

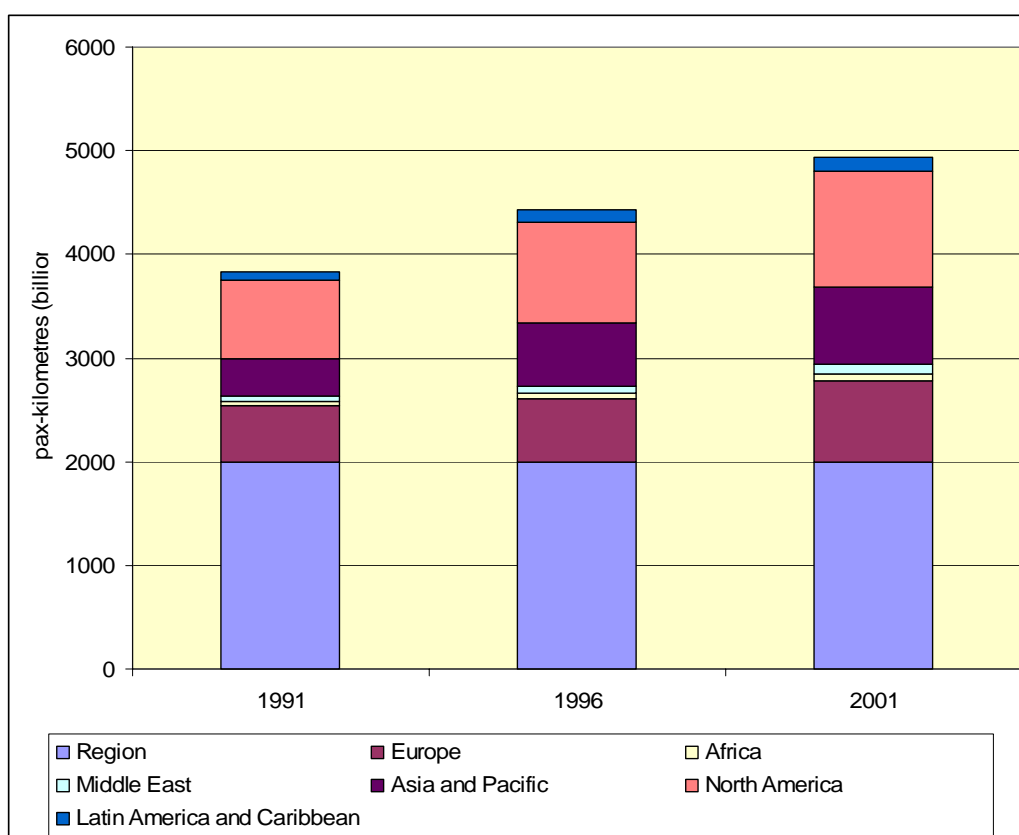
XII. AIR TRANSPORT

A. Air traffic growth trends and forecasts

1. Air traffic growth trends

During the period 1991 to 1996, air traffic in the Asian and Pacific region grew at a much faster rate than the rest of the world, continuing the pattern experienced for most of the 1980s. The economic downturn in several traffic-generating and -attracting countries in the region after 1997 had a significant impact on the market and on the year-on-year growth rates of the region as a whole. Nevertheless, following a dip in traffic in 1998, the growth of traffic within, to and from the region had recovered to its historical above-average rate in 2000 and 2001.

Figure XII.1. Scheduled traffic of commercial air carriers, by region, in 1991, 1996 and 2001



