traffic (in PKPs) of airlines of the Asia/Pacific region increased at the average annual rate of 7.7 per cent, significantly higher than the world's annual average of 4.6 per cent. Having exhibited the highest growth rates among all ICAO regions for almost a decade, in 1998 airlines of the region experienced a decline in traffic of 2.8 per cent, dampening the world traffic growth which averaged a low 2.1 per cent. As a result of the speedy economic recovery in the Asian economies affected by the 1997/1998 recession, and revived demand for air travel and freight, traffic is estimated to have increased by 7 per cent in 1999, and is estimated at 10 per cent for 2000. The year-to-year traffic growth comparison between world and Asia/Pacific airlines is shown in Figure 6-8.





Note.— 2000 figures are from estimated data.
Source: ICAO Air Transport Reporting Form EF-1.

Figure 6-6. Scheduled airline operating revenues and expenses — Asia/Pacific (1989-2000)



Notes. — 2000 figures are from estimated data.
— Real yield for scheduled airlines measured in U.S. cents per PKP deflated by U.S. Consumer Price Index.

Source: ICAO Air Transport Reporting Forms A and EF-1.

Figure 6-7. Annual change in real scheduled passenger yield — Asia/Pacific and World (1989-2000)

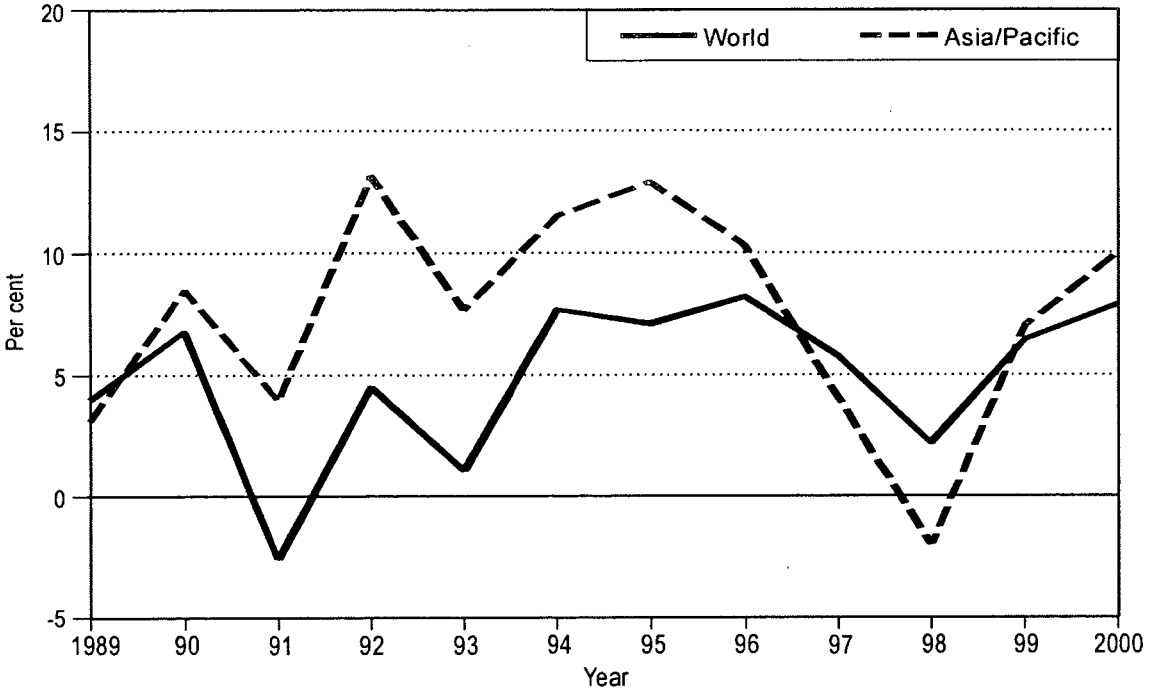


Figure 6-8. Scheduled passenger traffic growth (PKPs) — Asia/Pacific and World (1989-2000)

EUROPE

The region in 2000

Table 6-3. Scheduled airline traffic — Europe (2000/1999)

	INTERNATIONAL			TOTAL		
	2000	Increase over 1999 (%)	Share of world traffic (%)	2000	Increase over 1999 (%)	Share of world traffic (%)
Passengers carried (thousands)	259 950	9.5	48.3	425 800	7.6	25.8
Passenger-kilometres performed (millions)	679 860	9.1	38.2	805 260	8.3	26.7
Freight and mail tonne-kms performed (millions)	34 810	11.1	33.6	35 790	11.0	29.0

Source: ICAO Air Transport Reporting Form A.

6.16 The European Civil Aviation Conference (ECAC) continued its work on further development of the Safety Assessment of Foreign Aircraft (SAFA) Programme in close cooperation with the ICAO Universal Safety Oversight Audit Programme. In particular, a classification of findings was developed and the guidance for inspections updated accordingly. ECAC also adopted a resolution on the harmonization of minimum levels of insurance coverage for passenger and third party liability.

6.17 In September 2000 the European Commission adopted a proposal establishing common rules in the field of civil aviation and creating a European Aviation Safety Agency. It was considered by the EU Council later in 2000 which welcomed it favourably and expressed its willingness to give the highest priority to this issue.

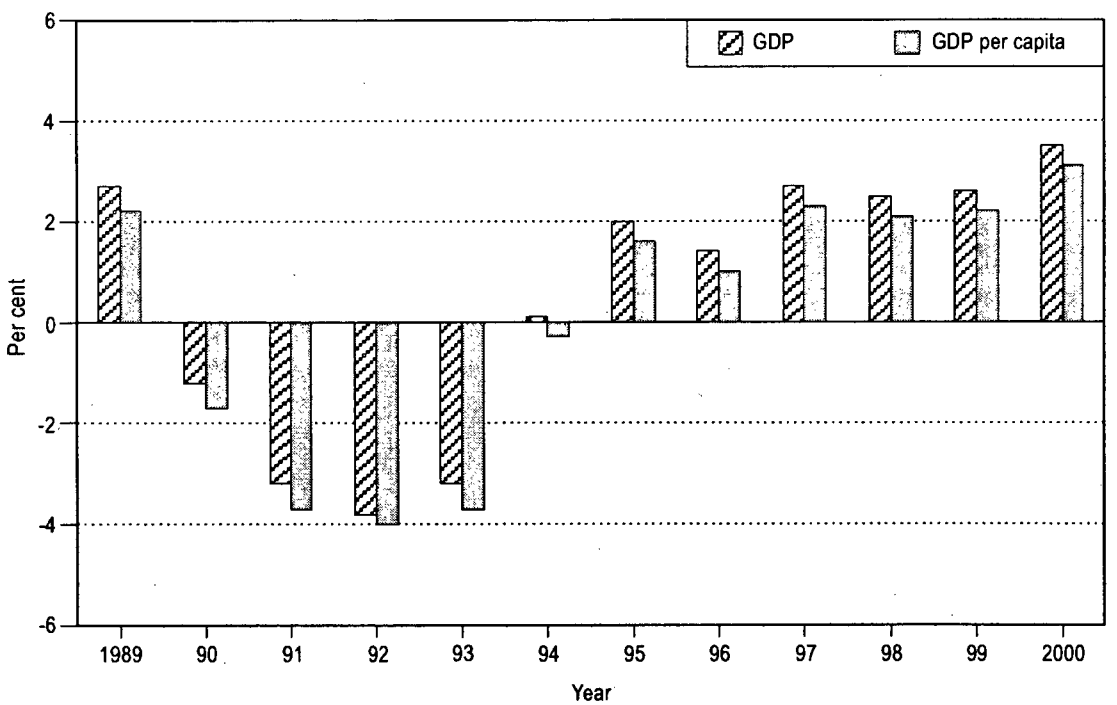
6.18 Work continued within the European Union (EU) on the technical development of a draft negotiating mandate with the United States to create a Transatlantic Common Aviation Area. However, obstacles remained to the adoption of the mandate due to legal proceedings under way before the European Court of Justice on agreements concluded between certain EU States and the United States and certain specific problems. The negotiations between the European Commission and Central and Eastern European countries and Cyprus to establish the European Common Aviation Area were finalized with most of the countries. The agreements will be initialled once the European Court of Justice delivers its opinion as requested.

Economic trends

6.19 The European GDP grew throughout the 1980s, reached a steady growth by 1988 and 1989 but went into decline starting in 1990, the primary reason being the serious decline in the economies of Eastern Europe and the Commonwealth of Independent States (CIS). By 1997, total output was back to where it had been in 1989. This zero economic growth masked a persistent divergence between countries in Western and Eastern Europe. The aggregate GDP per capita for the whole region (including the CIS) declined by about 0.5 per cent during the 1989-1999 period. Figure 6-9 illustrates the annual changes in European GDP and GDP per capita.

Airline financial trends

6.20 Over the 1989-1999 period, operating revenues of the scheduled airlines of the European region (excluding operations within the CIS) increased at an average annual rate of 5.8 per cent (compared to the world annual average rate of 5.6 per cent). Operating expenses for the same period increased by 6.2 per cent per annum. As illustrated in Figure 6-10, positive operating results were achieved during the period except for the years 1990, 1992 and 1993 when operating losses were incurred. For the first time since 1989, net profits were earned in 1994. After that, profitability in the European airline industry improved



Source: IMF, WEFA Group.

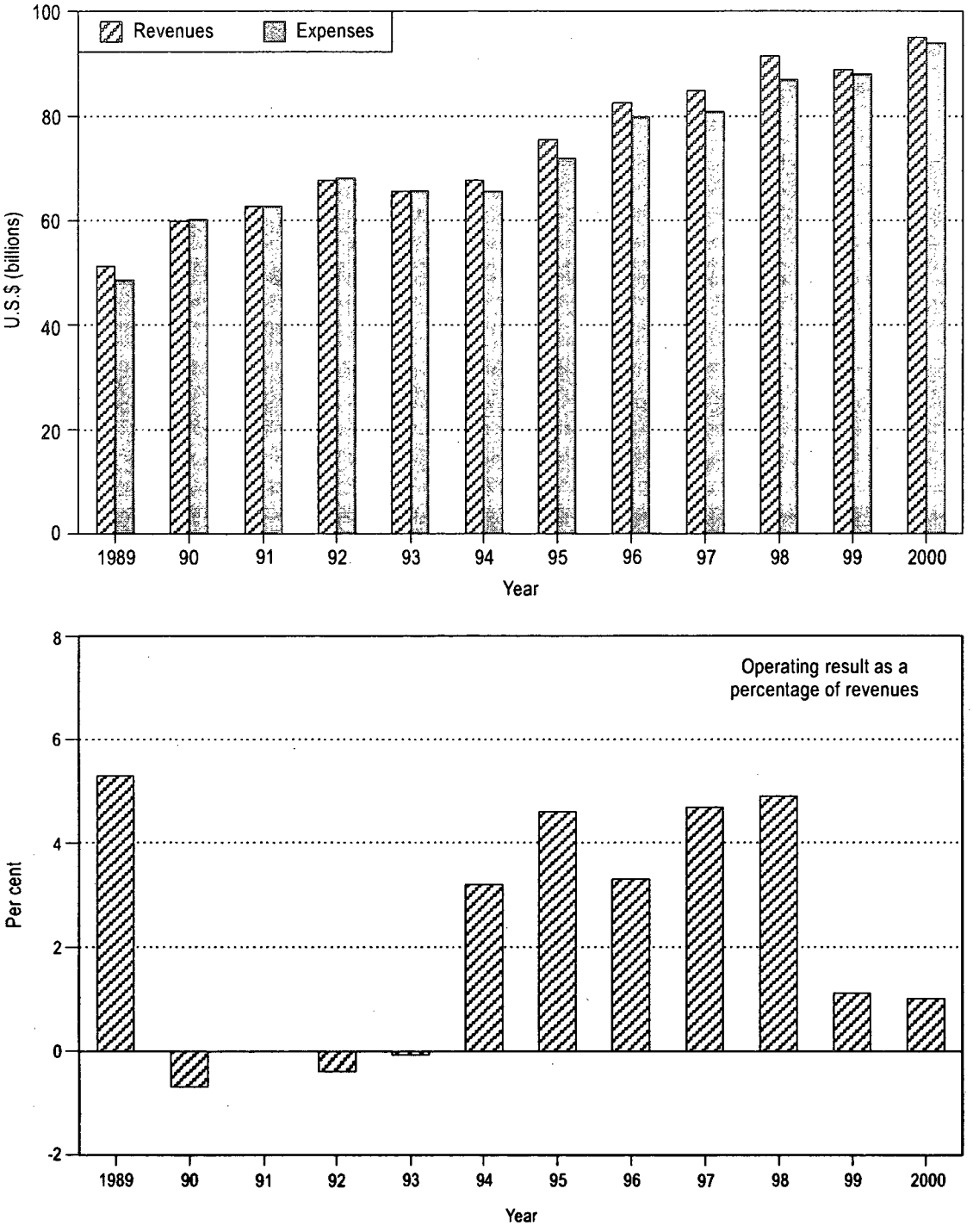
Figure 6-9. Annual change in real GDP and GDP per capita — Europe (1989-2000)

progressively with net profits at 3.7 per cent for 1998. However, 1999 witnessed a drop in net profits to 1.9 per cent. It is estimated that in 2000 the operating result reached some $1 billion or about 1.1 per cent of revenues.

