International Civil Aviation Organization

FINANCIAL SITUATION OF AIRPORTS AND AIR NAVIGATION SERVICES 2005

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Executive Summary

The study evaluates the financial situation of airports and air navigation services for the year 2005 based on a survey of 72 ICAO Contracting States[1] and the ICAO Statistics programme. Chapters 1 and 2 review the financial aspects of operations of airports and air navigation services, respectively. Chapter 3 analyses the weight of airport and air navigation services charges on airline expenses.

Overall, airports were profitable in 2005 judging from the income/expense ratios at the global and regional levels. The income of all sample airports exceeded expenses by a ratio of 121 per cent, meaning that out of US$ 10.00 earned, airports spent US$ 8.26.

For the total sample, average expenses per traffic unit (TU) amounted to US$ 11 038, very close to the average of very large and medium-size airports. The average income/TU amounted to US$ 13 334, in between the averages of very large and medium-size large airports. The majority of airports managed to reduce unit costs while keeping revenues adjusted to the market in order to break even or to remain profitable. The regional distribution of average income and expenses/TU points to different business strategies and operating systems where services, such as ground handling, are either still an integral part of core business of the airport operators or outsourced to specialized companies.

More and more airport operators offer a full service environment to travelers, airport visitors and other parties. Income from non-aeronautical activities accounted, on average, for 40 per cent of the total income of 402 airports in 71 States. For airports with a large traffic volume the non-aeronautical share averaged 46 per cent. Capital investments were reported for 383 airports in 63 States and amounted to US$ 18.3 billion or US$ 5 390 per TU in 2005.

The financial situation of air navigation services providers also shows overall profitability, although marginal. The overall income/expense ratio was 105 per cent for US$ 13.1 billion income collected and US$ 12.5 billion expenses accrued by 65 air navigation services providers in 70 States. In 2005, 38 States reported gross capital investments of air navigation services providers amounting to US$ 1.25 billion, corresponding to US$ 151 invested per flight.

In 2005, air navigation services charges accounted, on average, for 91 per cent of the total income of 67 air navigation services providers. In terms of allocation of air navigation services expenses by function, en-route services absorbed, on average, 65 per cent of the costs, approach and aerodrome control services 28 per cent and other services 7 per cent.

Total airport and air navigation services charges increased, on average, at 3.2 per cent on an annual basis over the 1995-2005 period. The modest growth, at a 1.3 per cent rate from 2000 to 2005, reflects the decline and slow recovery of air services and the resulting financial constraints of air carriers, losing, on average, US$ 6.2 billion net annually during this period.

There is little change in the proportion these charges impacted on airline expenses since the previous 2003 survey. Fuel, insurance and other airlines' operating expenses are on the rise and influence the relative share of other expenses. Nevertheless, the relatively low level of charges also reflect on the market-driven provision of services by airports and air navigation services providers and their moderate revision of charges during the last five years as air carriers were confronted with drastic traffic variations and resulting financial constraints.

1 The term "State", as used throughout the following text, has to be understood as the territorial entity under which airports or air navigation services providers operate.

Chapter 1 – Financial Aspects of Airport Operations

Survey coverage and analysis

1. The analyses in this chapter are based on data covering 410 airports in 72 States, of which 388 made available both financial and traffic data. The 2005 survey data compare well to the 2003 survey when financial and traffic data were available for 462 airports. The majority of airports covered in 2005 were located in Europe (210), followed by North America (53) and Asia/Pacific (86), while the Caribbean, Central and South America were represented by 32 airports and finally Africa and the Middle East by 29 airports.

2. The data were provided to ICAO on Air Transport Reporting Form J - Airport Financial Data and in response to the questionnaire of State Letter EC 2/71-06/84, supplemented by information available on various websites. The survey questionnaire sent to Contracting States is reproduced in the Appendix. Traffic data originated essentially from ICAO Air Transport Reporting Form I - Airport Traffic.

3. The ICAO Regional Air Navigation Plans listed over 1 194 airports open to international traffic in 2005. Rather than measuring the coverage of the survey in sheer numbers of reporting airports, it is best expressed in terms of the traffic captured by the world's scheduled airlines on international routes serving airports[2] for which data were reported. The 2005 sample covers major international airports served by scheduled airlines registered in 69 States, for which traffic data were available, that accounted for 91 per cent of scheduled services on international routes in terms of tonne-kilometres performed (TKPs). It covers 86 per cent of both international passengers carried and passenger-kilometres performed (PKPs). In terms of international freight traffic, scheduled airlines in participating States accounted again for both 80 per cent of freight tonnes carried and freight-tonne-kilometres (FTK) flown worldwide. It shows that the study is representative to give a 2005 global status report with a regional breakdown that indicate financial developments of airports, Air Navigation Services and airlines worldwide.

4. This report presents 2005 empirical results and works with indicators at the regional and global level. Changes over 2003 are reported where comparative indicators are produced. It does not concentrate on individual airports and comparisons between them. The confidentiality of data prevents that approach. Also, airports operate under different organizational structures, business models and ownership configurations. Another reason lies in incomplete data.

Income and expenses – Structure and trends

5. Airports are of strategic importance to the competitiveness of a wide range of industries and commercial enterprises. A corporation's ability to gain from international markets and business opportunities requires rapid movement of people and goods in spite of modern telecommunications. Ready access to efficient air services at conveniently located international airports can strongly influence a corporation's choice of location. Therefore, international airports are vital assets in the national and international competition of communities for multinational corporations and inward foreign direct investment.