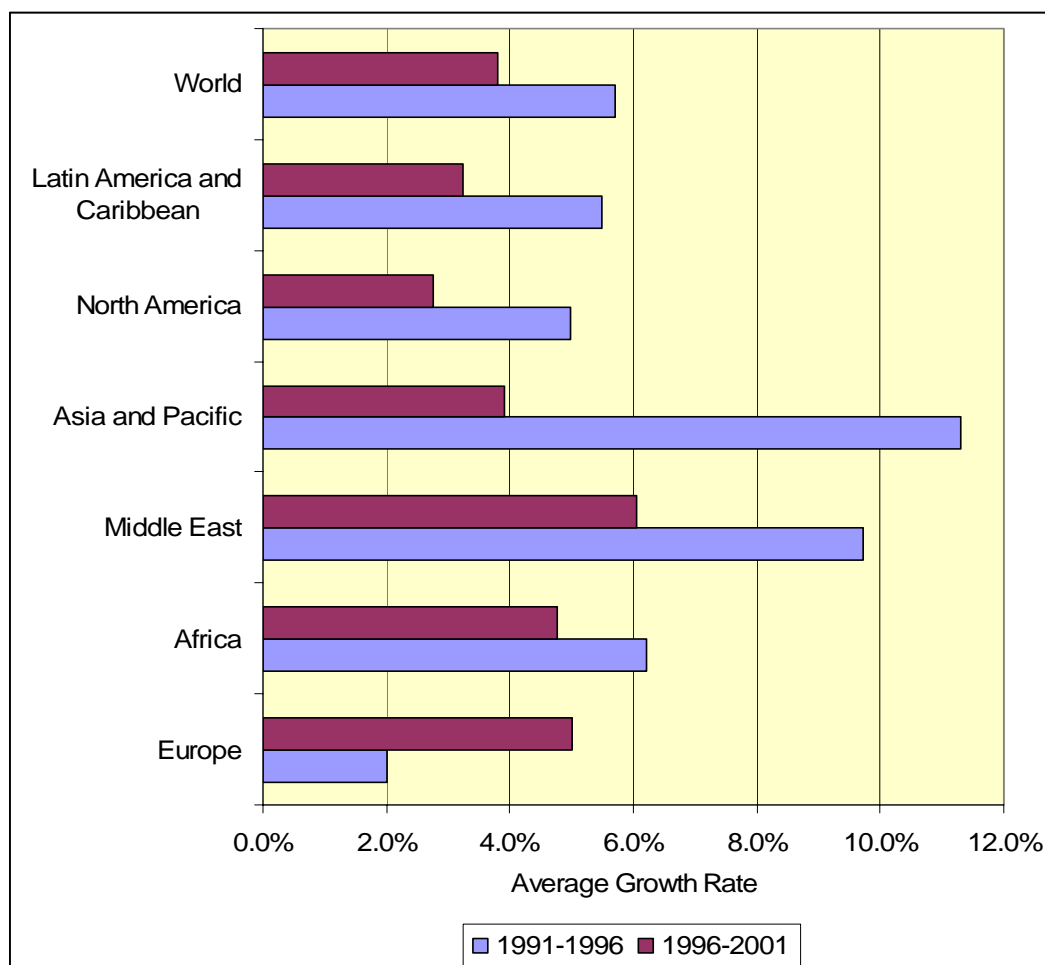
Source: International Civil Aviation Organisation.

Figure XII.1 compares the actual trends in passenger traffic, measured in billions of passenger-km by region for 1991, 1996 and 2001. The figures show the total of all km performed, both domestic and international, on scheduled airlines within those regions.

Figure XII.2 compares the percentage growth rates between regions from 1991 to 1996 and 1996 to 2001. In the second half of the decade, the traffic in the Asian and Pacific region grew at only half its previous rate, reflecting the sudden downturn from 1997. However, the market recovered towards the end of the period and the number of passengers travelling on Trans-Pacific flights increased by 8.1 per cent. The underlying pattern of strong market conditions continued into 2001, but the terrorist attacks in the United States of

America on 11 September 2001 had a sudden and dramatic effect. Despite earlier market expansion, the number of passengers on these Trans-Pacific flights fell by 10 per cent taken over the full year in 2001. Several years of growth were wiped out and it is not expected that the level of traffic achieved in 2000 will be reached again until 2004. On routes within the Asian and Pacific region, the effects of 11 September were submerged by the robust growth occurring in the market.

Figure XII.2. Growth in air passenger traffic (number of passengers), by region, 1991-2001



Source: International Civil Aviation Organisation.