6.21 Annual changes in average scheduled passenger yields for airlines of the region (excluding operations within the CIS) reveal marked fluctuations over the last decade, as shown in Figure 6-11. Over the whole period 1989-1999, the annualized ten-year average showed a 4.4 per cent decline in yield, higher than the world result of a 3.4 per cent decline. By 1995, real yields had recovered from the sharp declines in 1992 and 1993 when the presence of excess capacity had heightened competitive pressures in airline markets. Stimulated by liberalization, competition remained on the rise and yield came under pressure again after 1996; that decline in yield was also in part due to the appreciation of the U.S. dollar against most European currencies (with the exception of the UK pound). In 1998, real yield increased slightly, accompanied by moderate passenger traffic growth in part due to the appreciation of some European currencies against the U.S. dollar (see Chapter 1). 1999 witnessed a further decline in yields expressed in real terms due to the depreciation of European currencies against the U.S. dollar and a drop in yields in current terms triggered by competitive pressures in air transport markets served by European airlines.

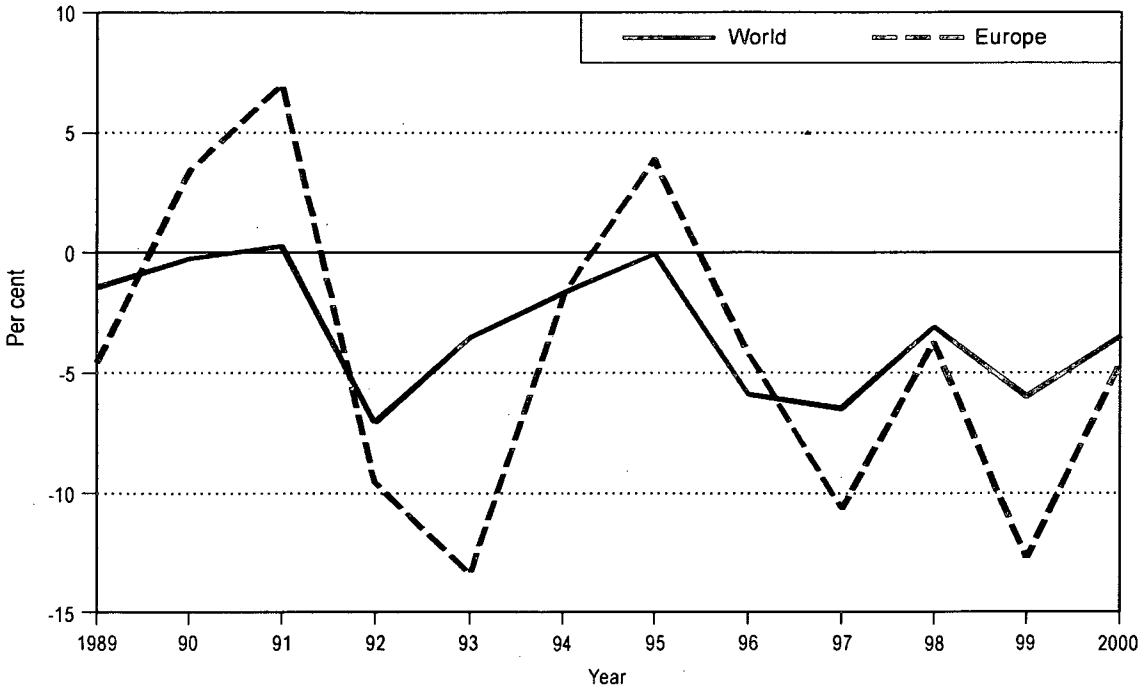
Airline passenger traffic trends

6.22 Over the 1989-1999 period, scheduled passenger traffic (in PKPs) of the airlines of the European region increased at an average annual rate of 3.1 per cent (compared to the world annual average of 4.6 per cent) despite a generally impressive performance in Western Europe (except in 1991). If airlines of the CIS are excluded, European traffic grew at 8 per cent per annum over the period. Reported CIS traffic volumes dropped dramatically, on average by 13.1 per cent each year over the last decade, with PKPs in 1999 at only about 24.5 per cent of those in 1989. A less severe decline of CIS traffic volume continued in 1999 and 2000, whereas European traffic — excluding the CIS — grew at an estimated rate of 9.3 per cent in 2000. The year-to-year comparison of passenger traffic growth of airlines in Europe (including and excluding the CIS) and the world is shown in Figure 6-12.



Note.— 2000 figures are from estimated data.
Source: ICAO Air Transport Reporting Form EF-1.

Figure 6-10 Scheduled airline operating revenues and expenses — Europe (1989-2000)



Notes. — 2000 figures are from estimated data.
— Real yield for scheduled airlines measured in U.S. cents per PKP deflated by U.S. Consumer Price Index.

Source: ICAO Air Transport Reporting Forms A and EF-1.

Figure 6-11. Annual change in real scheduled passenger yield — Europe and World (1989-2000)

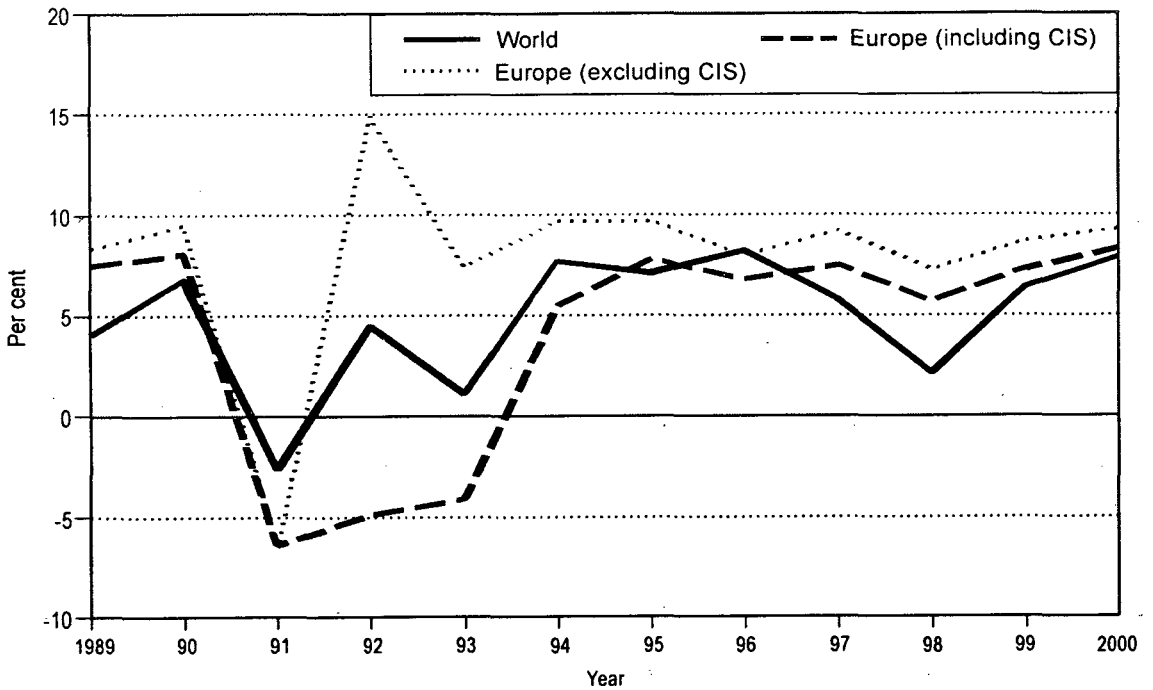


Figure 6-12. Scheduled passenger traffic growth (PKPs) — Europe and World (1989-2000)

MIDDLE EAST

The region in 2000

Table 6-4. Scheduled airline traffic — Middle East (2000/1999)

	INTERNATIONAL			TOTAL		
	2000	Increase over 1999 (%)	Share of world traffic (%)	2000	Increase over 1999 (%)	Share of world traffic (%)
Passengers carried (thousands)	27 590	11.0	5.1	44 320	6.7	2.7
Passenger-kilometres performed (millions)	81 850	12.9	4.6	93 770	11.0	3.1
Freight and mail tonne-kms performed (millions)	4 560	3.7	4.4	4 660	3.6	3.8

Source: ICAO Air Transport Reporting Form A.

6.23 A draft of a phased programme for the liberalization of air services between member States was finalized by the Arab Civil Aviation Commission (ACAC). The programme envisages full liberalization of services by the year 2005. ACAC also developed a common Arab position on the inclusion of air transport services into the General Agreement on Trade in Services (GATS). The position emphasizes the role of ICAO in the economic regulation of air transport services and endorses the recommendations of the fourth ICAO Air Transport Conference.

6.24 Code-share arrangements are being gradually negotiated by the region's airlines both among themselves (e.g. Oman Air and Gulf Air) and with airlines from other regions (e.g. Middle East Airlines and Air France).

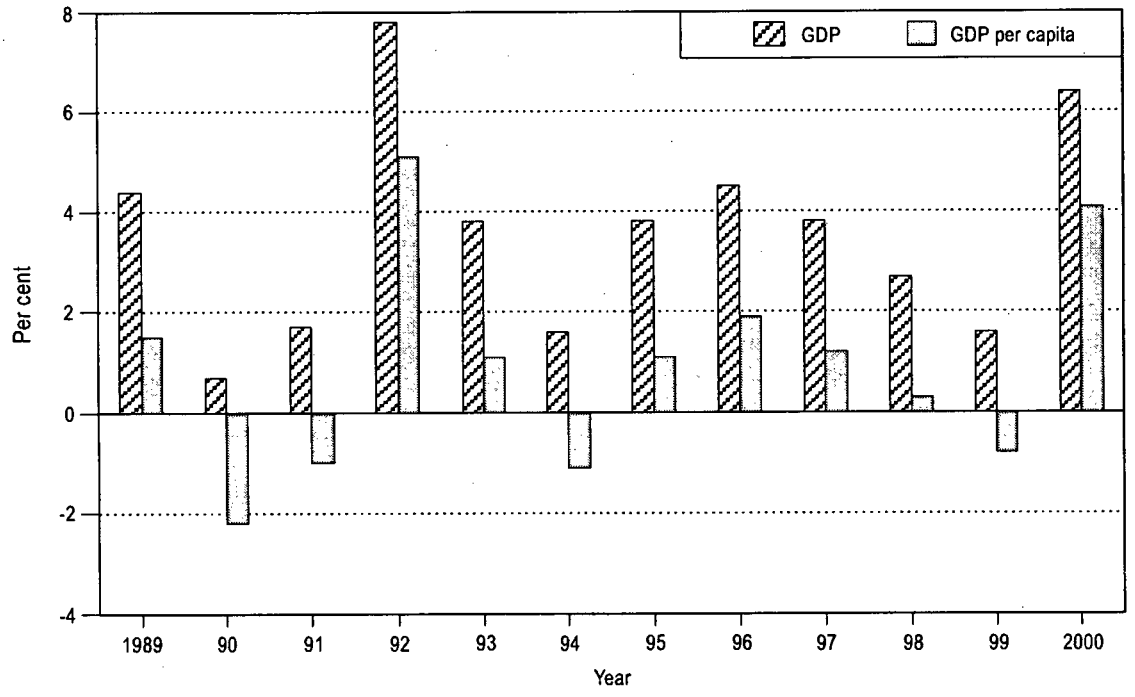
6.25 Several new domestic and regional airlines have been established and several other regional airlines have further expanded. Egyptian civil aviation authorities approved the establishment of two domestic and two charter carriers. Oman Air and Qatar Airways expanded their networks and operations in direct competition with Gulf Air, the national carrier of the Gulf States.