6. Airports, for which income and expense data were reported, earned a total of US$ 45.5 billion and spent a total of US$ 37.5 billion on expenses. From the overall ratios of airport income and expenses at the global and regional levels shown in Table 1-1, it is apparent that airports were

2 Where consolidated data was provided for a group of airports it is possible that the group included airports serving domestic traffic only.

profitable in 2005. The income of all sample airports exceeded expenses by a ratio of 121 per cent, meaning that out of US$ 10.00 earned, airports spent US$ 8.26.

Table 1-1. Income and expenses by region – 2005

Regions	States	Airports	Total income (US$ millions)	Total expenses (US$ millions)	Average income per TU (US$)	Average expenses per TU (US$)
Asia and Pacific	14	86	6,764	5,126	9,652	7,313
Middle East and Africa	13	29	643	354	8,973	4,944
Europe	32	210	23,326	20,004	20,412	17,505
North America	3	53	13,524	11,271	10,026	8,355
Caribbean, Central and South America	10	32	1,092	787	7,978	5,753
Total sample	72	410	45,350	37,542	13,334	11,038

7. Table 1-2 indicates whether or not, and to what extent, the airports in the respective regions were profitable. Total income is calculated as a percentage share of total expenses. Losses were reported for 58 airports or 14 per cent of the sample. The income of 352 airports, or 86 per cent of the sample, exceeded their expenses in 2005. This compares to the 48 per cent of airports making losses and the 52 per cent gains in the 2003 study. In 2005, of all profitable airports, almost two-thirds (259) were in the bracket of 100-124 per cent, meaning their income marginally or moderately exceeded expenses. The overwhelming majority of profitable European (154) and North American (39) airports in the sample are found in the same bracket. The remainder are spread over the three other categories with higher income/expenses ratios. The distribution of profitable airports in the other regions has a wider spread, as shown in Table 1-2. As was the case in the previous studies, but to a lesser extent, some of the airports showing revenues that exceed expenses by 175 per cent or more, may not have reported all their expenses.

Table 1-2. Ratio of income and expenses by region – 2005

Regions	States	Airports	Airports with less income than expenses				Airports with income exceeding expenses				
			0-49%	50-74%	75-99%	Sub-total	100-124%	125-149%	150-174%	175% & over	Sub-total
Asia and the Pacific	14	86	0	2	9	11	48	12	8	7	75
Middle East and Africa	13	29	4	3	3	10	3	5	5	6	19
Europe	32	210	4	0	22	26	154	13	6	11	184
North America	3	53	0	0	5	5	39	4	1	4	48
Caribbean, Central and South America	10	32	1	0	5	6	15	4	2	5	26
Total sample	72	410	9	5	44	58	259	38	22	33	352

8. The financial situation of surveyed airports reveals economies of scale in that the volume of traffic has an impact on cost efficiency. Table 1-3 gives an overview of income and expenses per TU on an annual basis. One TU is defined as the equivalent of 1000 passengers plus 100 tonnes of freight and mail. Airports are categorized by four classes of TUs, ranging from very-low-traffic airports with less than 300 TUs to high-traffic airports with more than 25 000 TUs. Airports with less than 20 TUs were excluded in these calculations. For each class of airports, the average, minimum and maximum values are shown for TUs as well as for income and expenses per TU. The average income per TU reflects the demand side while the unit costs to produce one TU assess the supply side. Airports with very low traffic (average of 139 TUs) but high costs and diseconomies of scale were, on average, not even covering their costs of US$ 44 700 per TU, as they collected only US$ 40 500 per TU. The most cost-efficient and profitable airports were the 264 medium-size to large airports (2 500-25 000 TUs) in the sample. These airports with averages of 14 250 TUs earned around US$ 14 000 per TU and spent around US$ 10 400 per TU.

9. Looking at the profitability of the 39 very large airports (>25 000 TUs) in the sample with averages of 47 000 TUs per annum shows that from their average income of around US$ 13 200 per TUs US$ 11 000 expenses per TU had to be covered. The large airports include 23 large hub airports in North America, ranging, in ascending order of TUs, from Mexico City, Toronto, Washington Dulles (all around 28 000 TUs) to Atlanta Hartsfield Jackson (the busiest airport in the world) with over 93 000 TUs. This class of very large airports also includes the world's busiest international airports in other regions. In Asia/Pacific it includes airports in Kuala Lumpur (around 29 000 TUs), Guangzhou, Jakarta, Shanghai, Seoul, Bangkok, Singapore and Hong Kong (around 74 000 TUs). In Europe, it includes airports in Barcelona (about 28 000 TUs), Munich, Rome, Madrid, Amsterdam, Frankfurt, Paris and London (Heathrow 81 500 TUs). In spite of somewhat incomplete expense data for some airports or airport systems, these averages indicate the order of marginal costs to produce one TU in relation to traffic volume.

10. For the total sample, the average expenses per TU amounted to around US$ 11 038 TUs (see Table 1-1), very close to the average of very large and medium-size airports. It compares to US$ 11 954 in the 2003 survey, representing a decrease of 7.7 per cent. The average income per TU of all surveyed airports amounted to US$ 13 334 (see Table 1-1), in between the averages of very large and medium-size large airports. It compares to US$ 13 161 in the 2003 survey, representing an increase of 1.3 per cent. One could cautiously conclude that airports have managed to break even or be profitable by reducing unit costs while keeping revenues adjusted to the market. A closer look at the regional distribution of average income and expenses per TU (see Table 1-1) points to different business strategies and operating systems where services, such as ground handling, are either still an integral part of core business of the airport operators or outsourced to specialized companies. That explains, to a large extent, that 210 European airports in the sample earned, on average, US$ 20 412 and spent almost US$ 17 505 per TU, while the 53 mostly very large North American airports earned on average US$ 10 026 and spent US$ 8 355 per TU, closely followed by the 86 airports in Asia and the Pacific (US$ 9 652 and US$ 7 313, respectively).

