Financial Situation of Airports and Air Navigation Services Providers

REPORT

2007

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Executive Summary

The study evaluates the financial situation of airports and air navigation services for the year 2007 based on a survey of ICAO Contracting States and territories[1] and the ICAO Statistics programme. Chapters 1 and 2 review the financial aspects of operations of airports and air navigation services and the related employment, respectively. Chapter 3 analyses airport and air navigation services charges as airline expenses.

Overall, airports were profitable in 2007 judging from the income/expense ratios at the global and regional levels. The income of all sample airports exceeded expenses by a ratio of 119 per cent, meaning that out of US$10.00 earned, airports spent US$8.40. The majority of sampled airports have obviously managed to break even or be profitable by managing unit costs and maximizing revenues in the non-aeronautical activities while benefiting from growing aeronautical revenues with growing traffic.

For the total sample, the average income/traffic unit (TU) amounted to US$14 903, close to the average of medium-size and large airports. The average expenses/TU amounted to US$12 584, close to the average of medium-size and large airports. Capital investments were reported for 336 airports and amounted to US$23.4 billion or US$6 529/TU in 2007. One of the factors behind the regional differences in the average of income/TU and expenses/TU are different business strategies and operating systems. For example, the range of non-aeronautical services varies largely; it may still include ground handling as part of the core business of airport operators or be out-sourced 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 53 per cent of the total income of 347 airports (84 per cent of all airports covered). For airports with a high traffic volume the non-aeronautical share averaged 50 per cent.

The financial situation of air navigation services providers (ANSPs) shows overall profitability. The income/expense ratio was 116 per cent for US$13.9 billion income collected and US$12 billion expenses accrued by 63 ANSPs in 2007. Gross capital investments amounted to US$2.2 billion, corresponding to US$40 invested per flight.

In 2007, air navigation services charges accounted, on average, for 91 per cent of the total income of 36 ANSPs. A breakdown for expenses was reported for 22 ANSPs and resulted, on average, in a 69 per cent share of aeronautical expenses in total expenses.

Total airport and air navigation services charges, calculated as unit costs in terms of cents per tonne-kilometre available (ATK), increased at an average annual rate of 2 per cent over the 1995-2005 period. These charges increased from 2.97 cents/ATK to 3.42 cents/ATK, equivalent to an average annual rate of 2.9 per cent over the 2001-2006 period, composed of a 3.5 per cent increase for landing and associated charges and 1.8 per cent for air navigation services charges.

In terms of percentage shares of total operating expenses of scheduled airlines, both charges remained at fairly stable levels in recent years; the former accounted for 4.1 per cent and the latter for 2.4 per cent in 2006. 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 reflect on the market-driven provision of services by airports and ANSPs in 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 412 airports or groups of airports[2] in 70 States and territories. The 2007 survey data compare well to the 2005 and 2003 surveys when financial and traffic data were available for 410 and 462 airports, respectively. The majority of airports covered in 2007 were located in Europe (172), followed by North America (43) and Asia/Pacific (60), while the Caribbean, Central and South America were represented by 84 airports and finally Africa and the Middle East by 52 airports. The ICAO Regional Air Navigation Plans listed over 1 343 airports open to international operations in 2007.

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 2/71-08/37, 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. This report presents 2007 empirical results and works with indicators at the regional and global level to the extent data coverage permits. It does not report on individual airports and comparisons between them. The confidentiality of data prevents that approach. Another reason that prevents comparisons between airports or groups of airports is that they operate under different organizational structures, business models and ownership configurations. Changes over 2005 and 2003 are reported just for orientation purposes to the extent data coverage permits. Caution is warranted towards comparative analysis between the surveys, both at the global and regional levels, as the surveys capture random samples. The sample populations, in terms of airports of reporting Contracting States, vary while incomplete data poses another constraint.

Income and expenses – Structure and trends

4. 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.

5. The continued establishment of autonomous entities for both airports and ANSPs and the involvement of private interests in airport operations strengthened the trend towards commercialization and mostly partial privatization. Common goals are good corporate governance, managerial efficiency, cost-effectiveness, service quality and financial viability. Blending corporate objectives of financial viability with profitability and accountability to shareholders seems to work well for autonomous entities, whether state-owned or privately-owned entities.