6.26 Several airlines, including Emirates Airlines, Gulf Air, Oman Airways, Qatar Airways, Saudia and EgyptAir continued with ambitious programmes for the renewal and expansion of their respective fleets. Sudan Airways, Royal Jordanian and Yemen Airways signed new leasing arrangements.

6.27 The year witnessed an increased private sector involvement in the construction and operation of international airports in the region. Egypt adopted measures aimed at commercialization of its civil aviation sector.

Economic trends

6.28 The Middle East economy has been characterized by several pronounced cycles over the past decade, as illustrated in Figure 6-13 which presents the year-to-year changes in the region's GDP and GDP per capita. The oil-producing countries in the region suffered from declines in crude oil prices during the 1980s and from the effects of the Gulf War in 1990-1991. With a return to political and economic stability in the region, GDP growth recovered quite strongly in 1992. Continuous growth, though varying in strength, was sustained in the following seven years. From 1989 to 1999, the aggregate GDP for the Middle East grew at an average annual rate of 3.2 per cent in real terms, while GDP per capita levelled off at a growth of 0.5 per cent per annum. In 2000, the economy of the region was boosted by higher oil prices combined with increased oil production and grew by 6.4 per cent, the highest rate of all world regions.



Source: IMF, WEFA Group.

Figure 6-13. Annual change in real GDP and GDP per capita — Middle East (1989-2000)

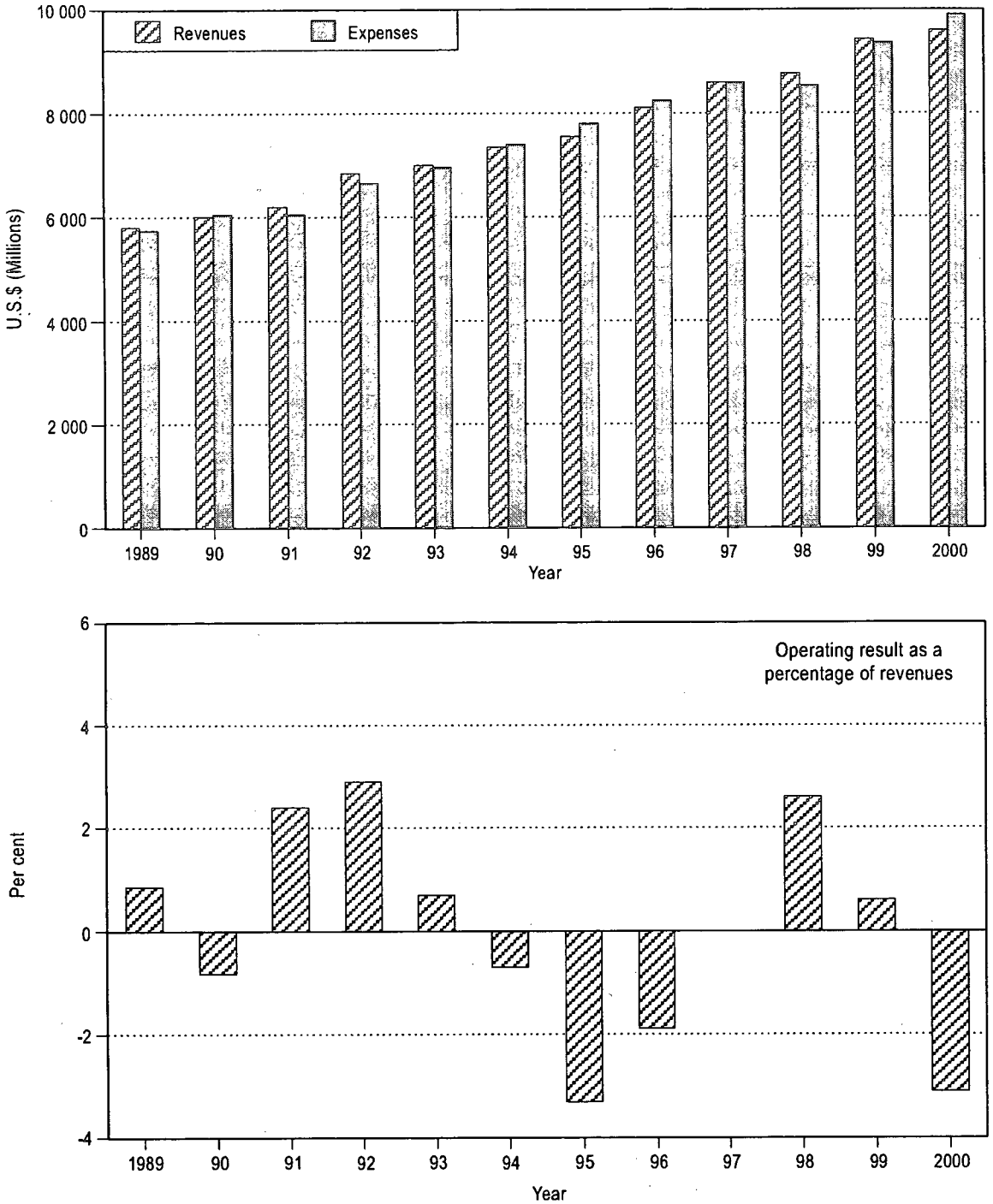
Airline financial trends

6.29 Over the 1989-1999 period, operating revenues of the scheduled airlines of the Middle East region increased at an average annual rate of 5.1 per cent (compared to the world annual average of 5.6 per cent). Operating expenses for the same period increased by 5.3 per cent per annum. As shown in Figure 6-14, since 1994 the airlines in the region have experienced a string of operating losses, except for 1998 and 1999. Traffic has grown continuously but capacity expansion has been even greater and unit costs remain comparatively high.

6.30 For the 1989-1999 period, average scheduled passenger yields for airlines of the region, measured in terms of U.S. cents per PKP, declined at an average annual rate of 3.2 per cent in real terms (compared to a 3.4 per cent decline for the world), with an exceptional increase in 1991. It is estimated that real yield decreased substantially in 2000, by some 11 per cent, resulting from a marked increase in traffic and a very small increase in revenues. The year-to-year comparisons of the changes in real passenger yields of Middle East and world airlines are illustrated in Figure 6-15.

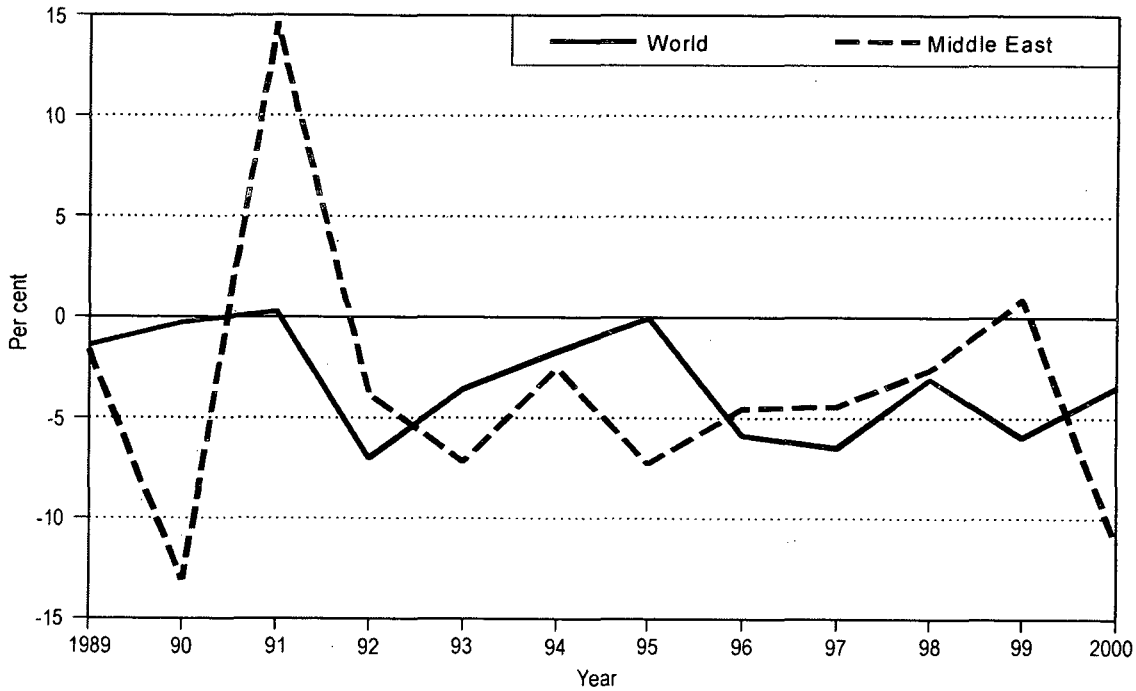
Airline passenger traffic trends

6.31 Over the 1989-1999 period, scheduled passenger traffic (in PKPs) of the airlines of the Middle East region increased at an average annual rate of 5.9 per cent. Traffic growth has been reasonably buoyant since the declines in 1990 and 1991 associated primarily with the Gulf War. The year 2000 witnessed an impressive growth of traffic at 11 per cent over 1999. The year-to-year traffic growth comparison between world and Middle East airlines is shown in Figure 6-16.



Note.— 2000 figures are from estimated data.
Source: ICAO Air Transport Reporting Form EF-1.

Figure 6-14. Scheduled airline operating revenues and expenses — Middle East (1989-2000)



Notes. — 2000 figures are from estimated data.
— Real yield for scheduled airlines measured in U.S. cents per PKP deflated by U.S. Consumer Price Index.

Source: ICAO Air Transport Reporting Forms A and EF-1.