Table 1-3. Income and expenses per TU by region – 2005

TUs Range	Airports	TUs			Income per TU (US$)			Expenses per TU (US$)		
		Average	MIN	MAX	Average	MIN	MAX	Average	MIN	MAX
<300	22	139	19	271	40,473	45	168,955	44,714	127	161,301
300-2500	63	1,155	338	2,500	22,423	646	92,207	19,338	235	89,610
2500-25000	264	14,239	2,776	24,539	13,970	244	124,558	10,361	166	33,790
>25000	39	46,995	25,295	93,187	13,165	3,826	30,642	11,006	2518	30,471
Total sample	388									

11. Operating subsidies were reported by 25 States for 202 airports or groups of airports. These included States with major aviation activities in all regions. In the 2003 survey, subsidies were reported by 27 States for 123 airports.

12. Income from ground handling charges was reported by 40 States for 274 airports or groups of airports from all regions, of which 8 States with 64 airports were located in Asia/Pacific and 23 States with 140 airports in Europe. The income from ground handling charges accounted, on average, for 13 per cent of the total income for these airports, which represents a slight increase over the previous survey (268 airports in 46 States averaged 9.5 per cent in 2003). Ground handling is traditionally performed by airlines themselves and airport authorities account for a comparatively small share of this function. A growing number of airport operators and airlines have out-sourced ground handling services; either they have established subsidiaries or contracted out to specialized companies. Several large airport operators in Europe still manage labour-intensive, ground handling operations themselves; for instance one major international airport employs some 10 000 workers just for this function.

13. More and more airport operators offer a full service environment to travelers, airport visitors and other parties, such as retailing, i.e. duty-free merchandise, business centres, catering and entertainment. These non-aeronautical activities, such as concessions and rentals, are not directly related to air traffic operations. In 2005 non-aeronautical revenues averaged 40 per cent of the total income of 402 airports in 71 States (41 per cent in the 2003 survey). If ground-handling would be included as non-aeronautical activity, the world average would increase to 47 per cent. As displayed in Table 1-4, the non-aeronautical share was highest in Asia and the Pacific, with an average of 46 per cent, followed by North America (43 per cent), Europe and Middle East/Africa (37 and 34 per cent, respectively). The Caribbean, Central and South America showed the lowest regional average (29 per cent). Evaluating the 34 major international airports in the sample with high traffic volume (more than 25 000 TUs) in Asia/Pacific, Europe and North America, the average share of non-aeronautical revenues in total income amounts to 46 per cent. The 24 airports with more than 25 000 TUs in the 2003 survey, had an average share of 53 per cent. Non-aeronautical revenues stagnated in recent years as a result of security-driven measures, affecting retail space design and passenger spending patterns with reduced pre-flight shopping time. It is noteworthy that North American airport operators do not provide air traffic services. As a result, their charges on air traffic operations are relatively lower and their shares of non-aeronautical revenues in total income are relatively higher.

14. Capital costs, including depreciation/amortization and interest payments were reported for 382 airports, or 93 per cent of the total airports covered. On average, capital costs accounted for 23 per cent of total airport expenses, down from 31 per cent in the 2003 survey. A comparison among the regions in Table 1-4 shows that the average share of capital costs were highest for airports in Asia/Pacific (32 per cent) and North America (28 per cent), almost unchanged over 2003. Africa/Middle East and Europe were

close to the global sample average (21 and 24 percent, respectively), while airports in the Caribbean, Central and South America ranked lowest (13 per cent). These averages have to be treated with some caution due to incomplete data. Depreciation and other capital costs, which are a major expense for capital-intensive enterprises, such as airports, were in many instances either not reported or in unexpectedly low amounts. Of particular interest, is the relationship between the share that capital costs constituted of total expenses and traffic volume. Again for the 34 major international airports in the sample (> 25 000 TUs), the share was 28 per cent.

Table 1-4. Components of income and expenses – 2005

Regions	States	Airports	Non-aeronautical in total income (percentage share)	Number of airports	Capital costs in total expenses (percentage share)
Asia and Pacific	14	86	46	81	32
Middle East and Africa	13	29	34	23	21
Europe	31	202	37	196	24
North America	3	53	43	52	28
Caribbean, Central and South America	10	32	29	30	13
Total sample	71	402	40	382	23

15. Capital investments were reported for 383 airports in 63 States (see Table 1-5). The gross capital investments for these airports amounted to US$ 18.3 billion or US$ 5 390 per TU in 2005. In 2003, reported investments at 385 airports amounted to US$ 17 billion or US$ 8 538 million per TU. The 32 large hub airports in the U.S. alone invested US$ 5 761 million which constitutes not only 86 per cent of investments and 90 per cent of traffic in the North American sample (including Mexico), but almost one third of investments and 36 per cent of traffic in the worldwide sample. Major investment programmes were also undertaken during 2005 by airports in Europe where 201 airports reported almost US$ 9 billion in investments. The regional average of around US$ 8 000 per TU masks a wide range of investment rates. On an individual basis of large (>25 000 TUs) and capital-intensive airports in Europe, the investment per TU ranks from US$ 5 800, close to the sample average, and US$ 9 500, close to the regional average, to US$ 28 000, over three times the European average. Airports in the Asia/Pacific region invested annually around US$ 4 000 per TU on average. Rates of its large international airports (>25 000 TUs) showed again more variance; depending on on-going expansion schemes, some rates were aligned with the regional average while others were almost double or triple that parameter. Airport infrastructure investments averaged at US$ 1 700-2 000 for the Caribbean, Central and South America and Middle East/Africa regions, respectively.