6. Airports, for which income and expense data were reported, earned a total of US$55.8 billion and spent a total of US$47 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 2007. The income of all sampled airports exceeded expenses by a ratio of 119 per cent, meaning that out of US$10.00 earned, airports spent US$8.40 compared to US$8.26 in 2005 when the income/expenses ratio of all sampled airports was 121 per cent. The majority of sampled airports have obviously managed to break even or be profitable by managing unit costs and maximizing revenues in the non-aeronautical activities while benefiting from growing aeronautical revenues with growing traffic.

Table 1-1. Income, expenses and capital investments of airports by region – 2007

Regions	States	Airports	Total			Average per traffic unit (TU)		
			Income (US$ millions)	Expenditures (US$ millions)	Investments (US$ millions)	Income (US$)	Expenses (US$)	Investments (US$)
Africa/Middle East	13	52	1 446	1 041	1 414	19 698	14 187	19 263
Asia/Pacific	18	60	11 575	8 236	6 873	13 876	9 874	8 239
Caribbean, Central-/ South America	9	84	1 717	1 610	196	11 840	11 103	1 352
Europe	28	173	23 302	20 609	7 642	20 221	17 884	6 631
North America	2	43	15 346	13 582	7 265	11 142	9 861	5 275
Total sample	70	412	53 386	45 078	23 390	14 903	12 584	6 529

7. The average income per traffic unit (TU) of all surveyed airports in 2007 amounted to US$14 903, close to the average of medium-size and large airports (see Table 1-3). One TU is defined as the equivalent of 1000 passengers plus 100 tonnes of freight and mail. The 2007 average compares to US$13 334 in the 2005 survey and US$13 161 in the 2003 survey, representing an increase of about 3.7 per cent per annum over the 4-year period. For the total sample, the average expenses per TU amounted to US$12 585, close to the average of medium-size and large airports (see Table 1-3). It compares to US$11 038 TUs in the 2005 survey and US$11 954 in the 2003 survey, representing a increase of 2.1 per cent per annum (2003/2007).

8. A closer look at the regional distribution of average income per TU and expenses per TU points to different business strategies and operating systems. For example, services, such as ground handling, are still an integral part of core business of many airport operators in Europe but largely outsourced to specialized companies in North America. That explains, to a large extent, that 210 European airports in the sample earned, on average, US$22 010 and spent almost US$19 245/TU, while the 43 mostly very large North American airports earned on average US$11 142 and spent US$9 861/TU. This compares to US$20 412/TU earned and almost US$17 505/TU spent for European airports in 2005 while Canadian, US and Mexican airports earned US$10 026/TU and spent US$8 355/TU. However, the most profitable airports were reported from Asia and the Pacific with US$13 876/TU earned and US$9 874 spent (US$9 652 and US$7 313, respectively, in 2005).

9. Table 1-1 shows also the capital investments reported for 336 airports in the sample amounted to US$23.4 billion or US$6 529/TU in 2007. In 2005, reported investments at 383 airports amounted to US$18.3 billion or US$5 390 million/TU while reported investments at 385 airports in 2003 amounted to US$17 billion or US$8 538 million/TU.

10. Major investment programmes were also undertaken in Europe and Asia/Pacific and North America (Canada and U.S.) in 2007. European airports (169) reported US$7.6 billion, Asian

airports (49) US$6.9 billion and North American US$7.3 billion (out of which US$6.5 billion were invested at 32 U.S. hubs) in capital expenditures, compared to US$9 billion, US$5.8 billion and US$2.3 billion, respectively, in 2005. The regional averages of US$7 642/TU in Europe, US$7 265/TU in North America and US$6 873/TU in Asia/Pacific mask wide ranges of investment rates for individual airports (US$8 931/TU, US$6 711 and 3 909/TU, respectively, in 2005).

11. 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 69 airports or 17 per cent of the 2007 sample. The income of 343 airports, or 83 per cent of the sample, exceeded their expenses in 2007. This compares to 14 per cent and 48 per cent of airports making losses, respectively in the 2005 and 2003 surveys and 86 and 52 per cent, respectively, making gains.