Figure 6-15. Annual change in real scheduled passenger yield — Middle East and World (1989-2000)

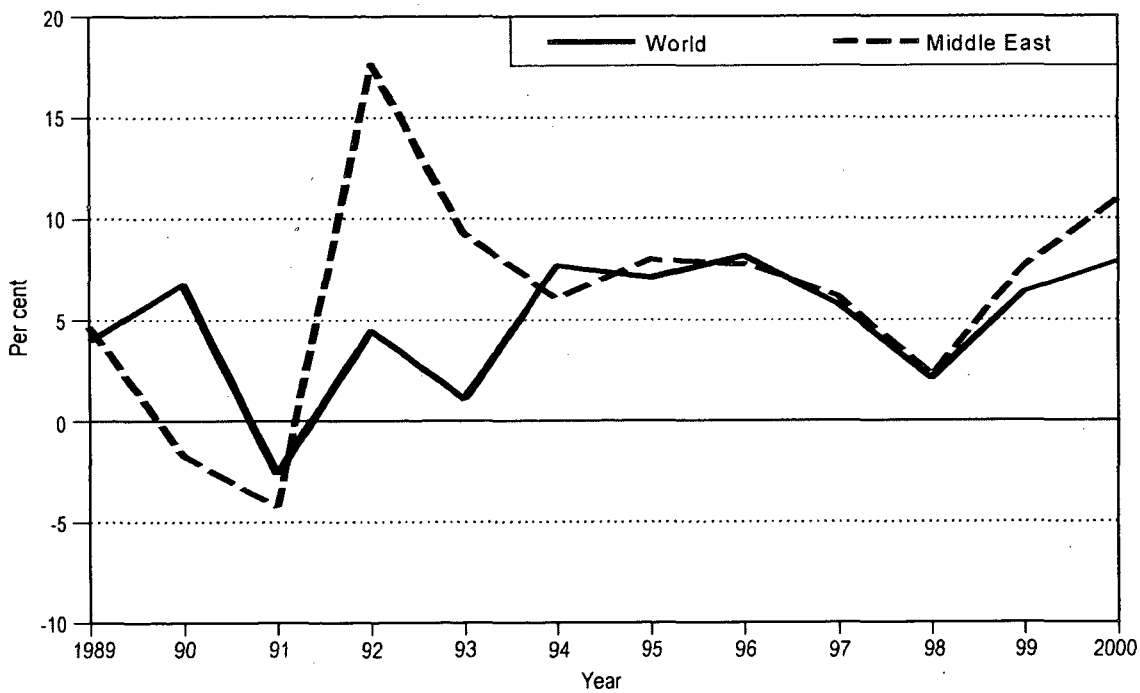


Figure 6-16. Scheduled passenger traffic growth (PKPs) — Middle East and World (1989-2000)

NORTH AMERICA

The region in 2000

Table 6-5. Scheduled airline traffic — North America (2000/1999)

	INTERNATIONAL			TOTAL		
	2000	Increase over 1999 (%)	Share of world traffic (%)	2000	Increase over 1999 (%)	Share of world traffic (%)
Passengers carried (thousands)	81 230	7.0	15.1	679 550	3.4	41.3
Passenger-kilometres performed (millions)	354 640	7.9	19.9	1 176 810	6.4	39.0
Freight and mail tonne-kms performed (millions)	21 260	11.4	20.5	35 520	9.3	28.7

Source: ICAO Air Transport Reporting Form A.

Economic trends

6.32 The U.S. economic expansion which began in 1991 has been the longest since the Second World War. Over the 1989-1999 period, the North America GDP grew at an average annual growth rate of 2.6 per cent in real terms and GDP per capita increased at 1.7 per cent. The year-to-year changes in the region's GDP and GDP per capita are illustrated in Figure 6-17.

6.33 During the major part of 2000 the North American economy showed robust growth, but it slowed down towards the end of the year. Overall the economy is estimated to have increased by 5.3 per cent in 2000.

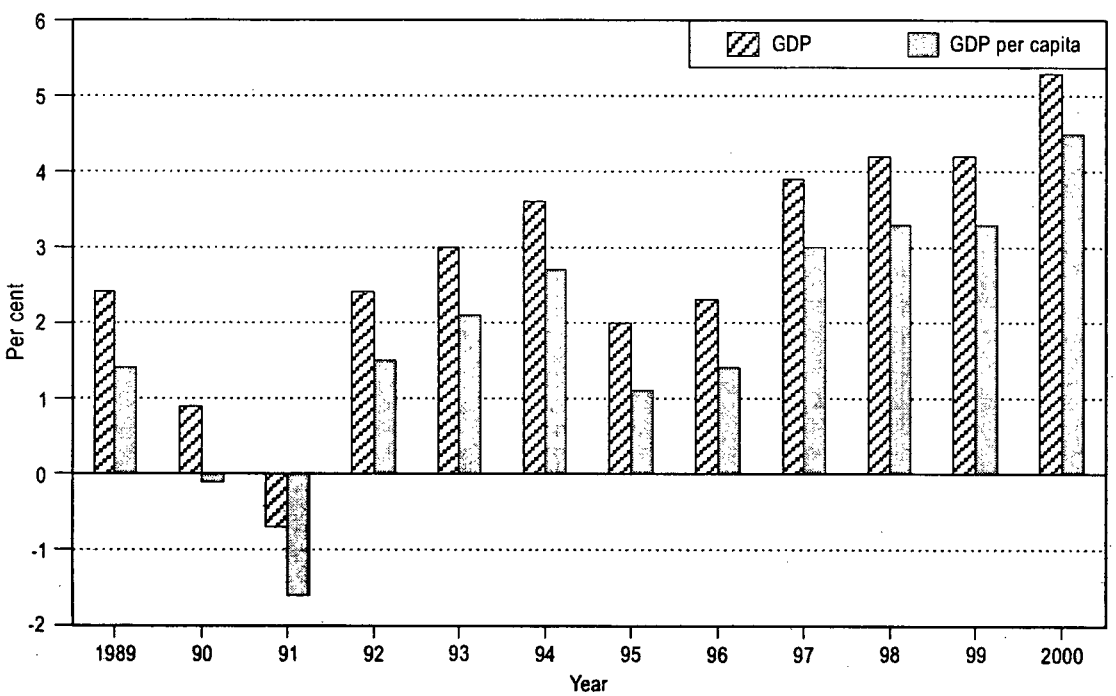
Airline financial trends

6.34 Over the 1989-1999 period, operating revenues of the scheduled airlines of the North American region increased at an average annual rate of 5.3 per cent (compared to the world annual average of 5.6 per cent). Operating expenses for the same period increased by 4.9 per cent per annum. The string of operating surpluses in the 1986 to 1989 period gave way to a three-year period of serious deficits. Starting in 1993, operating surpluses have increasingly recovered and widened for seven consecutive years as illustrated in Figure 6-18. For 2000 an operating surplus of $7.5 billion has been estimated.

6.35 For the 1989-1999 period, average scheduled passenger yields for airlines of the region, measured in terms of U.S. cents per PKP, declined at an average annual rate of 2.7 per cent in real terms (compared to a 3.4 per cent decline for the world). It is estimated that in 2000, industry-wide real yield increased somewhat over the previous year, triggered by increases in fuel prices. The year-to-year comparison of the changes in the real passenger yields of North American and world airlines is illustrated in Figure 6-19.

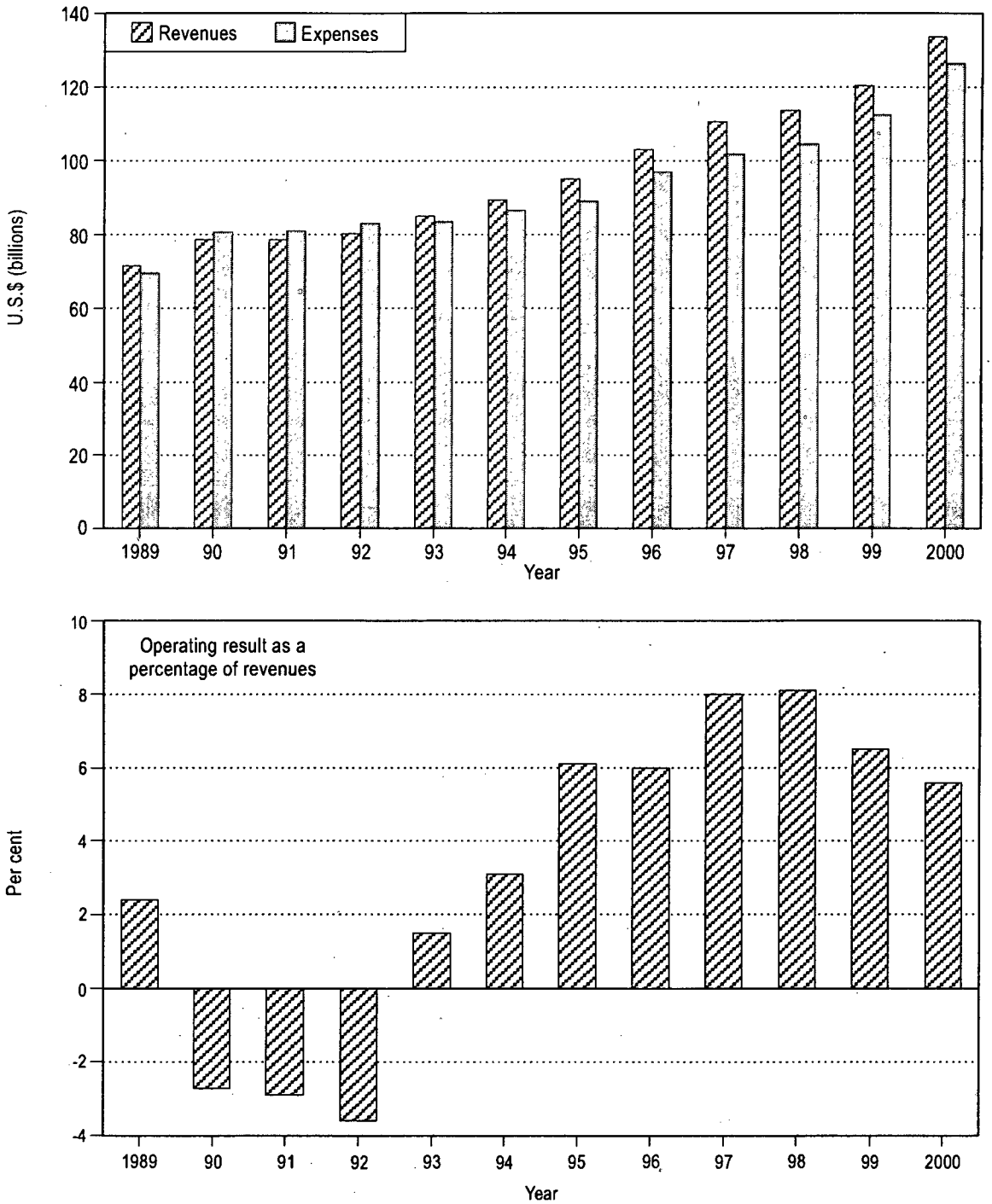
Airline passenger traffic trends

6.36 Over the 1989-1999 period, scheduled passenger traffic (in PKPs) of the airlines of the North American region increased at an average annual rate of 4.1 per cent (compared to the world average of 4.6 per cent). The estimated increase in 2000 was 6.4 per cent, significantly higher than the average for the decade 1989-1999. The year-to-year traffic growth comparisons between world and North American airlines are shown in Figure 6-20.



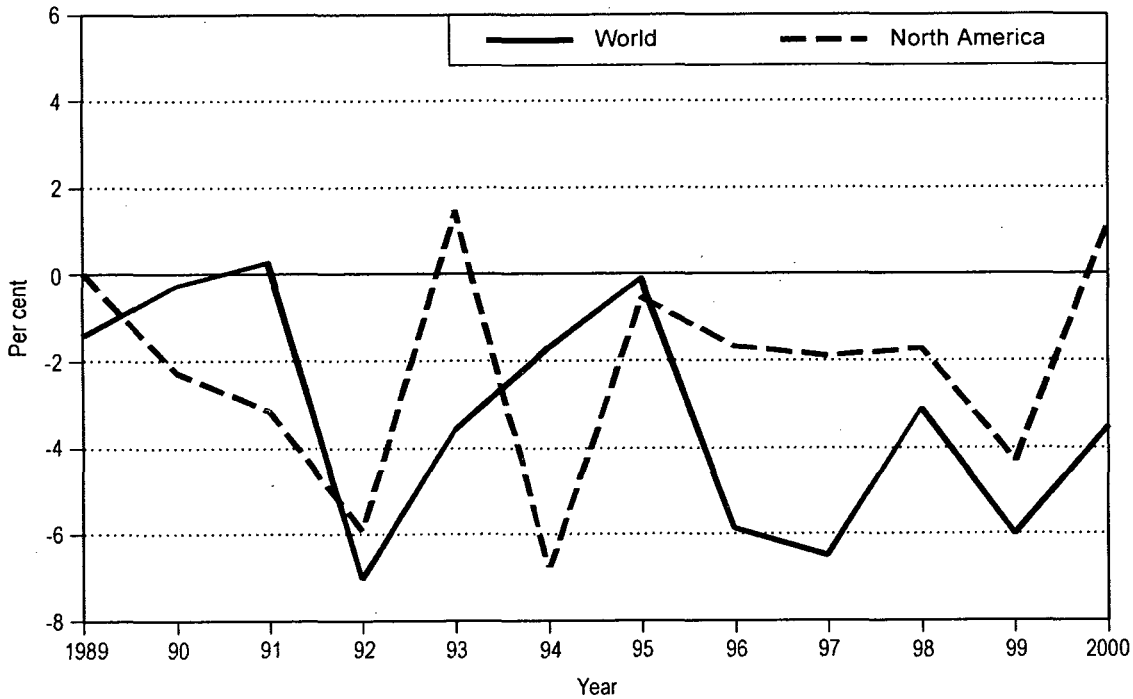
Source: IMF, WEFA Group.