Table 1-5. Capital investments into airport infrastructure – 2005

Regions	States	Airports	Capital investments (US$ millions)	Capital investment per TU
Asia and the Pacific	12	79	2,339	3,909
Africa and the Middle East	10	26	117	2,074
Europe	30	201	8,931	8,085
North America	3	50	6,711	4,975
Caribbean, Central and South America	8	27	233	1,705
Total Sample	63	383	18,331	5,390

Employment

16. Forty-seven States provided information on airport employment covering 204 airports. The combined workforce at those airports amounted to over almost 175 000 staff members. Employment data by type of activity from 105 States reveals that the majority of employees, or 65 per cent, worked in aeronautical services. More than half of those 51 400 people worked for subcontracted services, for instance with airlines, while the airport operators employed the lesser half. A similar proportion, was found for the 28 200 people, or 35 per cent, engaged in non-aeronautical activities, such as ground-handling, fueling, parking and rentals. Again, more than half of that group worked for subcontractors, such as concessionaires, while the lesser half worked for the airport operators. The distribution of airport personnel into aeronautical versus non-aeronautical activities at the regional level shows a similar pattern of 2/3 versus 1/3 for Europe and the Caribbean, Central and South America. It shows a 50/50 split for Asia/Pacific and the Middle East/Africa regions. No results can be reported for North America, due to insufficient data.

17. In an attempt to roughly assess labour productivity, TUs per employee have been calculated. An average of 7 TUs per employee could be drawn for the total sample of airport employment. Regional differences show that labour productivity was highest in Asia and the Pacific, where airport employment required on average one employee per ten TUs compared to seven TUs in Europe. Airports in the Caribbean, Central and South America and Middle East/Africa needed relatively more labour for the same traffic volume, namely one employee for every 3.3 and 3.7 TUs, respectively. Again lack of data prevented the inclusion of North American airports in the analysis. Although the results vary widely between airports of similar dimensions, the assessment in terms of TUs handled confirms that larger airport operations employ more efficient systems that are less labour-intensive. On average, airports that handled between 10 000 and 25 000 TUs in 2005, employed one person for every 16 TUs. Of course, the largest airports in the world are run with the highest levels of efficiency. Airports with more than 25 000 TUs employed one person for the provision of aeronautical and non- aeronautical services related to every 25 TUs. Yet there is a wide range in labour productivity between airports of similar size based on the composition of traffic and services.

Chapter 2 – Financial Aspects of Air Navigation Services Operations

Survey coverage and analysis

18. The analyses in this chapter are based on 2005 financial data for air navigation services (Air Navigation Services) provided by 74 States of which traffic data was available for 67 States. The 2005 survey data compare well to the 2003 survey when 75 States reported financial data; traffic data were available for 73 States. The majority of Air Navigation Services providers covered in 2005 were located in Europe (38), followed by Asia/Pacific (13), Africa and the Middle East (12), Caribbean, Central and South America (8) and North America (2 – without United States).

19. Data were provided on ICAO Air Transport Reporting Form K – Air Navigation Services, Financial Data and Form L – En-route Services Traffic Statistics or in response to the questionnaire (see Appendix).

20. In 2005, airlines registered in the 74 reporting States (U.S.A. not participating) accounted for 67 per cent of the world traffic expressed in terms of tonne-kilometres performed (TKPs) flown and 59 per cent of passenger-kilometres performed (PKPs) on international routes of scheduled services. By comparison, in 2003 the airlines of 75 participating States represented 87 per cent of international traffic (TKPs).

21. The approach taken for the analysis of data is similar to airports in Chapter 1. Empirical results and indicators at the regional and global level are reported for 2005. Changes over 2003 are reported where comparative indicators are produced. It does not concentrate on individual air navigation services providers and comparisons between them. Not only does the confidentiality of data prevent that approach, but like airports, air navigation services providers also operate under different organizational structures, business models and ownership configurations. Another reason lies in incomplete data. In many instances, income or expense data were not reported for meteorological services or approach and aerodrome control. Often the same entity provided en-route services and aerodrome control, and thus, reported aggregated financial data for air navigation services.

Income and expenses – Structure and trends

22. The overall income/expense ratio was 105 per cent for US$ 13.1 billion income collected and US$ 12.5 billion expenses accrued by 65 air navigation services providers, not counting the four States, reporting extreme losses that would drop this overall ratio to 59 per cent. The average income per flight amounted to US$ 488 versus US$ 498 expenses for the 69 air navigation services providers for which both income and expense data were reported. Table 2-1 shows that income equaled or exceeded expenses for 51, or 74 per cent, of those States. This ratio remained almost unchanged compared to 2003, when income from air navigation services exceeded expenses in 78 per cent of sampled States. Two thirds of all air navigation services providers, which broke even or achieved a net surplus, were in the 100-124 per cent bracket. In Europe that group accounts for 85 per cent.

23. In 2005, air navigation services charges accounted, on average, for 91 per cent of the total income of 67 air navigation services providers for which this information was available, compared to 94 per cent in 70 States in 2003. Twenty-four States reported air navigation services charges as the only income source, compared to 25 in the 2003 survey.