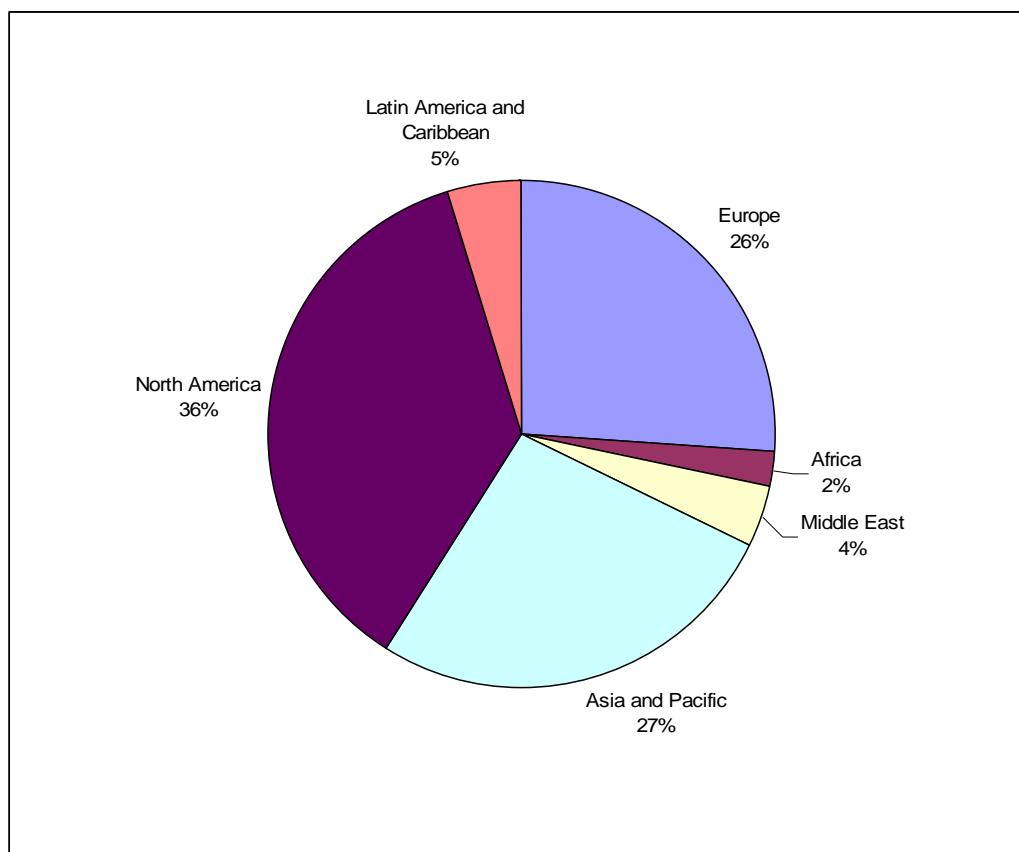
Taking the decade as a whole, it is of particular note that between 1991 and 2001 the passenger traffic in the Asian and Pacific region more than doubled, from 359 billion passenger-km to 744 billion passenger-km, primarily because of the very strong growth experienced between 1991 and 1996. Only the Middle East region exceeded this performance, but from a considerably smaller base of 45 billion passenger-km in 1991. The Asian and Pacific region's share of world passenger traffic grew from 19.5 per cent in 1991 to 25.4 per cent in 2001.

The International Civil Aviation Organisation (ICAO) forecasts of passenger traffic are that from 2001 to 2005 the region will experience an annual growth rate in passenger kilometres of 4.1 per cent, as against the world average of 2.7 per cent (table XII.1). The region will continue, over the five-year period as a whole, to grow at a considerably higher rate than all other regions excepting the Middle East.

Table XII.1. Annual average growth in air passenger traffic, by region, estimate for 2001-2005

Region	Annual average growth rate of passengers (percentage) 2001-2005
Europe	2.3
Africa	3.3
Middle East	6.4
Asia and Pacific	4.1
North America	1.8
Latin America and Caribbean	2.9
World	2.7

With the return to historically high growth rates, by 2005 the region can be expected to overtake Europe, currently at 26.6 per cent, to become the second-largest regional market for airline passengers after North America, which, with its huge domestic market, currently has 37.8 per cent of the world's passenger traffic (figure XII.3).