Figure 6-17. Annual change in real GDP and GDP per capita — North America (1989-2000)



Note.— 2000 figures are from estimated data.
Source: ICAO Air Transport Reporting Form EF-1.

Figure 6-18. Scheduled airline operating revenues and expenses — North America (1989-2000)



Notes. — 2000 figures are from estimated data.
— Real yield for scheduled airlines measured in U.S. cents per PKP deflated by U.S. Consumer Price Index.

Source: ICAO Air Transport Reporting Forms A and EF-1.

Figure 6-19. Annual change in real scheduled passenger yield — North America and World (1989-2000)

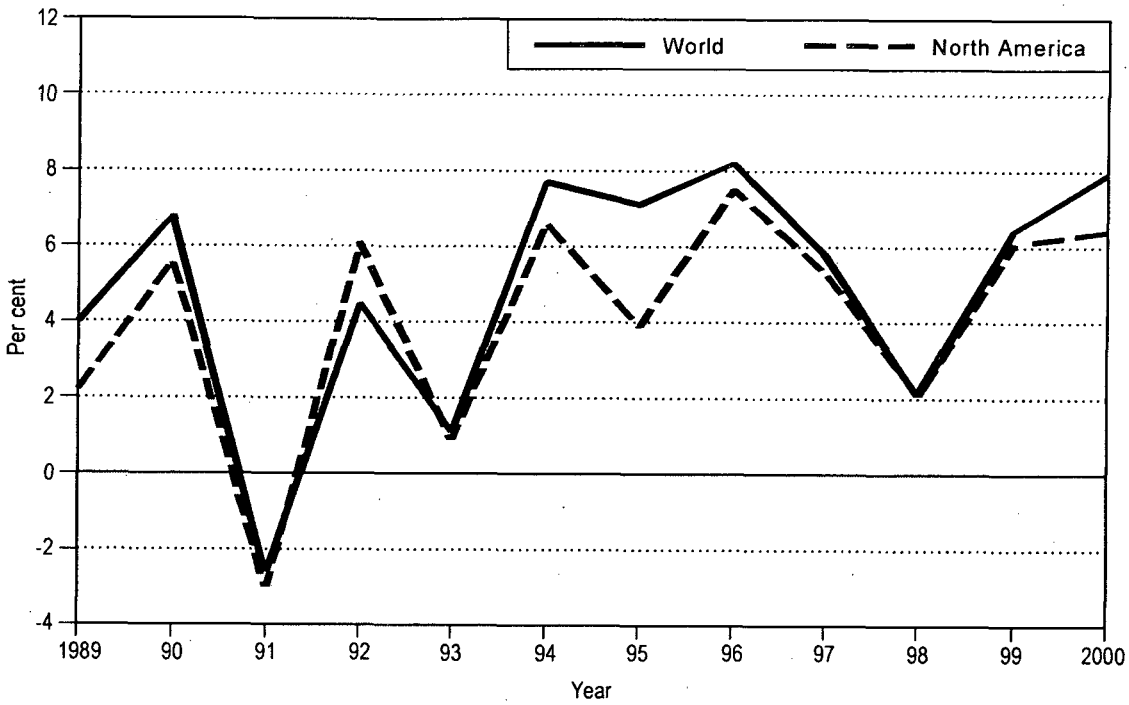


Figure 6-20. Scheduled passenger traffic growth (PKPs) — North America and World (1989-2000)

LATIN AMERICA AND THE CARIBBEAN

The region in 2000

Table 6-6. Scheduled airline traffic — Latin America and the Caribbean (2000/1999)

	INTERNATIONAL			TOTAL		
	2000	Increase over 1999 (%)	Share of world traffic (%)	2000	Increase over 1999 (%)	Share of world traffic (%)
Passengers carried (thousands)	29 970	3.4	5.6	99 470	4.6	6.0
Passenger-kilometres Performed (millions)	86 570	7.1	4.9	142 170	5.7	4.7
Freight and mail tonne-kms performed (millions)	3 780	6.2	3.6	4 540	3.7	3.7

Source: ICAO Air Transport Reporting Form A.

6.37 During 2000, the operation of airports in Costa Rica, Honduras and Mexico was transferred to private consortia. Major American carriers expanded their services and concluded new code-share agreements with a number of Caribbean airlines to consolidate their participation in the Caribbean market.

6.38 Several new regional airlines were set up to provide competitive services to the Eastern Caribbean States, serve as feeders for major Caribbean airlines (BWIA and Air Jamaica) and provide services to accommodate the increased traffic due to the opening of new routes from the U.S. to the Caribbean region by new entrant U.S. carriers.

Economic trends

6.39 Over the 1989-1999 period, the aggregate Latin American and the Caribbean economy (GDP) grew at an average annual rate of 2.6 per cent in real terms, whereas GDP per capita grew at 0.8 per cent. The economy in this region was severely affected by recession in the late 1980s but a robust recovery started in 1991. The year-to-year changes in the region's GDP and GDP per capita are illustrated in Figure 6-21.

6.40 After a record of 5.3 per cent growth in GDP in 1997, the regional economy declined to a 2 per cent growth in 1998 and further to a growth of only 0.2 per cent in 1999. The financial market setbacks led Brazil to introduce severe austerity measures. Other countries in the region such as Peru, Ecuador, El Salvador, Honduras and Nicaragua suffered from the adverse affects of repeated natural disasters which resulted in constricted output, especially due to devastation in their agriculture sectors and industrial infrastructures, and

consequently, declining exports and overall economic performance. The aggregate economic growth of Latin America rebounded in 2000 to 4.3 per cent, in part resulting from the implementation of strong adjustment measures put in place in many countries.

Airline financial trends

6.41 Over the 1989-1999 period, operating revenues of the scheduled airlines of the Latin American and the Caribbean region increased at an average annual rate of 6.6 per cent (compared to the world annual average of 5.6 per cent). Operating expenses for the same period increased by 6.2 per cent per annum. The overall financial performance of the airlines of the region has been poor over the whole period with five consecutive years (1989 to 1993) of serious operating losses, as illustrated in Figure 6-22. A concerted effort of drastic cost-cutting, airline industry restructuring and demand recovery led to a significant turn-around and brought positive operating results for four consecutive years. Many airlines had returned to profitability by 1995 and were reporting healthy net results in 1997 and 1998. The trend reversed in 1999 when an operating loss of 1.1 per cent of revenues was incurred by the region's airline industry. Preliminary estimates indicate an operating loss for 2000 at the level of some $150 million (or 1.1 per cent of revenues).

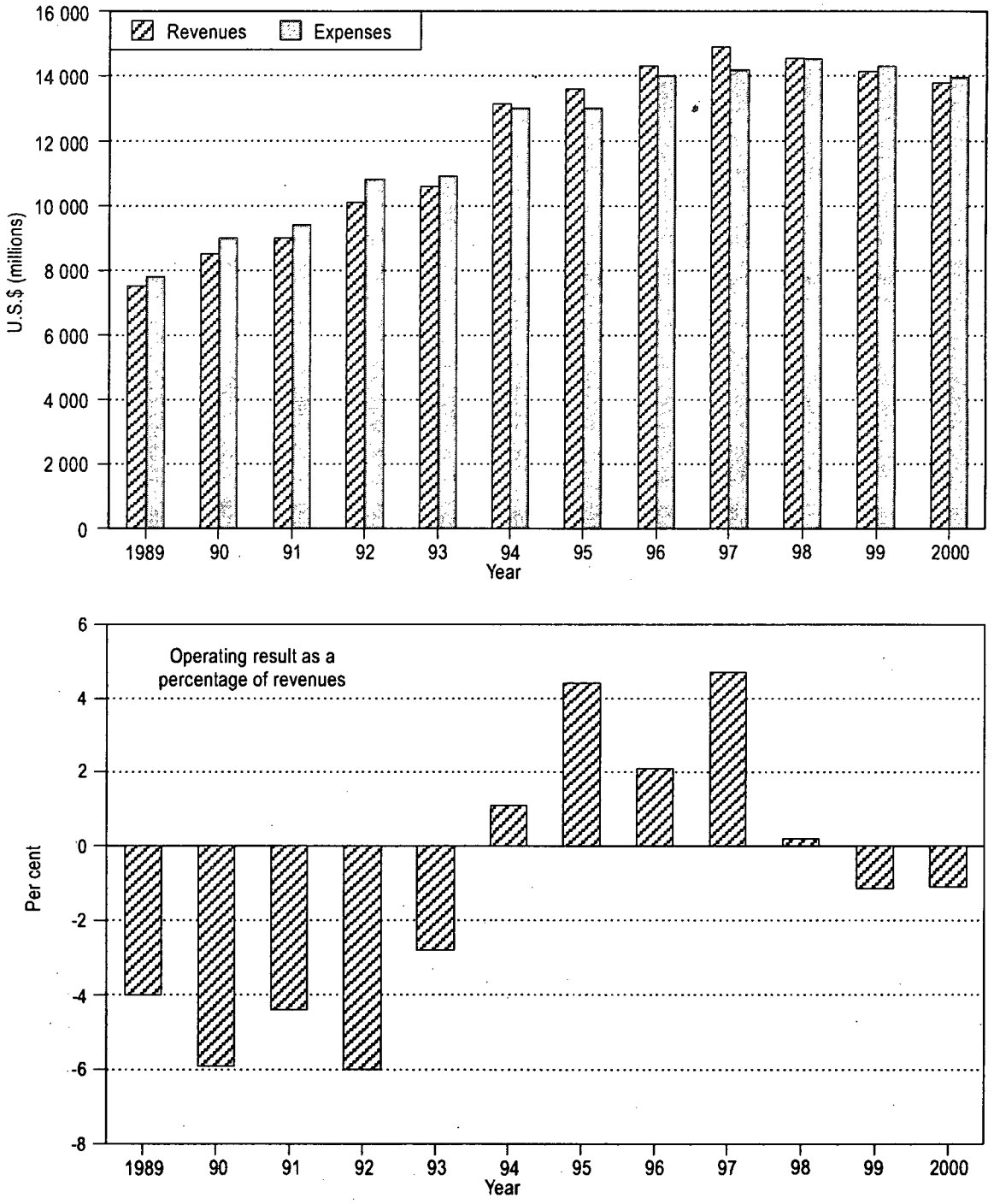
Source: IMF, WEFA Group.

Figure 6-21. Annual change in real GDP and GDP per capita — Latin America and the Caribbean (1989-2000)

6.42 Average scheduled passenger yields for airlines of the region, measured in terms of U.S. cents per PKP and expressed in constant price terms, fluctuated substantially between 1989 and 1999 while overall yield fell by an average of 0.6 per cent annually but with a significant declining trend in recent years. The year-to-year comparisons of the changes in real passenger yield of Latin American and the Caribbean and world airlines are illustrated in Figure 6-23.