24. The income from approach and aerodrome control charges accounted for 31 per cent of total income from charges for 42 air navigation services providers, compared to 19 per cent for

51 providers/States in 2003. Regional differences point to the highest shares recorded in Asia/Pacific and Africa/Middle East as well as North America (53 per cent and 40-42 per cent, respectively) and the lowest shares Europe and Caribbean, Central and South America, and Europe (around 22-23 percent). The continuous trend towards more States now applying approach and aerodrome control charges became apparent in 2003 over previous surveys carried out in 1989 and 1998.

Table 2-1. Ratio of route facility revenues and expenses by region – 2005

Regions	States	ANS with less revenues than expenses				ANS with revenues exceeding expenses				
		0-49%	50-74%	75-99%	Sub-total	100-124%	125-149%	150-174%	175 % & over	Sub-total
Asia and the Pacific	10	2	0	1	3	4	2	0	1	7
Africa and the Middle East	12	1	0	1	2	3	1	2	4	10
Europe	38	0	2	9	11	23	2	0	2	27
North America	1	0	0	0	0	1	0	0	0	1
Caribbean, Central and South America	8	1	1	0	2	2	1	2	1	6
Total Sample	69	4	3	11	18	33	6	4	8	51

25. Although the financial situation has not eased much since the economic difficulties faced by both airlines and air navigation services providers during the 2001-2003 period, it has improved over the past two decades. The improvement has taken place mainly in Europe and is primarily explained by the growing emphasis States at large are placing on recovering their air navigation services costs. Also of relevance is the regained growth in air traffic, and an increasing number of States that levy approach and aerodrome control charges. However, as with airport data, very high ratios of income over expenses may primarily depend on less complete identification and reporting of expenses than for income.

26. Depreciation and/or amortization accounted, on average, for 16 per cent of total expenses for 62 providers/States in 2005 for which these data were reported. This is a marked change from 2003 when, on average, 6 per cent depreciation was reported by 58 States. This may be due to the fact that major upgrading programmes of air navigation systems are on-going in several States. Moreover, the costs of depreciation and/or amortization were not reported by 16 States which participated in the survey. The unavailability of these data may hint at differences in accounting systems. In non-reporting States, this important cost item may be excluded from the established cost basis for their air navigation services charges. Henceforth, the building of reserves for facility renewal and system expansion is neglected.

27. From the data available on allocation of air navigation services expenses by function, en-route services absorbed, on average, 65 per cent of the costs, approach and aerodrome control services 28 per cent and other services 7 per cent. Analyzing air navigation services costs by category of services rendered in 46 States, air traffic management (ATM) and communications, navigation and surveillance (CNS) combined accounted, on average, for 86 per cent of total expenses; this major share reached 90 - 100 per cent in most States. Meteorological services (MET) made up 9 per cent of the air navigation services expenses in the reporting States, while aeronautical information services (AIS) and search and rescue (SAR) consumed about 4 per cent each. With regard to the recovery of costs of providing MET services, it appears that many States may not take these costs into account when establishing the cost basis for their air navigation services charges. The reason is probably that MET services are usually

performed by another branch of government or entity, separate from that involved in providing ATM and CNS services. The cost recovery for SAR services also varies from State to State.

28. In 2005, 38 States reported gross capital investments of air navigation services providers amounting to US$ 1.25 billion and corresponding to US$ 151 invested per flight. In 2003, 50 States reported US$ 1.1 billion in capital investments for air navigation services or US$ 37 per flight. This 2005/2003 change conforms to the higher costs reported in 2005 for depreciation and/or amortization. Capital spending in that order occurred in the late 1990 when, on average, US$ 139 per flight was recorded. For States classifying their capital investments (36 States), 94 per cent of the total was earmarked, on average, for Communication, Navigation and Surveillance/Air Traffic Management (CNS/ATM) Systems, unchanged from 2003. The split between CNS and ATM, however, reversed with the majority of 58 per cent going into CNS in 2005 compared to the minor share of 33 per cent in 2003. The remaining sectors attracted minor portions of investments made in 2005, namely 2.1 per cent went into meteorology, 1.4 per cent into search and rescue and 1.3 per cent into aeronautical information services.

Employment

29. Sixty-one States reported to employ cumulatively almost 133 700 staff members in their air navigation services. As shown in Table 2-2, analyzing the workforce of 37 States by type of service, reveals that the overwhelming majority (80 per cent) were engaged in ATM and CNS. In terms of regional differences, personnel employed in CNS/ATM activities have the highest shares in Asia/Pacific and Europe. For North America, the results are not considered representative due to critical data missing. While overall just 4.2 per cent of the total air navigation services personnel were employed in MET services, it was almost one in five staff members (19.2 per cent) in Africa and the Middle East. In an attempt to roughly assess labour productivity, the number of flights per employee has been calculated based on information provided by 52 States. On average, 507 flights were handled per employee compared to 412 flights per employee in 2003 when 56 States participated. Again, variations among the regions may reflect actual productivity gains but also reflect the impact of incomplete data, for instance for North America (United States not included).