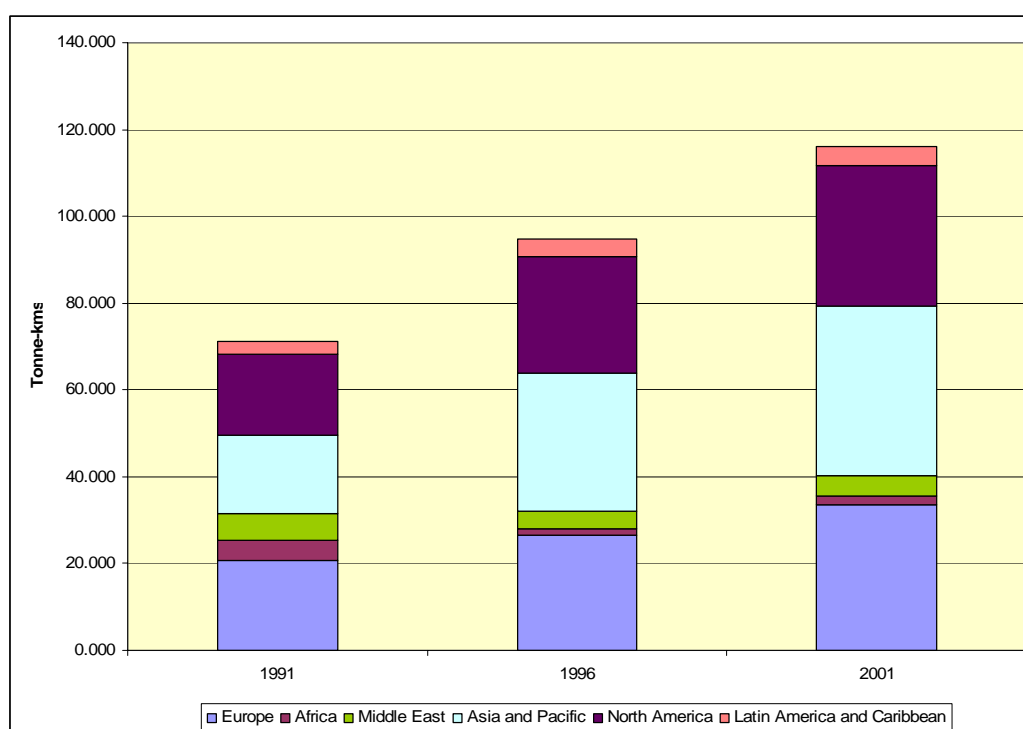
Figure XII.3. Regional share of global international scheduled air passenger traffic in 2005

Source: International Civil Aviation Organisation.

2. Air cargo traffic

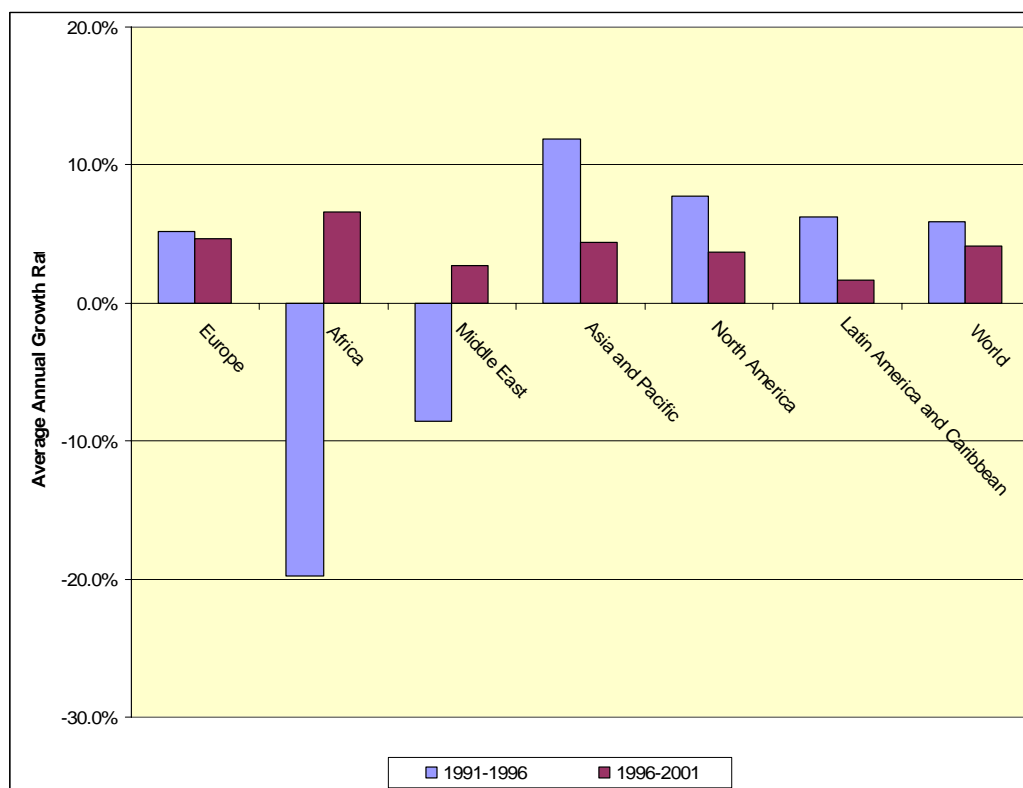
The Asian and the Pacific region has been the leading generator of air freight since 1992. But as was the case with the passenger market, freight traffic dipped in 1998 and then continued to grow at a slower pace than in the first half of the decade owing to the slow recovery of a number of the region's exporting economies. Whereas the region accounted for 25.4 per cent of the world's freight and mail shipments by air in ton-km performed in 1991, this share had grown to 33.8 per cent in 2001. However, the region's share of world air freight traffic declined from 1999 to 2000, owing to strong freight growth in other regions, in particular Europe. Nonetheless, Asia and Pacific continues to be the world's leading freight generating region.