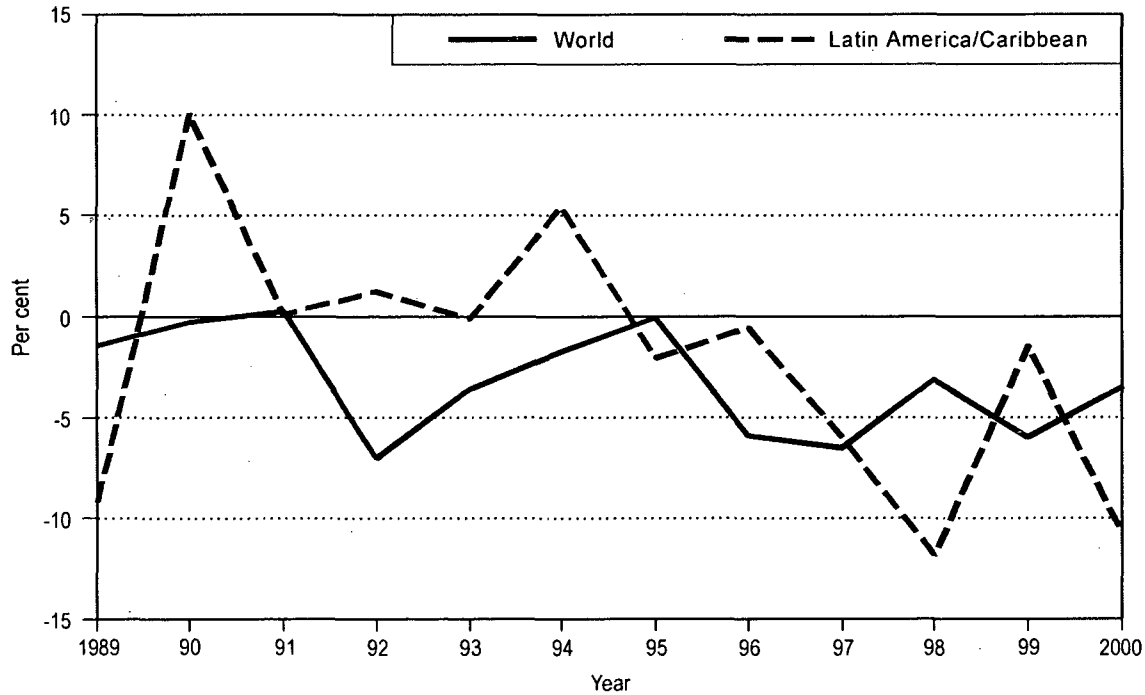
Airline passenger traffic trends

6.43 Over the 1989-1999 period, the scheduled passenger traffic (in PKPs) of airlines of the Latin American and the Caribbean region increased at an average annual rate of 4.9 per cent (compared to the world average growth rate of 4.6 per cent). In recent years, flag carrier privatization, intra-regional mergers and alliances along with extensive fleet and route rationalization were among the measures that enabled airlines of the region to capture a larger share of United States-Latin America and Caribbean traffic, one of the world's fastest growing aviation markets. Following very high traffic growth rates for 1997 and 1998 (9.6 and 7.8 per cent, respectively), traffic dropped in 1999 by 0.5 per cent, but it rebounded in 2000 with a 5.7 per cent growth. The year-to-year traffic growth comparison between world and Latin American and the Caribbean airlines is shown in Figure 6-24.



Note.— 2000 figures are from estimated data.
Source: ICAO Air Transport Reporting Form EF-1.

Figure 6-22. Scheduled airline operating revenues and expenses — Latin America and the Caribbean (1989-2000)



Notes. — 2000 figures are from estimated data.
— Real yield for scheduled airlines measured in U.S. cents per PKP deflated by U.S. Consumer Price Index.

Source: ICAO Air Transport Reporting Forms A and EF-1.

Figure 6-23. Annual change in real scheduled passenger yield — Latin America and the Caribbean and World (1989-2000)

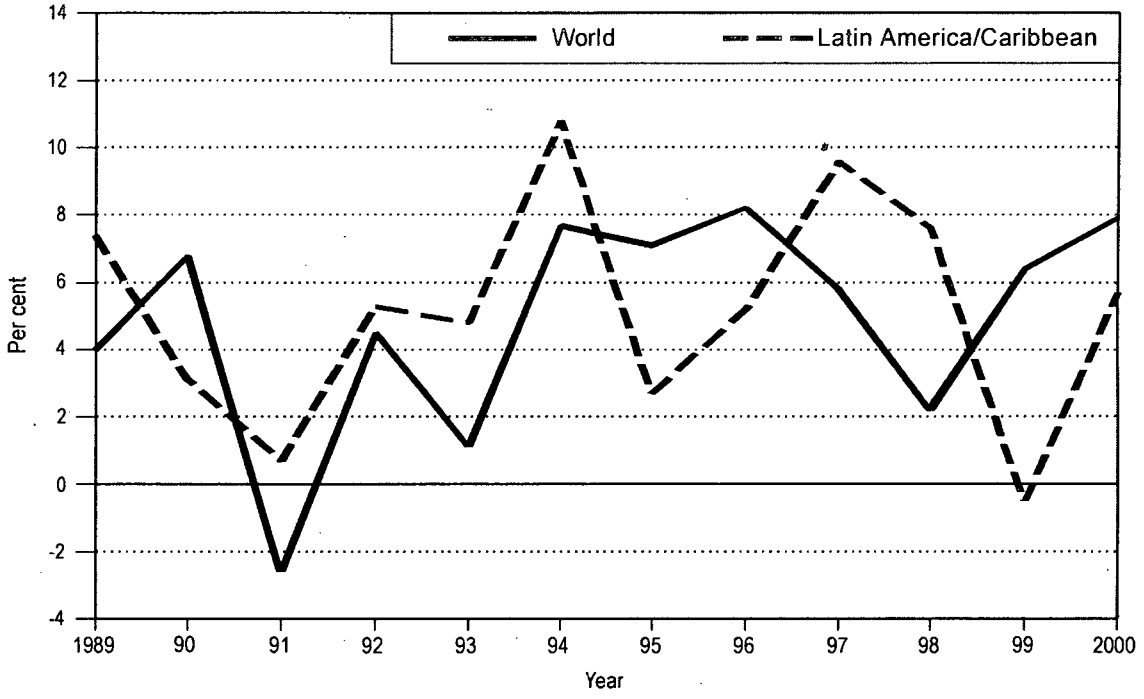


Figure 6-24. Scheduled passenger traffic growth (PKPs) — Latin America and the Caribbean and World (1989-2000)

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APPENDICES

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Appendix 1
Economic Regulation Tables

Table A1-1. Open skies agreements

Argentina - United States (1999)
Aruba - United States (1997)
Australia - New Zealand (2000)
Austria - United States (1995)
Bahrain - United States (1999)
Belgium - United States (1995)
Benin - United States (2000)
Brazil - Chile (1996)
Brazil - New Zealand (1996)
Brunei Darussalam - New Zealand (1999)
Brunei Darussalam - Singapore (1997)
Brunei Darussalam - United States (1997)
Burkina Faso - United States (2000)
Canada - United States (1995)
Chile - Costa Rica (1999)
Chile - Panama (1998)
Chile - United States (1997)
Cook Islands - New Zealand (2000)
Costa Rica - United States (1997)
Czech Republic - United States (1995)
Denmark - New Zealand (1998)
Denmark - United States (1995)
Dominican Republic - United States (1999)
Costa Rica - Dominican Republic - Guatemala - El Salvador - United States (1997)
Ethiopia - United Arab Emirates (Dubai, 1998)
Finland - United States (1995)
Gambia - United States (2000)
Germany - United States (1996)
Ghana - United States (2000)
Guatemala - Panama (1997)
Guatemala - United States (1997)
Honduras - United States (1997)
Iceland - United States (1995)
Indonesia - Malaysia - Thailand (1999)
Italy - United States (1998)
Jordan - United States (1996)
Kenya - Netherlands (1997)
Luxembourg - United States (1995)
Macao SAR - Nepal (1996)
Macao SAR - Singapore (1997)
Malaysia - New Zealand (1998)
Malaysia - United States (1997)
Malta - United States (2000)
Morocco - United States (2000)
Namibia - United States (2000)
Netherlands - United States (1992)
Netherlands Antilles - United States (1997)
New Zealand - Norway (1998)
New Zealand - Singapore (1997)
New Zealand - Sweden (1998)
New Zealand - United Arab Emirates (1998)
New Zealand - United States (1997)
Nicaragua - United States (1997)
Nigeria - United States (2000)
Norway - United States (1995)
Pakistan - United Arab Emirates (Dubai, 1998)
Pakistan - United States (1999)
Panama - Peru (1997)
Panama - United States (1997)
Panama - Venezuela (1996)
Peru - United States (1998)
Portugal - United States (1999)
Qatar - United States (1999)
Republic of Korea - United States (1998)
Romania - United States (1997)
Rwanda - United States (2000)
Senegal - United States (2000)
Singapore - United States (1997)
Slovakia - United States (2000)
South Africa - Zimbabwe (2000)
Sweden - United States (1995)
Switzerland - United States (1995)
Turkey - United States (2000)
Turkmenistan - United Arab Emirates (1998)
United Arab Emirates - Uganda (1998)
United Arab Emirates - United States (1999)
United Republic of Tanzania - United States (1999)
United States - Uzbekistan (1998)

Table A1-2. Major anti-competitive cases reported in 2000

Australia	The Australian Competition and Consumer Commission completed its investigation into capacity expansion by Qantas at Brisbane, Melbourne and Newcastle airports at the time start-up airline Impulse began operations and decided to dismiss Impulse's allegation (August).
Brazil	The Justice Ministry of Brazil opened a case against Varig, VASP, TAM and Transbrasil, alleging that they formed a cartel for simultaneous domestic fare hikes (May).
Canada	The Commission of Competition, in response to CanJet's complaint, issued a temporary order requiring Air Canada to desist from selling discount fares on five routes (October).
Chile	Chile's antitrust authorities started an investigation of charges brought by Avant Airlines and the National Bus Federation against AeroContinente Chile for unfair competitive practices (September).
France	The European Commission closed its investigation of Air France for alleged discrimination against Sabre. The decision was made after Air France agreed to a code of good behaviour offering Sabre in equivalent terms to those offered to Amadeus (July).
Germany, United Kingdom	The European Commission received complaints from British low-cost carrier GO and Irish low-cost carrier Ryanair, both alleging that Lufthansa abused its dominant position on the competing routes (February, June).
Italy	The Italian competition authority was investigating two cases against Alitalia, suspected of overpricing on monopoly routes and its incentive scheme that discourages travel agents from selling its competitors' flights (July), and opened an investigation against six Italian airlines into fuel surcharges on domestic tickets during the year (December).
South Africa	Nationwide Air filed a complaint with the South African Competitions Tribunal for alleged predatory behaviour by South African Airways on routes served by both airlines (November).
Spain, Italy	The European Commission ruled that the airports in Spain had been discriminating in favour of Spanish carriers, and issued a formal notice to the Italian authorities about its concern about discriminatory landing fees at Italian airports (July).
Sweden, Denmark	The European Commission and the Swedish Competition Authority separately raided airlines' offices to investigate agreements between SAS and Maersk Air, and between SAS and Skyways, respectively (June and September).
United States	AirTran Airways and Spirit Airlines filed separate suits against Northwest Airlines, alleging Northwest forced the carriers out of markets by undercutting fares, increasing capacities and preventing them from using gates at its hub airports (March, April).
Venezuela	Venezuela's antitrust body fined American Airlines for abuse of its market dominance on the US-Venezuela routes, ruling in favour of the Venezuelan Association of Travel and Tourist Agencies (July).