12. In 2007, as in 2005, two-thirds of all profitable airports (226 or 259, respectively) were in the bracket of 100 to 124 per cent, meaning their income marginally or moderately exceeded expenses. The overwhelming majority of profitable South American (67 or 15, respectively), European (111 or 154, respectively) and North American airports (38 or 39, respectively) in the 2007 sample are found in this bracket. The income/expenses ratios of profitable airports in the Africa/Middle East and Asia/Pacific regions have a wider spread. As was the case in the previous studies, some of the airports showing revenues, which exceed expenses by 175 per cent or more, may not have reported all their expenses.

Table 1-2. Ratio of airport income and expenses by region – 2007

Regions	States	Airports	Airports with less income than expenses				Airports with income exceeding expenses				
			0 to 49 %	50 to 74%	75 to 99 %	Sub-total	100 to 124%	125 to 149%	150 to 174%	175 % and over	Sub-total
Africa/Middle East	13	52	2	2	20	24	2	2	14	10	28
Asia/Pacific	18	59			4	4	8	14	18	15	55
Caribbean, Central-/ South America	9	85	1	5	3	9	67	4		5	76
Europe	28	173	3	4	23	30	111	20	7	5	143
North America	2	43	1		1	2	38	3			41
Total sample	70	412	7	11	51	69	226	43	39	35	343

13. 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, expenses and investment per TU of 317 airports on an annual basis. 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. The average income per TU reflects the demand side while the unit costs to produce one TU reflects the supply side. Airports with very low traffic (average of 112 TUs) but high costs and diseconomies of scale were, on average, not even covering their costs of US$98 880 per TU, as they collected only US$90 975 per TU. The most cost-efficient and profitable airports in the sample were the 49 very large airports (>25 000 TUs) with an average of 41 874 TUs that earned US$19 129/TU and spent US$15 231/TU. The 131 medium-size and large airports (2 500-25 000 TUs) with an average of 7 310 TUs earned US$15 460/TU and spent US$12 989/TU.

14. Among the large airports were some of the world's busiest airports, including 33 large hub airports in Canada and the U.S., Kuala Lumpur, Jakarta, Seoul, Bangkok, Singapore and Hong Kong in the Asia/Pacific region, and Munich, Rome, Madrid, Amsterdam, Frankfurt, Paris, London and Milan in Europe. 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. The average investment for very large and capital-intensive airports amounted to US$13 815/TU.

Table 1-3. Income, expenses and capital investments of airports per TU and region – 2007

			Average per traffic unit (TU)		
Traffic units Range	Airports	Average	Income (US$)	Expenses (US$)	Investments (US$)
<300	22	112	90 975	98 880	41 354
300-2500	115	1 116	22 048	20 951	8 934
2500-25000	131	7 310	15 460	12 989	3 423
>25000	49	41 874	19 129	15 231	13 815
Total sample	317				

15. In 2007, a total of US$875 million operating subsidies were reported by 16 States for 140 airports or groups of airports, compared to 25 States for 202 airports in 2005. States with major aviation activities from all regions were involved. In the 2003 survey, subsidies were reported by 27 States for 123 airports.

16. Income from ground handling charges, totaling US$2.6 billion, was reported by 36 States for 197 airports or groups of airports from all regions. It represented 5 per cent of the total income for these airports. Previous surveys counted 274 airports in 40 States with a 13 per cent share in 2005 and 268 airports in 46 States with a 9.5 per cent share in 2003. Ground handling services, traditionally performed by airlines and airport operators, are increasingly out-sourced; either to subsidiaries or 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.

17. More and more airport operators offer a full-service environment, which includes retail areas (duty-free and other merchandise), business centres, catering and entertainment, to travelers, airport visitors and other parties. These activities are not directly related to air traffic operations. In 2007, non-aeronautical revenues (income from concessions, rentals and miscellaneous) averaged 53 per cent of the total income of 347 airports (40 per cent and 41 per cent in the 2005 and 2003 surveys, respectively).

18. As displayed in Table 1-4, the non-aeronautical share was highest in Asia and the Pacific, with an average of 60 per cent, followed by North America (54 per cent), Europe (52 per cent), and the Caribbean, Central and South America (37 per cent). Africa and the Middle East showed the lowest regional average (28 per cent). 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.