Figure XII.4. Air freight and mail traffic of commercial air carriers, by region, in 1991, 1996 and 2001



Source: International Civil Aviation Organisation.

Figure XII.4 compares the trend in air freight traffic, in ton-km performed between 1991, 1996 and 2001. Figure XII.5 compares the percentage growth rates between the regions for the two halves of the decade. As with passenger traffic, the growth in freight for the Asian and Pacific region in the second half of the decade slowed considerably, to 4.4 per cent annually, from nearly 12 per cent in the first five years. Apart from Africa and the Middle East, where there was a substantial recovery in air cargo markets after earlier declines, all of the regions showed slower growth in the second half of the decade under review. ICAO's projections for the period to 2010, forecast a return to high growth rates for the Asian and Pacific region. It is expected that freight carried, in ton-km, will increase at a rate of 7.5 per cent annually, as against 6.0 per cent for the world as a whole (table XII.2). By the end of the period, the region is expected to account for over 40 per cent of the global air freight task (figure XII.6).

Figure XII.5. Growth in air freight and mail traffic, by region, 1991-2001

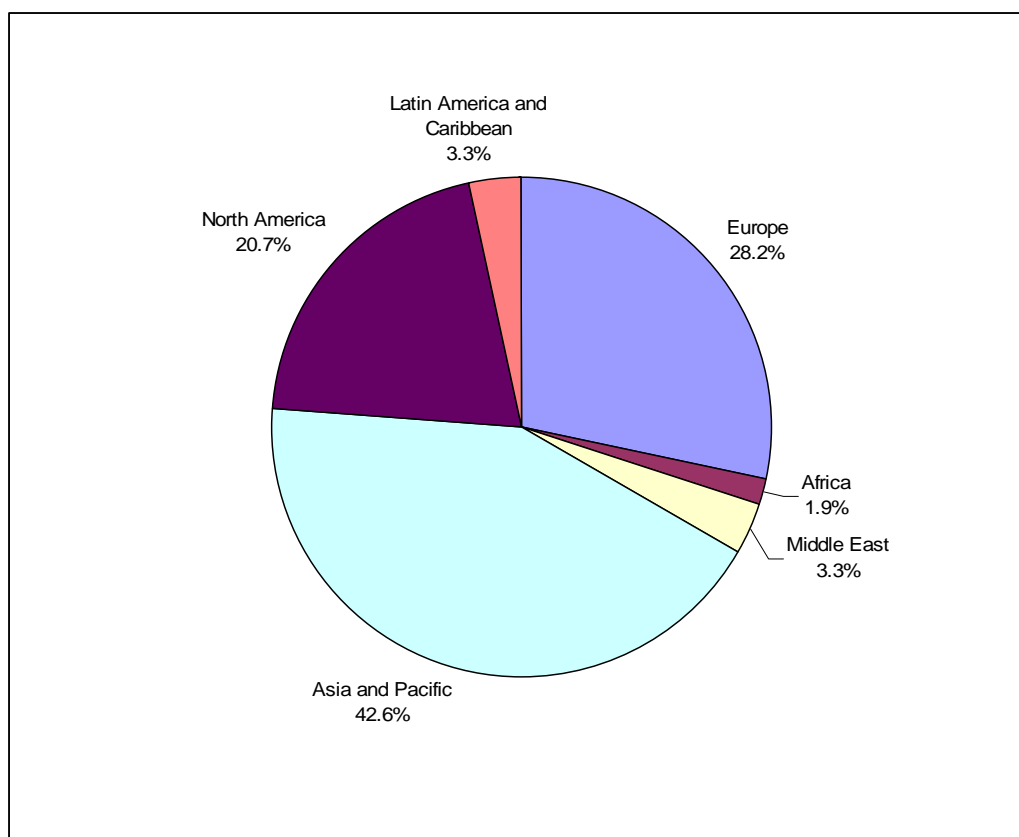
Source: International Civil Aviation Organisation