Table A1-3. Foreign airline investments in 2000

Carriers	Owns stake in	% stake
Air Afrique	Air Ivoire	17%
Air Afrique	Air Mauritanie	41% (from 5%)
Air France	Air Ivoire	34%
Air France	CityJet (Ireland)	Controlling stake
Air New Zealand	Ansett Australia	100% (from 50%)
British Airways	Comair (South Africa)	18.3%
EVA Airways	Air Macau	5%
Lufthansa	British Midland	20% (acquired from SAS, which kept 20%)
SAirGroup	Air Liberte (France)	86% (through Taitbout Antibes BV)
SAirGroup	Sabena	85% (from 49.5%, planned)
SAirGroup	Volare Group (Italy)	49.9% (by merging Volare Airlines and Air Europe)
Singapore Airlines	Air New Zealand	25%
Singapore Airlines	Virgin Atlantic Airways	49%
Virgin Atlantic Airways	Virgin Blue (Australia)	100%

Table A1-4. Airlines' commercial agreements concluded and amended in 2000

Aer Lingus - American Airlines (C, N)
Aeroflot - AeroSvit Airlines (C, N)
Aeroflot - Air France (M)
Aeroflot - Air India (M)
Aeroflot - Air Kazakhstan (C, N)
Aeroflot - Air Ukraine (C, N)
Aeroflot - Armenian Airlines (C)
Aeroflot - Georgian Airlines (C, N)
Aeroflot - Moldavian Airlines (C, N)
Aerolineas Argentinas - Alitalia (C, N)
Aerolineas Argentinas - American Airlines (C*)
Aerolineas Argentinas - TAM (C, N)
AeroMexico - Air France (C)
AeroMexico - Delta Air Lines (C)
Air Afrique - Air France (C)
Air ALM - City Bird (M, N)
Air ALM - KLM (T)
Air ALM - Surinam Airways (T)
Air ALM - Winair (M)
Air Canada - Air New Zealand (C)
Air Canada - Canadian Airlines (C, N)
Air Canada - Delta Air Lines (C)
Air Canada - Singapore Airlines (C*)
Air Caraibes - LIAT-Winair (C, N)
Air China - Lufthansa (C, N)
Air China - Northwest Airlines (C)
Air Europa - Alitalia (C, N)
Air Europa - Trans World Airlines (C, N)
Air France - Comair (C)
Air France - Delta Air Lines (C)
Air France - Japan Airlines (C)
Air France - Korean Air (M)
Air France - TACA (C, N)
Air France - Thalys (I)
Air India - Emirates (C, N)
Air India - Malaysian Airlines (C)
Air India - Virgin Atlantic Airways (C*, N)
Air Jamaica - Cubana (C, N)
Air Jamaica - Delta Air Lines (C)
Air Kazakhstan - Transaero (C, N)
Air Littoral - Finnair (C, N)
Air Malta - Trans World Airlines (C, N)
Air Moldova International - Transaero (C, N)
Air Namibia - Deutsche BA (C, N)
Air Namibia - Uganda Airlines (T)
Air New Zealand - Canadian Airlines (C, N)
Air One - Lufthansa (C, N)
Air Tahiti Nu - American Airlines (M, N)
Air Tahiti Nui - Qantas (C, N)
Air Zimbabwe - Comair BA (C, N)
Alaska Airlines - Qantas (C)
Alitalia - Japan Airlines (C, N)
Alitalia - KLM (T)
Alitalia - Korean Air (C)
Alitalia - Meridiana (C, N)
Alitalia - Northwest (C*, N)
Alitalia - Palestinan Airlines (C, N)
Alitalia - Varig (C, N)

All Nippon Airways - Asiana (C, N)
All Nippon Airways - Austrian Airlines (C)
All Nippon Airways - Emirates (M)
All Nippon Airways - Japan Air System (M)
All Nippon Airways - Thai Airways International (C)
All Nippon Airways - Trans World Airlines (CG, N)
All Nippon Airways - Virgin Atlantic Airways (C, N)
Alpi Eagles - Olympic Airways (C, N)
America West - Trans World Airlines (C, N)
American Airlines - Canadian Airlines (T)
American Airlines - Cathay Pacific (C)
American Airlines - China Eastern Airlines (C)
American Airlines - EVA Airways (C)
American Airlines - Japan Airlines (C)
American Airlines - Ozark Airlines (M)
American Airlines - Qantas (C)
American Airlines - Sabena-Swissair (C)
American Airlines - Swissair (C)
American Airlines - TACA (C)
American Airlines - TAP Air Portugal (C, N)
American Airlines - Thalys (I, N)
American Airlines - Turkish Airlines (C*, N)
American Airlines - US Airways (T)
American Eagle - Northwest Airlines (C)
American Eagle - Trans World Airlines (C, N)
Angel Air - China Northern Airlines (M, N)
Aserca - Avensa (T)
Asiana - Cargolux (CG, N)
Asiana - China Southern Airlines (C)
Asiana - Turkish Airlines (C, N)
Asiana - Uzbekistan Airways (C, N)
Atlantic Coast Airlines - United Airlines (F)
Atlantic Coast Jet - Delta Air Lines (F, N)
Austrian Airlines - Delta Air Lines (T*)
Austrian Airlines - El Al (C, N)
Austrian Airlines - United Airlines (C, N)
Aviaekspresskruiz - Chelyabinsk Airlines - Demodedovo Airlines - Kras Air (M, N)
Avianca - Mexicana (C, N)
Azerbaijan Airlines - Transaero (C, N)
Balkan Bulgarian - Uzbekistan Airlines (C)
Bangkok Airways - Thai Airways International (C, N)
British Airways - Canadian Airlines (T)
British Airways - Cathay Pacific (C)
British Airways - Deutsche BA (C)
British Airways - Finnair (C)
British Airways - GB Airways (F)
British Airways - Iberia (C)
British Airways - LanChile (C, N)
British Airways - National Jets Italia (F, N)
British Airways - Qantas (C)
British Airways - Zambian Air Services (F, N)
British Midland - United Airlines (C)
BWIA West Indies Airways - LIAT (M)
BWIA West Indies Airways - United Airlines (C, N)
Canadian Airlines - Cathay Pacific (T)
Canadian Airlines - Japan Airlines (T)
Canadian Airlines - LanChile (T)
Canadian Airlines - Qantas (T)
Cathay Pacific - Malaysian Airlines (C, N)
Cathay Pacific - Qantas New Zealand (C, N)
Cathay Pacific - Turkish Airlines (C, N)
China Airlines - Vietnam Airlines (C)
China Eastern Airlines - Qantas (C, N)
China Southern Airlines - Japan Air System (C, N)
China Southern Airlines - Vietnam Airlines (C, N)
Cirrus Airlines - Lufthansa (F, N)
City Bird - Lignes Aériennes Congolaises (T)
City Bird - Sabena (T)
CommutAi - -US Airways (T)
Continental Airlines - CommutAir (F, N)
Continental Airlines - Emirates (C, N)
Continental Airlines - Northwest Airlines (C)
CSA Czech Airlines - Delta Air Lines (C, N)
Delta Air Lines - Trans States Airlines (T)
Delta Air Lines - ACES (C, N)
Delta Air Lines - Aerolitoral (C, N)
Delta Air Lines - El Al (C, N)
Delta Air Lines - Malev (T)
Delta Air Lines - Royal Air Maroc (C, N)
Delta Air Lines - Sabena-Swissair (T*)
Delta Air Lines - South African Airways (C)
Delta Air Lines - Tunisair (C, N)
Deutesche BA - Iberia (C*)
Ecuatoriana - LanChile (C, N)
Egyptair - Middle East Airlines - Royal Air Maroc-Royal Jordanian - Saudi Arabian Airlines (M, N)
Egyptair - Philippine Airlines (C*)
El Al - Swissair (C, N)
El Al - Thai Airways International (C*, N)
Emirates - MNG Cargo Airlines (CG, N)
Emirates - Philippine Airlines (C*, N)
EVA Airways - Qantas (C, N)
Finnair - Iberia (C)
Finnair - TAP Air Portugal (C, N)
Garuda - Malaysian Airlines (C)
Gulf Air - Philippine Airlines (C, N)
Gulfstream - Northwest Airlines (C, N)
Gulfstream - Trans World Airlines (C, N)
Hawaiian Airlines - Northwest Airlines (C)
Iberia - Air France (C, N)
Iberia - LanChile (C, N)
Icelandair - SAS (C)
Japan Air System - Japan Airlines (M)
Japan Air System - KLM (C)
Japan Air System - Northwest Airlines (C)
Japan Airlines - Northwest Airlines (CG, N)
Japan Airlines - Singapore Airlines (CG)
Japan Airlines - Vietnam Airlines (C)
KLM - Lituanian Airlines (C, N)

KLM - Malaysian Airlines (C)
KLM - Regional Airlines (T)
Kuwait Airways - Philippine Airlines (C*)
Kuwait Airways - Trans World Airlines (C*)
LAM - TAP Air Portugal (C, N)
LTU - Sabena (C, N)
Lufthansa - Deutsche Bahn (I, N)
Lufthansa - Philippine Airlines (CG*, N)
Lufthansa - SAS - Singapore Airlines (CG*)
Lufthansa - Thai Airways International (C)
Lufthansa - Varig (CG)
Malaysian Airlines - Middle East Airlines (C, N)
Malaysian Airlines - Northwest Airlines (C)
Malaysian Airlines - Philippine Airlines (C*)
Malaysian Airlines - Swissair (C)
Mesa Airlines - Midwest Express (C)
Mesa Airlines - US Airways (F)
Mexicana - United Airlines (C)
National Airlines - Virgin Atlantic Airways (M, N)
Nationwide Air - Virgin Atlantic Airways (F, N)
Nigeria Airways - South African Airways (C, N)
Qantas - Qantas New Zealand (F, N)
Qantas - South African Airways (C)
Roraima Airways - Rutaca Airlines (C, N)
Royal Air Maroc - Tunisair (C, N)
Sabena - Ukraine International Airlines (C)
SATA International - TAP Air Portugal (C)
SNCF - United Airlines (I)
Swissair - Thai Airways International (C, N)
Syrian Arab Airlines - Tarom Romanian (C, N)
TACA - TACA Peru (C)
TAM - Transbrasil (T)
Trans States Airlines - Trans World Airlines (T)

C	denotes code sharing or operational agreements;
CG	denotes cargo agreements;
F	denotes franchise agreements;
I	denotes intermodal agreements;
M	denotes agreements not involving code sharing;
N	denotes new partnership formed in 2000;
T	denotes agreements were terminated in 2000;
*	denotes agreements were signed in previous years but implemented in 2000.

Table A1-5. Global alliances

Alliance	Founded	Members
Star Alliance	May 1997	Air Canada, Lufthansa, SAS, Thai Airways International, and United Airlines; subsequently joined by Varig (October 1997), Ansett Australia (March 1999), Air New Zealand (March 1999), All Nippon Airways (October 1999), Austrian Airlines Group (Austrian Airlines, Lauda Air and Tyrolean Airways, March 2000), Singapore Airlines (April 2000), British Midland (now BMI British Midland, July 2000) and Mexicana (July 2000).
oneworld	September 1998	American Airlines, British Airways, Canadian Airlines (withdrawn in June 2000), Cathay Pacific and Qantas; subsequently joined by Iberia (September 1999), Finnair (September 1999), LanChile (June 2000), and Aer Lingus (June 2000).
SkyTeam	June 2000	AeroMexico, Air France, Delta Air Lines and Korean Air; subsequently joined by CSA Czech Airlines (April 2001).
Wings	—	KLM and Northwest Airlines since 1989; subsequently joined by Continental Airlines and Alitalia in 1999, but Alitalia and KLM ended their partnership in April 2000.
Qualiflyer	March 1998	AOM, Austrian Airlines Group (withdrawn in September 1999), Crossair, Sabena, Swissair, TAP Air Portugal, Turkish Airlines; subsequently joined by Air Littoral (July 1998), Air Europe (May 1999), LOT Polish Airlines (January 2000), Portugalia (January 2000), Volare Airlines (January 2000), and Air Liberte (May 2000).