19. The average share of non-aeronautical revenues in total income of major airports (with high traffic volume, defined as >25 000 TUs) in Asia/Pacific, Europe and North America amounts to 50 per cent in 2007. These engines of growth in the airport industry saw their non-aeronautical revenues recover in recent years, considering shares of 40 per cent and 53 per cent, respectively, in the 2005 and 2003 surveys. Intensified security measures, affecting retail space design and passenger flows may have had a potentially negative impact on pre-flight time and spending patterns for airport-based commercial activities.

20. Capital costs, including depreciation/amortization and interest payments were reported for 382 airports or 69 per cent of all airports covered. On average, capital costs accounted for 31 per cent of total airport expenses (23 per cent and 31 per cent, respectively, in the 2005 and 2003 surveys. A

comparison among the regions in Table 1-4 shows that the average share of capital costs was highest for airports in North America (44 per cent) and Asia/Pacific (32 per cent), an increase for both regions over 2005 and 2003. Africa/Middle East, Europe and Caribbean, Central and South America were between 21 and 24 per cent, respectively). 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 35 per cent compared to 28 per cent in 2005.

Table 1-4. Components of airport income and expenses – 2007

Regions	Airports	Non-aeronautical in total income (% share)	Airports	Capital costs in total expenses (% share)
Africa/Middle East	51	28	40	24
Asia/Pacific	52	60	50	32
Caribbean, Central-/South America	31	37	29	21
Europe	170	52	124	23
North America	43	54	43	44
Total sample	347	53	286	31

Employment

21. Fifty States reported airport-based employment with a combined workforce of more than half a million staff members. Employment data by type of activity show that the majority of employees, or 57.2 per cent, worked in aeronautical services of the airport operator and other air transport operators or subcontractors. The distribution of airport personnel into aeronautical versus non-aeronautical activities at the regional level shows majorities of aeronautical personnel at varying levels between Asia/Pacific, Europe and the Caribbean, Central and South America. The samples for Africa/Middle East and North America were too small for regional averages.

In an attempt to roughly assess labour productivity, TUs per aeronautical employee have been calculated for the total sample, averaging at 5.2 TUs per employee. Regional averages for Asia/Pacific, Caribbean, Central and South America and Europe are varying around this global average. Again, for Africa and North America, lack of data prevented the inclusion of airports in the regional analyses.

Chapter 2 – Financial Aspects of Air Navigation Services Operations

Survey coverage and analysis

22. The analyses in this chapter are based on 2007 financial data for air navigation services providers reported by 63 States. The participation by States in the 2007 survey data was slightly lesser than in the previous 2005 and 2003 surveys, covering 74 States and 75 States, respectively, mainly due to the shorter lead time allowed to report on financial results of their air navigation services operations. The majority of ANSPs in the 2007 sample were located in Europe (37), followed by Asia/Pacific (12), Africa and the Middle East (8), Caribbean, Central and South America (5) and North America (only Canada).

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

24. The approach for the analysis of ANSP 2007 data is comparable to the one taken for airports in Chapter 1. It does not report 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. Other reasons lie in the differences in the sample composition and incomplete data sets. For example, as with airport data, some ANSPs reported rather high ratios of income over expenses that may primarily be due to less rigorous identification and reporting of expenses compared with income.

25. Financial results are evaluated and indicators produced at the regional and global levels. Changes over previous surveys are reported as appropriate.

Income and expenses – Structure and trends

26. The 63 reporting ANSPs collected US$13.9 billion in revenues and accrued US$12 billion in expenses in 2007, with an income/expense ratio for the total sample of 116 per cent. In 2005, 65 ANSPs reported US$13.1 billion income and US$12.5 billion expenses, with a ratio of 105 per cent. Per flight, income averaged US$235 and expenses US$218 for the total sample. Table 2-1 shows the 2007 income, expenditures and capital investments of ANSPs and their averages per flight also by region.

27. Following the economic difficulties faced by both airlines and air navigation services providers during the 2001-2003 period, the overall financial situation of ANSPs is gradually improving with the regained growth in air traffic. Over the past two decades improvements have taken place as an increasing number of States levied approach and aerodrome control charges to recover their air navigation services costs, particularly in Europe.