Table 2-2. Employment and labour productivity by type of air navigation services and regions – 2005

Regions	Type of air navigation service (%)							Flights per employee
	ATM	CNS	ATM/CNS	MET	SAR	AIS	Other	
Asia and the Pacific	25.8	65.5	91.3	6.6	0.2	1.8	0.0	390
Africa and the Middle East	29.4	32.9	62.3	19.2	0.4	11.7	6.5	314
Europe	31.0	53.3	84.3	1.2	0.2	1.8	12.4	509
North America	27.7	3.5	31.2	3.2	6.6	2.6	59.0	1877
Caribbean, Central and South America	54.1	14.8	68.9	7.6	3.9	19.6	0.0	578
Total sample	30.4	50.7	81.1	4.2	0.4	3.5	10.7	507

ATM: Air traffic management *AIS: Aeronautical information service*
CNS: Communication, navigation and surveillance *MET: Meteorological services for air navigation*
SAR: Search and rescue
Other: Training, management, support and other personnel

Chapter 3 – Weight of Airport and Air Navigation Services Charges on Airline Expenses

Traffic development

30. Total scheduled airline traffic, measured in terms of tonne-kilometres performed (TKPs), grew at an average annual rate of 5.2 per cent between 1995 and 2005 and 1.9 percent from 2000 to 2005. Global airline traffic data for 1995 and the period 2000 –2005 are given in Table 3-1. Aircraft departures mirror traffic performance during the same periods growing at the low rates of 3.5 and 1.5 per cent, respectively. The weight load factor based on TKPs hardly grew since 1995 due to the excess capacity measured in tonne-kilometres available.

Table 3-1. Total revenue traffic of world's scheduled airlines – 1995, 2000–2005
(scheduled and non-scheduled operations for international and domestic services)

Category	Unit	1995	2000	2001	2002	2003	2004	2005	Average annual growth rate	
									1995-2005	2000-2005
Aircraft departures	Millions	17,595	21,420	21,500	20,490	22,092	23,754	24,904	3.5%	1.5%
Passengers carried	Millions	1,304	1,672	1,640	1,639	1,691	1,888	2,022	4.5%	1.9%
Freight tonnes carried	Millions	22.2	30.4	28.8	31.4	33.5	36.7	37.7	5.4%	2.2%
Total tonne-km performed	Millions	293,930	403,960	388,150	397,100	407,670	458,910	487,740	5.2%	1.9%
Total tonne-km available	Millions	510,750	694,080	695,660	397,131	407,704	738,747	780,417	4.3%	1.2%
Weight load factor	%	59.9	61.5	59.0	60.9	60.8	62.1	62.5	0.4%	0.2%

31. During the 1995-2005 decade, traffic (measured in TKPs) continued to grow initially based on a solid foundation of economic growth but slowed down in 1998 (1.3 per cent). The strong performance of the world economy in 1999 and 2000, led to a recovery in traffic growth, increasing by 6.3 and 9.1 per cent, respectively. The economic downturn and related decline in business and consumer confidence had a negative impact on traffic in late 2000 and in 2001, when the events of 11 September exacerbated the constraints. As a result, traffic declined in 2001 by 3.9 per cent. In 2002, demand for air travel remained depressed (PKPs grew at 0.5 per cent) and total traffic (TKPs) grew at 2.3 per cent mainly due to international trade and revived freight traffic (FTKs grew at 8.2 per cent). Only in 2004, traffic recovery gained strength, registering a growth of 12.6 per cent. The continued momentum and resilience of the improved global economic performance in 2005 led to a traffic growth of 6.3 per cent. However, the recovery from the dramatic decline in traffic performance in 2001, which is still reflected in the prolonged recovery from the financial losses incurred, dampened the average annual growth during the 2000-2005 period to a mere 1.9 per cent.

Airline financial results

32. The financial performance of the world's scheduled airlines is summarized in Table 3-2 for the reporting period. Over the 1995-2005 period, operating revenues increased at a lesser annual rate (4.5 per cent) than operating expenses (4.9 per cent). Consequently, the operating result scheduled carriers achieved worldwide during that decade averaged at only about US$ 2 billion or, expressed as a percentage of operating revenues, a low 0.6 per cent. From 2000 to 2005 it shrank to break-even, equivalent to -0.1 per cent. The actual losses made since 2001 become visible in the net result (profit or loss after income tax) that turned negative at US$ 6.2 billion lost annually on average from 2000-2005. Losses peaked in 2001 and 2002 at US$ 13 and 11.3 billion, respectively. Again, net results, expressed as a percentage of revenues, show a negative 1.4 and 1.9 per cent respectively over the two reporting periods.

Table 3-2. Financial situation of world's scheduled airlines – 1995, 2000 -2005
(scheduled and non-scheduled operations on international and domestic routes)

Category	1995	2000	2001	2002	2003	2004	2005	Average annual growth rate (%)	
								1995-2005	2000-2005
Total operating revenues (US$ millions)	267,000	328,500	307,500	306,000	321,800	378,800	413,300	4.5	4.7
Total operating expenses (US$ millions)	253,500	317,800	319,300	310,900	323,300	375,500	409,000	4.9	5.2
Operating result (US$ millions)	13,500	10,700	-11,800	-4,900	-1,500	3,300	4,300	n.a.	n.a.
Net result (US$ millions)	4,500	3,700	-13,000	-11,300	-7,560	-5,570	-3,200	n.a.	n.a.
Operating result in % of revenues	5.1	3.3	-3.8	-1.6	-0.5	0.9	1.0	n.a.	n.a.
Net result in % of revenues	1.7	1.1	-4.2	-3.7	-2.3	-1.5	-0.8	n.a.	n.a.

33. The financial results of scheduled airlines by regions in 2005 are shown in Table 3-3. The regional differences portray that airline industries of Asia/Pacific and Europe have been able to consolidate their financial situation while too many individual carriers are still struggling with loss making operations in spite of having regained traffic growth, particularly in North America.