Table A1-6. Multi-airline joint Web sites

Name	Announcement	Planned operation	Founding and partner airlines	Characteristics
Orbitz (formerly known as "T2")	November 1999	Intially 2000, postponed to June 2001	Continental Airlines, Delta Air Lines, Northwest Airlines and United Airlines; subsequently joined by American Airlines; 25 affiliate airlines including foreign airlines	A comprehensive travel portal that will provide customers with access not only to ordinary airline fares, hotel rates, car rental rates etc. but also to lower Internet special fares posted by airlines on Orbitz only.
Hotwire.com	June 2000	October 2000 (started operation)	America West Airlines, American Airlines, Continental Airlines, Northwest Airlines, United Airlines and US Airways; subsequently joined by Hawaiian Airlines and Trans World Airlines	An online outlet for discount tickets, under which customers are quoted a price discount of up to 40 per cent. Airlines remain anonymous throughout the pricing process.
MilePoint.com	August 2000	November 2000 (started operation)	America West Airlines, Continental Airlines, Delta Air Lines, Northwest Airlines, Trans World Airlines and US Airways	An Internet exchange site that allows members to convert their frequent traveler miles and points into a online currency, which can be used to buy goods and services online.
European on-line travel portal	February 2000 (by British Airways), Disclosed in June 2000	2001-2002	Aer Lingus, Air France, Alitalia, Austrian Airlines Group, British Airways, British Midland, Finnair, KLM, Lufthansa, Iberia and SAS	An European-based travel site that will be available to customers in the relevant local languages, and will offer airline fares, hotel reservations, car rentals and other related services.
Asian "T2"	June 2000	End 2000 (postponed)	Air New Zealand, Ansett, Asiana Airlines, Cathay Pacific, China Airlines, Malaysia Airlines, Qantas, Royal Brunei and Singapore Airlines	An Asian-based travel site that will offer a range of services including air travel, hotel reservations and car rentals in different languages in cooperation with travel agents in the business-to-business area.

Name	Announcement	Planned operation	Founding and partner airlines	Characteristics
Japanese on-line travel portal	August 2000	End 2000 (postponed)	All Nippon Airways, Japan Airlines, Northwest Airlines, United Airlines, Asian T2 (Air New Zealand, Ansett, Asiana Airlines, Cathay Pacific, China Airlines, Malaysia Airlines, Qantas, Royal Brunei and Singapore Airlines)	A Japan-based travel site that will provide consumers in Japan with a range of services including air tickets, hotel reservations and car rentals and travel destination guides.

Appendix 2
Statistical Tables

Table A2-1. Regional distribution of scheduled traffic — 2000

By ICAO statistical region of airline registration	Aircraft kilometres (millions)	Aircraft departures (thousands)	Passengers carried (thousands)	Passenger-kilometres performed (millions)	Passenger load factor (%)	Tonne-kilometres performed		Tonne-kilometres available (millions)	Weight load factor (%)
						Freight (millions)	Total (millions)		
Total (international and domestic) services of airlines of ICAO contracting States									
Europe	6 700	6 230	425 800	805 260	72	34 730	112 260	170 620	66
Percentage of world traffic	26.6	29.1	25.8	26.7		29.5	28.0	26.2	
Africa	600	520	32 180	66 470	62	2 110	8 280	16 310	51
Percentage of world traffic	2.4	2.4	2.0	2.2		1.8	2.1	2.5	
Middle East	650	420	44 320	93 770	68	4 580	13 300	22 880	58
Percentage of world traffic	2.6	2.0	2.7	3.1		3.9	3.3	3.5	
Asia and Pacific	4 550	3 170	365 880	733 310	70	39 840	107 160	168 200	64
Percentage of world traffic	18.1	14.8	22.2	24.3		33.9	26.7	25.8	
North America	10 980	9 070	679 550	1 176 810	72	31 870	142 300	243 720	58
Percentage of world traffic	43.6	42.3	41.3	39.0		27.1	35.5	37.4	
Latin America and Caribbean	1 680	2 010	99 470	142 170	64	4 450	17 480	30 410	57
Percentage of world traffic	6.7	9.4	6.0	4.7		3.8	4.4	4.7	
Total	**25 160**	**21 420**	**1 647 200**	**3 017 790**	**71**	**117 580**	**400 780**	**652 140**	**61**
International services of airlines of ICAO contracting States									
Europe	5 210	3 580	259 950	679 860	73	33 910	99 940	150 100	67
Percentage of world traffic	43.4	59.0	48.3	38.2		33.5	36.9	35.7	
Africa	450	230	18 450	56 870	62	2 030	7 310	14 480	50
Percentage of world traffic	3.8	3.8	3.4	3.2		2.0	2.7	3.4	
Middle East	550	250	27 590	81 850	67	4 480	12 130	20 560	59
Percentage of world traffic	4.6	4.1	5.1	4.6		4.4	4.5	4.9	
Asia and Pacific	2 610	690	120 600	518 810	73	36 490	86 250	127 190	68
Percentage of world traffic	21.8	11.4	22.4	29.2		36.1	31.8	30.2	
North America	2 410	870	81 230	354 640	75	20 430	53 440	88 860	60
Percentage of world traffic	20.1	14.3	15.1	19.9		20.2	19.7	21.1	
Latin America and Caribbean	770	450	29 970	86 570	68	3 740	11 880	19 360	61
Percentage of world traffic	6.4	7.4	5.6	4.9		3.7	4.4	4.6	
Total	**12 000**	**6 070**	**537 790**	**1 778 600**	**72**	**101 080**	**270 950**	**420 550**	**64**

Source: ICAO Air Transport Reporting Form A.

Table A2-2. Number of turbo-jet and turbo-prop aircraft delivered, ordered and remaining to be delivered up 31 December 2000[1]

(excludes military and government operated aircraft)

Type of aircraft	Before 2000	Delivered during 2000	Total as of 31/12/00	Ordered during 2000[2]	Remaining to be delivered as of 31/12/00[3]
TURBO-JETS					
Airbus Industrie A-300	486	8	494	2	24
Airbus Industrie A-310	252	0	252	0	5
Airbus Industrie A-319	203	107	310	110	368
Airbus Industrie A-320	789	101	890	148	513
Airbus Industrie A-321	144	28	172	66	202
Airbus Industrie A-330	131	43	174	84	125
Airbus Industrie A-340	163	19	182	23	92
Boeing 717	12	32	44	22	105
Boeing 737	3 517	271	3 788	379	963
Boeing 747	1 221	25	1 246	28	76
Boeing 757	897	45	942	63	97
Boeing 767	771	44	815	6	78
Boeing 777	261	55	316	111	243
British Aerospace - 146/RJ 85/100	354	0	354	0	0
Canadair Regional Jet	340	94	434	259	505
Dornier DO-328 Jet	15	24	39	0	1
Embraer EMB -145	173	109	282	252	252
Douglas MD-80/90	1 301	4	1 305	0	0
Douglas MD-11	192	0	192	0	0
Total of aircraft in production	11 222	1 009	12 231	1 553	3 649
Total of aircraft not in production[4]	6 286		6 286		
Total turbo-jets	17 508	1 009	18 517	1 553	3 649
TURBO-PROPS					
Aerospatiale/Aeritalia ATR-42/72	588	20	608	17	0
DeHavilland Canada DHC-8	536	36	572	46	66
Dornier DO-328	98	1	99	3	7
Embraer EMB-120 Brasilia	350	0	350	2	0
Total of aircraft in production	1 572	57	1 629	68	73
Total of aircraft not in production[4]	3 430		3 430		
Total turbo-props	5 002	57	5 059	68	73

1. The numbers given are estimated on the basis of information supplied by aircraft manufacturers. In many instances, numbers for the past years have been revised; owing to lack of information, the aircraft manufactured in the CIS are not included in this table.
2. The numbers do not include options by commercial operators for transport aircraft.
3. The numbers in this column take into account cancellations during the year.
4. These figures are the cumulative totals of deliveries for aircraft types no longer in production after 1999.

Table A2-3. Aircraft accidents involving passenger fatalities on scheduled air services, 1981-2000

Year	Aircraft accidents	Passengers killed	Passenger fatalities per 100 million: Passenger-km	Passenger fatalities per 100 million: Passenger-miles	Fatal accidents per 100 million: km flown	Fatal accidents per 100 million: miles flown	Fatal accidents per 100 000: aircraft hours	Fatal accidents per 100 000: aircraft landings
Excluding the USSR up to 1992 and the Commonwealth of Independent States thereafter.								
1981	22	365	0.04	0.06	0.25	0.40	0.15	0.22
1982	25	762	0.08	0.13	0.28	0.46	0.18	0.25
1983	21	817	0.08	0.13	0.23	0.37	0.14	0.20
1984	16	218	0.02	0.03	0.16	0.26	0.10	0.14
1985	25	1 037	0.09	0.14	0.24	0.39	0.15	0.21
1986	19	427	0.03	0.05	0.17	0.27	0.10	0.15
1987	23	889	0.06	0.10	0.19	0.31	0.12	0.18
1988	26	712	0.05	0.08	0.21	0.33	0.13	0.19
1989	29	879	0.06	0.09	0.22	0.36	0.13	0.21
1990	23	473	0.03	0.05	0.17	0.27	0.10	0.16
1991	24	518	0.03	0.05	0.17	0.28	0.11	0.17
1992	24	978	0.05	0.09	0.16	0.26	0.10	0.17
1993	31	806	0.04	0.07	0.20	0.32	0.13	0.21
1994	23	962	0.05	0.08	0.14	0.22	0.09	0.14
1995	20	541	0.02	0.04	0.11	0.18	0.07	0.12
1996	21	1 125	0.05	0.08	0.11	0.18	0.07	0.12
1997	25	867	0.03	0.05	0.12	0.20	0.08	0.13
1998	20	904	0.03	0.06	0.10	0.15	0.06	0.11
1999	21	498	0.02	0.03	0.09	0.15	0.06	0.10
2000	18	755	0.03	0.04	0.08	0.12	0.05	0.09
Including the USSR up to 1992 and the Commonwealth of Independent States thereafter.								
1986	24	641	0.04	0.07	na	na	na	na
1987	25	900	0.06	0.09	na	na	na	na
1988	29	742	0.04	0.07	na	na	na	na
1989	29	879	0.05	0.08	na	na	na	na
1990	27	544	0.03	0.05	na	na	na	na
1991	29	638	0.03	0.06	na	na	na	na
1992	28	1 076	0.06	0.09	na	na	na	na
1993	33	864	0.04	0.07	0.20	0.32	0.12	0.21
1994	27	1 171	0.06	0.09	0.15	0.25	0.10	0.16
1995	25	711	0.03	0.05	0.13	0.21	0.08	0.14
1996	24	1 146	0.05	0.07	0.12	0.19	0.08	0.13
1997	26	929	0.04	0.06	0.12	0.20	0.08	0.14
1998	20	904	0.03	0.05	0.09	0.15	0.06	0.10
1999	21	499	0.02	0.03	0.09	0.15	0.06	0.10
2000	18	755	0.03	0.04	0.07	0.12	0.05	0.09

na not available

Source: ICAO accident/incident reporting programme (ADREP) and ICAO Air Transport Reporting Form A (Traffic).

Table A2-4. Aviation security (1981-2000)

Year	Number of acts of unlawful interference	Number of acts of unlawful seizure		Number of acts of sabotage	Other acts[1]	Number of persons injured or killed during acts of unlawful interference	
		Attempted Seizures	Actual Seizures			Injured	Killed
1981	53	14	24	15	-	39	8
1982	36	11	19	6	-	119	14
1983	45	17	21	7	-	70	15
1984	41	7	21	13	-	249	68
1985	40	7	20	13	-	243	473
1986	14	6	5	3	-	235	112
1987	13	6	4	3	-	121	166
1988	12	3	7	2	-	21	300
1989	14	4	8	2	-	38	278
1990	36	12	20	1	3	145	137
1991	15	5	7	0	3	2	0
1992	10	2	6	0	2	123	10
1993	30	4	21	0	5	2	28
1994	37	5	20	2	10	53	36
1995	14	2	9	0	3	3	0
1996	15	2	10	0	3	54	130
1997	6	1	4	0	1	0	1
1998	9	1	6	0	2	1	0
1999	6	0	6	0	0	2	2
2000	11	1	8	0	2	20	0

1. Includes missile and facility attacks.

— END —

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 charges for airports and air navigation services, 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 studies on trends in the air transport industry at a global and regional level and specialized studies of a worldwide 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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