28. In 2007, capital investments of ANSPs in 43 reporting States amounted to US$2.2 billion in total, averaging US$40 invested per flight or aircraft movement. In 2005 and 2003, capital expenditures for air navigation infrastructure of 38 and 50 reporting States, respectively, amounted to US$1.25 billion and US$1.1 billion, respectively, averaging US$151 and US$37 invested per flight, respectively. Capital spending in that order occurred in the late 1990s when, on average, US$139 per flight was recorded. By 2007, the average investment per operational unit came down again to the lower level of 2003.

Table 2-1. Income, expenditures and capital investments of ANSPs by region – 2007

Regions	States	Total			Average per flight		
		Income (US$ millions)	Expenditures (US$ millions)	Investments (US$ millions)	Income (US$)	Expenses (US$)	Investments (US$)
Africa/ Middle East	8	288	194	2	152	102	1
Asia/Pacific	12	2 684	1 642	776	253	247	117
Caribbean, Central-/ South America	5	640	633	205	153	152	49
Europe	37	9 159	8 473	1 142	270	250	34
North America	1	1 193	1 097	100	139	128	12
Total sample	63	13 965	12 039	2 225	235	218	40

29. Table 2-2 shows the ratio of route facility revenues and expenses by region for 2007. The overall ratio amounts to 116 per cent compared to 105 per cent in 2005. In 2007, 46 States, or 75 per cent of the total sample reported that the income of their ANSPs covered or exceeded expenses. This ratio remained almost unchanged compared to the previous surveys. Slightly less than two thirds of these ANSPs, which either broke even or achieved a net surplus, were in the 100 to 124 per cent bracket (66% in 2005). In Europe that group accounts for 78 per cent (85 per cent in 2005).

Table 2-2. Ratio of route facility revenues and expenses by region – 2007

Regions	States	ANSPs with less income than expenses				ANSPs with income exceeding expenses				
		0 to 49 %	50 to 74%	75 to 99 %	Sub-total	100 to 124%	125 to 149%	150 to 174%	175 % and over	Sub-total
Africa/ Middle East	8	0	1	1	2	0	1	2	3	6
Asia/Pacific	12	2	0	2	4	4	0	1	3	8
Caribbean, Central-/ South America	5	1	0	0	1	2	0	1	1	4
Europe	35	0	0	8	8	21	1	2	3	27
North America	1	0	0	0	0	1	0	0	0	1
Total sample	61	3	1	11	15	28	2	6	10	46

30. In 2007, as in 2005, air navigation services charges accounted, on average, for 91 per cent of the total income of 36 reporting ANSPs (67 in 2005). In 2003, 70 States reported aeronautical income that results in a 94 per cent share. A breakdown for expenses was reported by 22 States and resulted on average in a 69 per cent share of aeronautical expenses in total expenses.

31. Table 2-3 contains components of route facility income and expenses for the total sample and by region. Income from enroute services charges accounted for 78 per cent of the total income of 40 reporting States. Income from approach and aerodrome control charges accounted for 26 per cent of 35 reporting States (31 per cent for 42 reporting States in 2005 compared to 19 per cent for 51 States in

2003). The results from the two 2007 income components cannot be added up as they derive from different sample populations. The continuous trend towards the application of approach and aerodrome control charges by more States became first apparent in 2003 over previous surveys carried out in 1989 and 1998, respectively.

32. Evaluating the cost allocation by type of air navigation service reveals that the provision of enroute services required 53 per cent of total expenses whereas providing approach and aerodrome control services required 16 per cent of total expenses according to reports by 22 States (65 per cent and 28 per cent respectively in 2005).

33. The share of capital costs in total expenses was available from 45 States in 2007 and results in an average of 15 per cent of overall costs. Depreciation and/or amortization as well as costs for interest paid on capital accounted, on average, for 16 per cent of total expenses reported by 62 States in 2005. 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. Regional differences for both income and expense components are displayed in Table 2-3.