Table XII.2. Annual average growth in air freight traffic, by region, estimate for 1999-2010

Region	Annual average growth (percentage change in ton-km)
Europe	4.5
Africa	5.0
Middle East	4.0
Asia and Pacific	7.5
North America	5.0
Latin America and Caribbean	4.5
World	6.0

Source: International Civil Aviation Organisation.

Figure XII.6. Regional share of global international air freight and mail traffic in 2010



Source: International Civil Aviation Organisation.

3. Impacts of rapid air traffic growth

The growth in commercial air services continues to outstrip the available capacity at more and more airports. 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 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.

The arrival on stream since 1994 of major “greenfield” airport projects at Hong Kong, China; Kuala Lumpur; Osaka; Seoul and Shanghai, as well as major terminal expansions such as that at Singapore, have brought airport congestion relief at these major Asia and Pacific hubs. The continuing expansion plans of these new “mega” airports, soon to be joined by others at Bangkok, Guangzhou and Nagoya, should continue to accommodate the expected expansion of traffic at hubs well into the twenty-first century. Global airline alliances which have taken shape since 1997 have begun to focus their strategies on these hubs and this possibly will have a traffic diversion impact on a number of airports because the alliances will increasingly funnel previous point-to-point operations through their hubs. The introduction of the long-range, 550-seat Airbus A380 aircraft into service in 2006 will reinforce the strength of the hubs, but it also will intensify the competition between them, including from some airports outside Asia and Pacific. Depending on the effectiveness of the airline alliance and hub airport strategies, the growth rate of traffic at the major hub airports is likely to be higher

than at non-hub airports. And because the new airports have considerable capacity to expand over the next two decades, much of the future airport congestion will be at these secondary or non-hub airports.

Airways congestion on the busier route, such as those around the Bay of Bengal continues to grow and the future alleviation or management of such congestion will depend in large part on the implementation of the new ICAO CNS/ATM systems, as they affect vertical and longitudinal separation of aircraft.

B. Investment in air transport infrastructure and aircraft fleets

1. Airport developments and investment

ICAO has estimated that airport and air navigation services investment requirements between 2000 and 2010 will exceed US\$ 300 billion globally. A large part of that capital outlay is likely to be committed to airport infrastructure in the Asian Pacific region. However, it will be a continuation of a process already begun, since the past decade has already seen substantial airport investment activity started and completed in the region.

The introduction since 1994 of major new airports in Asia and Pacific to serve Osaka (Kansai), Kuala Lumpur (Kuala Lumpur International), Hong Kong, China (Chek Lap Kok), Seoul (Incheon) and Shanghai (Pudong) required a combined investment of more than US\$ 40 billion. Current plans are to continue the development of these new facilities, to upgrade existing hub airports and to construct completely new airports requiring at least another \$ 40 billion funding by 2010. Singapore continues to improve its passenger and cargo terminals and its new Terminal III is scheduled to open in early 2006. A second runway at Tokyo's Narita Airport opened in 2002 at a cost of US\$ 935 million allowing this important hub to increase the number of flights per annum by 50 per cent. The US\$ 6 billion Centrair Airport is being constructed in the sea off the central coast of Japan near Nagoya and is due to open in 2005. The Government of Japan is building new airports and is planning further development of Haneda, Kansai and Narita airports.