Table 3-3. Traffic and finances of scheduled airlines by region – 2005
(scheduled and non-scheduled operations on international and domestic routes)

Region of airline registration	Tonne-km performed (Millions)	Tonne-km available (Millions)	Operating income (US$ Millions)	Operating revenues (US$ Millions)	Operating result (US$ Millions)	Operating result as % of revenues	Net result (US$ Millions)	Net result as % of revenues
Africa/ Middle East	36,193	62,700	25,720	25,701	19	0.1	-164	-0.6
Asia/Pacific	141,582	227,077	92,205	90,736	1,468	1.6	2,073	2.2
Europe	153,615	224,624	129,777	126,803	2,974	2.3	1,634	1.3
Latin America/ Caribbean	20,616	35,151	17,371	17,233	138	0.8	-52	-0.3
North America	163,530	273,699	148,185	148,460	-275	-0.2	-6,701	-4.5
Total	515,537	823,251	413,258	408,934	4,324	1.0	-3,210	-0.8

Airport and air navigation services charges

34. The costs of landing and associated airport charges[3] levied on the international and domestic services of the world's scheduled airlines are clearly linked to traffic. Table 3-4 shows airport and air navigation services charges as shares of total operating expenses (in current US$ and percentages) incurred by air carriers on scheduled services for 1995 and for the year 2000 through to 2005. Charges increased, on average, at 3.2 per cent on an annual basis over the 1995-2005 period. The much slower growth, at a 1.3 per cent rate from 2000-2005 reflects the impact of the decline in air services and slow recovery discussed under airline traffic and finances above. Moreover, airport managers had to react to airlines facing a severe event-driven crisis by monitoring and limiting, if not lowering, their charges. As a result, the share of both charges remained stagnant before reaching the low 6.2 per cent mark, composed of 3.8 per cent for airport charges and 2.4 per cent for air navigation services.

Table 3-4. Airport and air navigation services charges as airline expenses – 1995, 2000 - 2005
(total scheduled and non-scheduled operations for international and domestic services)

Item	1995	2000	2001	2002	2003	2004	2005	Average annual change	
								1995-2005	2000-2005
Landing and associated airport charges	11,440	13,490	12,660	12,440	12,987	14 650	15,542	3.1%	1.4%
Air navigation services charges	7,080	8,830	8,020	7,460	7,834	9 390	9816	3.3%	1.1%
Total airport and air navigation charges	18,520	22,320	20,680	19,900	20,821	24,040	25,358	3.2%	1.3%
Percentage of total operating expenses									
Landing and associated airport charges	4.5	4.2	4.0	4.0	4.0	3.9	3.8		
Air navigation services charges	2.8	2.8	2.5	2.4	2.4	2.5	2.4		
Total airport and air navigation charges	7.3	7.0	6.5	6.4	6.4	6.4	6.2		
Cents per tonne-km available									
Total operating expenses	48.5	44.2	44.5	43.6	44.2	50.8	52.4	0.8%	1.7%
Landing and associated airport charges	1.79	1.88	1.76	1.75	1.78	2.0	2.0	1.1%	0.6%
Air navigation services charges	0.73	1.23	1.12	1.05	1.07	1.3	1.3	5.6%	0.2%
Total airport and air navigation charges	2.52	3.11	2.88	2.79	2.85	3.3	3.2	2.6%	0.4%

35. In terms of unit costs, expressed as cents per available tonne-km, there is a slight 0.8 per cent increase annually in total operating expenses, starting at 48.5 cents in 1995 to 52.4 in cents in 2005. It is more pronounced at a 1.7 per cent rate over the last five years of that period. Changes in landing charges increased at 1.1 per cent from 1995 to 2005 but the average annual growth rate dropped to 0.6 per cent from 2000 to 2005, in view of the factors already discussed. This trend is even more significant for air navigation services charges, growing at a 5.6 and 0.2 per cent rate during the reporting periods, respectively. Thus, total charges grew 2.6 and 0.4 per cent during the ten and five-year period.

3 User charges paid directly by passengers to airports, which are substantial in global terms, are not included.

36. Overall, airport and air navigation services charges appear to have remained relatively low in terms of percentage share of airline expenses because of the rising prices of fuel and insurance. However, calculations prove that their shares remain low independently of these two cost factors. The reason can be attributed to a simultaneous rise of other expenses, such as general and administrative costs, that have increased at a faster rate than airport and air navigation services charges. While the rising shares of fuel, insurance and other components in airlines' operating expenses have to be taken into account, the relatively low level of charges reflect on the market-driven provision of services by airports and air navigation services providers and their reactive moderation in the revision of charges (or the actual reduction) during the last five years as air carriers were confronted with drastic traffic variations and resulting financial constraints.

37. Regional differences in charges, both for landing and associated airport services and air navigation services, are shown in Table 3-5 for 2003 and 2005. There is little change in the proportion these charges impacted on airline expenses since the previous survey for 2003. In 2005, North American carriers (U.S. did not participate) pay as little as 2.6 per cent of their operating expenses for both charges. Europe has, with 10.7 per cent, the highest proportion, closely followed by Africa/Middle East. The Caribbean, Central and South America are at 5.5 per cent, i.e. below the world average (6.2 percent), and Asia/Pacific with 8.1 per cent, above.

Table 3-5. Regional differences in airport and air navigation services charges – 2003 and 2005
(Percentage share in total operational expenses of scheduled air services)

Type of airline expenses►	Landing and associated airport charges (%)		Air navigation services charges (%)		Total airport and air navigation charges (%)	
Regions▼	2003	2005	2003	2005	2003	2005
Africa / Middle East	5.2	5.1	4.8	5.1	10.0	10.2
Asia / Pacific	5.4	5.7	2.2	2.4	7.6	8.1
Europe	5.4	5.8	4.3	4.9	9.7	10.7
Caribbean, Central and South America	2.6	2.5	2.6	3	5.1	5.5
North America	2.0	1.8	0.5	0.8	2.5	2.6
World	4.0	3.8	2.4	2.4	6.4	6.2

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APPENDIX

QUESTIONNAIRE

(distributed by State Letter EC 2/71-06/84 of 29 September 2006)

Reply to ICAO by 15 November 2006

State: _____

PART 1 - AIRPORTS[4]

FINANCIAL DATA (For 2005)

Note: Response to questions 1.1 to 1.4 need not be completed if ICAO Air Transport Reporting Form J – Airport Financial Data – for 2005 has already been filed with ICAO. Please refer to Form J for detailed reporting instructions.