Table 2-3. Components of route facility income and expenses – 2007

Regions	ANSPs	Aeronautical in total income		ANSPs	Aeronautical in total expenses		ANSPs	Capital costs in total expenses (% share)
		En-route (% share)	Approach (% share)		En-route (% share)	Approach (% share)		
Africa/ Middle East	1	10	13	1	10	n.a.	3	2
Asia/Pacific	5	39	36	4	39	35	11	21
Caribbean, Central-/ South America	4	43	21	4	43	58	4	19
Europe	29	64	17	29	64	12	26	18
North America	1	51	37	0	n.a.	n.a.	1	19
Total sample	40	78	26	22	53	16	45	15

34. Table 2-4 shows the cost allocation for air navigation services by function as percentage shares of total cost reported for this split for all reporting States and by region (except North America for which data were not available). For the total sample, the shares add up to more than 100 per cent because the sample populations reported costs for varying combinations of functions. Air traffic management (ATM) clearly takes the lead with, on average, 73 per cent for the total sample complemented by 17 per cent for communications, navigation and surveillance (CNS). Meteorological services (MET) made up 6 per cent of the air navigation services expenses, while aeronautical information services (AIS) and search and rescue (SAR) consumed about 4 per cent and 1 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.

Table 2-4. Air navigation services expenses by function and region – 2007

Regions	Total US$ (000)	Air navigation services functions (% share)				
		ATM	CNS	MET	SAR	AIS
Africa/ Middle East	40 721	60	20	0	15	5
Asia/Pacific	903 987	37	40	10	1	12
Caribbean, Central-/ South America	614 928	63	18	11	2	6
Europe	6 264 379	79	14	4	0	3
Total sample	7 824 015	73	17	6	1	4

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

35. Table 2-5 shows the allocation of capital expenditures for air navigation services by function as percentage shares of capital investments reported. Air traffic management (ATM) clearly takes the lead with, on average, 37 per cent for the total sample complemented by 31 per cent for communications, navigation and surveillance (CNS). Meteorological services (MET) made up 9 per cent of air navigation infrastructure investments, while aeronautical information services (AIS) consumed about 5 per cent.

Table 2-5. Investments into air navigation infrastructure by function and region – 2007

Regions	Total US$(millions)	Air navigation services functions (% share)				
		ATM	CNS	MET	SAR	AIS
Africa/Middle East	2	n.a.	n.a.	n.a.	n.a.	n.a.
Asia/Pacific	776	34	58	1	0	7
Caribbean, Central-/ South America	205	91	7	1	1	0
Europe	1 142	33	20	16	0	5
North America	100	n.a.	n.a.	n.a.	n.a.	n.a.
Total sample	2 225	37	31	9	0	5

Employment

36. Sixty-two States reported to employ cumulatively almost 150 000 staff members in their air navigation services. As shown in Table 2-6, analyzing the workforce by type of service, to the extent data was made available, reveals that the majority (64.2 per cent) were engaged in ATM and CNS. In

terms of regional differences, the majority of personnel were employed in CNS/ATM activities in all regions, led by Europe (74.1 per cent). For North America, the results are not considered representative due to critical data missing. Overall, out of the total air navigation services personnel reported, 7.4 per cent were employed in MET services, 2.4 per cent in SAR, 5.6 per cent in AIS and 20.4 per cent in other activities.

37. In an attempt to roughly assess labour productivity, the number of flights per employee has been calculated, to the extent data was made available, resulting in 402 flights handled per employee. Again, variations among the regions may reflect actual productivity differences but also reflect the impact of incomplete data.

Table 2-6. Employment and labour productivity by air navigation services and regions – 2007

Regions	No. of States	Total no. of staff	Distribution by air navigation services (%)							No of flights per staff
			ATM	CNS	CNS/ATM	MET	SAR	AIS	Other	
Africa/Middle East	3	3 293	43.4	16.8	60.2	3.1	20.9	5.1	10.7	213
Asia/Pacific	13	28 675	33.1	26.2	59.3	9.2	0.1	6.8	24.7	686
Caribbean, Central-/ South America	6	17 843	28.3	21.9	50.2	13.2	11.8	4.0	20.9	456
Europe	38	60 318	48.6	25.5	74.1	4.1	1.7	4.6	15.5	328
North America	2	37 964	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total sample	62	148 093	38.9	25.3	64.2	7.4	2.4	5.6	20.4	402

Chapter 3 – Airport and Air Navigation Services Charges as Airline Expenses

38. 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 3-1 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 years 2000 through to 2006 (the most recent year for which data were available). Total traffic for scheduled airlines grew by 6 per cent in 2006/2005 when the percentage share of total airport and air navigation services charges in airline expenses increased from 6.2 to 6.5 per cent, due to the increase in landing and associated airport charges from 3.8 to 4.1 per cent. Since the calculations are in US dollar, exchange rate fluctuations factor in. For those regions where the currencies appreciated markedly against the US dollar, the cost would occur higher when expressed in US dollars than actually incurred for airlines concerned, for instance in Europe.