Anticipating robust growth in air transport China plans to spend US\$ 13.3 billion in new airport construction and upgrading of existing airports over the next ten years. It aims to continue expansion of its three major hubs at Beijing Capital Airport, Shanghai Pudong Airport and Guangzhou Baiyun Airport as well as at its six medium hubs at Chengdu, Kunming, Shenyang, Urumqi, Wuhan, and Xi'an. With new trunk line and regional airports under construction or planned for completion, China's civil airports will increase from 129 to 230 by 2010. India also is expecting the air transport sector to expand and its plans include upgrading the primary gateway airports at Chennai, Delhi, Kolkata and Mumbai and the construction of new airports at Bangalore and Hyderabad.

Bangkok's new Suvarnabhumi Airport, costing US\$ 5 billion, will be able to handle 45 million passenger movements a year when it opens towards the end of 2005. The privatized Sydney Airport is upgrading its facilities in time to cater for the introduction of a new generation of very large aircraft in 2006 and, in the process, made it possible for the Australian Government to defer plans for a second airport for Sydney. Other new airports recently completed, under construction or planned in the region include Chittagong (Bangladesh), Cochin (India), Medan and Padang (Indonesia), Tawau and Bintulu Airport (Malaysia), Yangon Hanthawaddy International (Myanmar), Lumbini (Nepal), Sialkot International (Pakistan), Bacolod (Philippines), and Yangyang International and Daegu International (Republic of Korea). In addition, major expansion and redevelopment projects have been completed or have been commenced in Australia, Bangladesh, Cambodia, China, India, Indonesia, Islamic Republic of Iran, Japan, Kazakhstan, Lao People's Democratic

Republic, Malaysia, the Philippines, the Republic of Korea, Samoa, Singapore, Thailand and Viet Nam.

2. Growth and investment in aircraft fleets

Four decades of continuous growth in global air passenger traffic came to an end in 1991 as a result of the global recession and the Gulf War. However, deliveries of new jet aircraft reached peak levels just at that time and the world's airlines immediately took steps to bring their capacity into line with market demand. It took until 1998 for the recovery cycle to run its full course. But throughout this period, the Asian and Pacific region's airlines were enjoying rapid growth in their businesses and they increased their share of new jet aircraft deliveries to around 30 per cent of the world total between 1993 and 1997. The importance of the Asian and Pacific region to the aircraft manufacturers was particularly observable in the sales of large, long-range aircraft. Whereas the share of new jet aircraft with 250 seats or more in the world's fleet has ranged from 13 to 26 per cent over the past decade, the corresponding share for the Asian and Pacific region has been between 24 and 46 per cent and the concentration was even higher for those models capable of serving the longest routes.

The problem of overcapacity arose abruptly in the Asian and Pacific region following the crises that occurred in a number of economies in 1997. The airline industry's response was to re-deploy equipment from the most-affected routes into other markets, return some leased aircraft and to defer or cancel aircraft orders from the manufacturers. The Asian and Pacific region's share of deliveries of jet aircraft fell to around 12 per cent in 2000 and 2001, but there has since been a surge in aircraft orders, which, because of the time lag between a firm order and delivery, is indicative of the confidence of many airlines in the medium term growth of traffic in the region. One notable aspect of the fleet investment scene is that two carriers from the region were launch customers for the Airbus A380 and another two of the region's carriers have placed orders subsequently.

ICAO estimates that the world's jet-engined fleet will grow to 19,800 aircraft by 2020. Of these, 14,000 will be new aircraft delivered between 2000 and 2020 and almost 6,000 will remain in service from the current fleet of approximately 15,300. Given air traffic growth projections, a large share of the new fleet will be ordered and delivered to Asian and Pacific airlines. However, it is likely that a growing proportion of the new aircraft introduced on the region's routes will be leased. For instance, according to an ICAO study conducted in 1999, some 20 airlines in the region operated 81 leased aircraft on international services in 1989. By 1998, 55 airlines in the region were operating 522 leased aircraft on international services, which amounted to almost a quarter of the fleet in the region.