Airport(s) _____

Year or 12 month period ended _____

Currency _____

1.1 **Income**

(a)	Air traffic operations (aircraft-related charges, passenger-related charges, and other charges)		_____
(b)	Ground handling charges		_____
(c)	Concessions, of which		_____
	fuel and oil	_____	
	duty-free shops	_____	
	automobile parking	_____	
(d)	Rentals		_____
(e)	Other revenues		_____
(f)	Operating subsidies (if any)		_____
(g)	Total income (sum of above)		_____

1.2 **Expenses**

(a)	Operation and maintenance (personnel costs, supplies, services contracted)	_____
(b)	Administrative overhead	_____
(c)	Other non-capital costs	_____
(d)	Capital costs (depreciation and/or amortization, interest, other capital costs)	_____
(e)	Total expenses (sum of above)	_____

4 Use a separate form for each airport or group of airports (a breakdown to individual airports in preferable.

1.3 **Capital investments**

Gross capital investments during the year _____

1.4 Please indicate whether all or nearly all the expenses associated with the airport areas or services listed below are included in the expense data reported above:

		All or Nearly All Expenses Included	
		Yes	**No**
(a)	Aircraft movement areas and their associated lighting	___	___
(b)	Passenger and cargo terminal facilities	___	___
(c)	Hangar and maintenance areas	___	___
(d)	Approach and aerodrome control (including communications, navigation and surveillance (CNS))	___	___
(e)	Meteorological services	___	___
(f)	Security	___	___
(g)	Crash, firefighting and rescue services	___	___

Staff

1.5 Please indicate the number of staff employed (converted to full-time staff) according to the following breakdown:

(a)	Staff directly employed by the airport entity for aeronautical activities[5]	_____
(b)	Other staff engaged in aeronautical activities (e.g. sub-contracting, air carriers)	_____
(c)	Staff directly employed by the airport entity for non-aeronautical activities	_____
(d)	Other staff engaged in non-aeronautical activities	_____
(e)	Total number of staff	_____

Comments:_____

_____

_____

5 Aeronautical activities are those activities which are related to the operation of air transport services, while non-aeronautical activities include all commercial activities at airports, such as shops, service activities, rentals of offices and other premises, free zones.

PART 2 - AIR NAVIGATION SERVICES

FINANCIAL DATA (For 2005)

Note: Response to questions 2.1 to 2.5 below need not be completed if ICAO Air Transport Reporting Forms K – Air Navigation Services Financial Data and L – En-route Services Traffic Statistics for 2005 have already been filed with ICAO. Please refer to forms K and L for detailed reporting instructions.

Financial Data - Revenues and expenses attributable to air navigation services

FIR(s)/UIR(s) (Flight information region(s)/upper flight information region(s)) covered:

_____

Year or 12 month period ended: _____
Currency: _____

2.1 **Revenues**

(a)	En-route services	_____
(b)	Approach and aerodrome control services	_____
(c)	Grants and subsidies	_____
(d)	Other revenues	_____
(e)	Total revenues (sum of above)	_____

2.2 **Expenses**

(a)	Operation and maintenance (e.g. staff, supplies, services, etc.)	_____
(b)	Administrative overhead	_____
(c)	Depreciation and/or amortization	_____
(d)	Interest	_____
(e)	Other expenses	_____
(f)	Total expenses (sum of above)	_____

Expenses by function

2.3 Please indicate allocation of expenses by function (amounts or percentages of total expenses):

(a)	En-route services	_____
(b)	Approach and aerodrome control services	_____
(c)	Non-aeronautical activities	_____

Expenses by service

2.4 Please indicate the estimated share (percentage or absolute figure) of the total expenses accounted for by the following major facilities and services:

(a)	ATM (Air traffic management)	_____
(b)	CNS (Communications, navigation and surveillance)	_____
(c)	MET (Meteorological services)	_____
(d)	SAR (Search and rescue services)	_____
(e)	AIS (Aeronautical information services)	_____

Capital investments

2.5 Please indicate gross capital investments during the year by service:

(a) ATM _____
(b) CNS _____
(c) MET _____
(d) SAR _____
(e) AIS _____
(f) Total _____

Staff

2.6 Please indicate the number of staff employed (converted to full-time staff) according to the following breakdown:

	En-route services	Approach and Aerodrome control services	Total
(a) ATM	_____	_____	_____
(b) CNS	_____	_____	_____
(c) MET	_____	_____	_____
(d) SAR	_____	_____	_____
(e) AIS	_____	_____	_____
(f) Total	____	_____	_____

TRAFFIC DATA (For 2005)[6]

FIR(s)/UIR(s) (Flight information region(s)/upper flight information region(s)) covered:

_____

Year or 12 month period ended: _____

2.7 Please provide below, by category, the number of IFR (Instrument Flight Rules) flights or other flights for which flight plans were filed with the respective area control centre(s) or flight information centre(s):

(a) International civil flights (including international general aviation) _____
(b) Domestic civil flights (including general aviation) _____
(c) Other flights (State, including military flights) _____
(d) Total flights (sum of above) _____

— END —

6 Only en-route traffic