39. In terms of unit costs, expressed as cents per available tonne-km, total airline operating expenses increased by just 0.2 per cent annually over the decade, starting at 48.5 cents in 1995 to 49.7 in cents in 2005. The five-year period from 2001 to 2006 saw a 2.8 per cent increase, which reflects the gradual recovery in traffic growth and an increase in factor costs. Over the same period, landing charges

Table 3-1. Airport and air navigation services charges as airline expenses – 1995, 2000 - 2006
(total scheduled and non-scheduled operations for international and domestic services)

Item	1995	2000	2001	2002	2003	2004	2005	2006*	Average annual change (%)	
	Airline expenses *Operating expenses in US dollars*									
Landing and associated airport charges	11 440	13 490	12 660	12 440	12 987	14 650	15 542	18 460		
Air navigation services charges	7 080	8 830	8 020	7 460	7 834	9 390	9 820	10 800		
Total airport and air navigation charges	18 520	22 320	20 680	19 900	20 821	24 040	25 342	29 260		
	Percentage of total operating expenses									
Landing and associated airport charges	4.5	4.2	4.0	4.0	4.0	3.9	3.8	4.1		
Air navigation services charges	2.8	2.8	2.5	2.4	2.4	2.5	2.4	2.4		
Total airport and air navigation charges	7.3	7.0	6.5	6.4	6.4	6.4	6.2	6.5		
	Cents per tonne-km available								*1995-2005*	*2001-2006*
Total operating expenses	48.5	44.2	45.9	44.6	45.1	47.7	49.7	52.6	0.2	2.8
Landing and associated airport charges	1.79	1.88	1.82	1.79	1.80	1.86	1.89	2.16	0.5	3.5
Air navigation services charges	0.73	1.23	1.15	1.07	1.08	1.19	1.19	1.26	5.0	1.8
Total airport and air navigation charges	2.52	3.11	2.97	2.86	2.88	3.05	3.08	3.42	2.0	2.9

* preliminary estimates

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

increased by 3.5 per cent while air navigation services charges increased by 1.8 per cent. Overall, total airport and air navigation services charges increased at a 2.9 annual rate from 2001 to 2006 compared to a 2 per cent rate from 1995-2005.

40. Overall, airport and air navigation services charges appear to have remained relatively low in terms of percentage share of airline expenses due to 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.

41. Regional differences in charges, both for landing and associated airport services and air navigation services, are shown in Table 3-5 for 2003, 2005 and 2006 (the most recent year for which data were available). Globally, these charges impacted airline expenses relatively little since the previous surveys for 2003 and 2005. In 2006, North American carriers (U.S. did not participate) incurred as little as 3 per cent of their operating expenses for both charges, while European carriers incurred a 10.9 per cent share, the highest proportion, closely followed by Africa/Middle East. In between, the Caribbean, Central and South America were at a 5.5 per cent share and Asia/Pacific at a 7.9 per cent share.

Table 3-2. Regional differences in airport and air navigation services charges – 2003, 2005 and 2006
(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	2006	2003	2005	2006	2003	2005	2006
Africa / Middle East	5.2	5.1	5.0	4.8	5.1	5.4	10.0	10.2	10.2
Asia / Pacific	5.4	5.7	5.6	2.2	2.4	2.4	7.6	8.1	7.9
Europe	5.4	5.8	6.1	4.3	4.9	4.9	9.7	10.7	10.9
Caribbean, Central and South America	2.6	2.5	2.3	2.6	3.0	3.0	5.1	5.5	5.4
North America	2.0	1.8	1.8	0.5	0.8	1.1	2.5	2.6	3.0
World	4.0	3.8	4.1	2.4	2.4	2.4	6.4	6.2	6.5

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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