International Civil Aviation Organization

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WORKING PAPER

ASSEMBLY — 38TH SESSION

ECONOMIC COMMISSION

Agenda Item 43: Aviation Data — Monitoring and Analysis

ICAO STATISTICS PROGRAMME

(Presented by the Council of ICAO)

EXECUTIVE SUMMARY

This working paper reports on activities related to the ICAO Statistics Programme which provides Members States, the air transport industry, and the civil aviation community at large with reliable statistical data in accordance with the provisions of Appendix B of Assembly Resolution A37-20: *Consolidated statement of continuing ICAO policies in the air transport field*.

Action: The Assembly is invited to:

a) review the information and assessment presented in this paper;
b) endorse the Organization's plan of future work in the field of statistics as presented in paragraph 5; and
c) consider the information contained in this paper for the update of Assembly Resolution A37-20.

Strategic Objectives:	This working paper relates to Strategic Objectives C — *Environmental Protection and Sustainable Development of Air Transport.*
Financial implications:	The activities referred to in this paper will be undertaken subject to the resources available in the 2014–2016 Regular Programme Budget and/or from extra budgetary contributions.
References:	A38-WP/55, Consolidated statement of continuing ICAO policies in the air transport field Doc 10008, *Report of the Economic Commission of the 37th Session of the Assembly* Doc 9958, *Assembly Resolutions in Force* (as of 8 October 2010) Doc 9932, *Report of the Tenth Session of the Statistics Division* Doc 9060, *Reference Manual on the ICAO Statistics Programme*

1. BACKGROUND

1.1 The need for complete, comprehensive and reliable aviation statistics is recognized by the Chicago Convention in 1944; Article 67 defines the ICAO mandate to undertake the collection of data from Contracting States. In parallel, Article 54 requires that the Council request, collect, examine and publish information relating to the operation of international air services, while Article 55 stipulates that the Council may conduct research into all aspects of air transport which are of international importance. The wide-ranging scope of the ICAO Statistics Programme provides support to all aspects of the work of ICAO and thus reaffirms the importance of strategic economic analysis and statistical data.

1.2 In Article XIII, *Statistical Services*, of the agreement between the United Nations (UN) and ICAO as a Specialized Agency of the UN, both Organizations agree to combine efforts for an effective statistical data collection in order to avoid duplication of efforts and to minimize the burdens placed upon States. The UN recognized ICAO as the central agency responsible for the collection, analysis, publication, standardization, improvement and dissemination of statistics pertaining to civil aviation. It is noteworthy that the assessment of Member States is based on the UN rating system but also takes into account traffic statistics.

2. ICAO'S WORK IN STATISTICS

2.1 The Secretariat has continued to implement the recommendations and conclusions of the Tenth Session of the Statistics Division (STA/10), which was held in Montréal from 23 to 27 November 2009. These 27 Recommendations and Conclusions are documented in the *Report of the Tenth Session of the Statistics Division* (Doc 9932).

2.2 Regarding the ten Recommendations and Conclusions of STA/10 specifically related to statistical forms, the changes to the current forms have been implemented and new data forms, notably on fuel consumption (Form M), have been introduced. A State letter (SD 13/1-11/66 dated 19 August 2011) informed States that implementation of the new and revised forms of the ICAO Statistics Programme would become effective 1 January 2012. A new edition of the *Manual on the ICAO Statistics Programme* (Doc 9060), now entitled *Reference Manual on the ICAO Statistics Programme*, incorporating the new features of the ICAO Statistics Programme, has been developed and will be available in the second half of 2013.

2.3 With respect to the two Recommendations relating to the introduction of a new form on accidents and serious incidents of civil aircraft, action has been deferred as a result of revisions to existing safety data collection processes.

2.4 Based on a prioritization assessment, budgetary constraints and recent developments in the Organization's work, some recommendations have yet to be implemented. In this regard, revised proposals will be presented to the Fifteenth Meeting of the Statistics Panel (STAP/15) for review and consideration.

2.5 Upgrades to the Integrated Statistical Database (ISDB) continued over the past three years and data processing functions were further automated. Synchronization of reference codes supported efforts to ensure consistency among various ICAO databases.

3. PROMOTION AND DISSEMINATION

3.1 Release of the new ICAO Statistical online platform: ICAO*data*+

3.1.1 The dissemination of data collected under the ICAO Statistics Programme has been enhanced with the new online platform **ICAO*data*+**, a user-friendly tool which enables users to adjust the graphical representation of the data according to need **(**http://stats.icao.int). It provides also a global comparative aviation data tool that meets the requirements of internal and external users. Six modules of **ICAO*data*+** are now available: air carrier traffic, traffic by flight stage, air carrier finances, airport traffic, on-flight origin and destination and air carrier fleet and personnel. **ICAO*data*+** is available free-of-charge to the statistical focal points of Member States. Two additional levels of accessibility have been developed in order to offer analytical options to external users on a yearly subscription basis.

3.2 Development of indicators

3.2.1 Main key air transport indicators for internal use (Appendix A) and monthly monitoring sheets have been regularly developed (Appendix B). Both provide snapshots and analyses of economic and aviation indicators at a State or global level. New indicators and analyses have been posted on the ICAO website (http://www.icao.int/sustainability/Pages/FactsFigures.aspx); some extracts are presented in Appendix C.

3.3 Hands-on training sessions

3.3.1 To support the implementation and deployment of the recommendations of STA/10, the following four hands-on training sessions on statistics were conducted at ICAO Headquarters: African States (November 2011 and June 2012); Member States of the Latin American Civil Aviation Commission (LACAC, September 2012); and Member States of the Arab Civil Aviation Commission (ACAC, November 2012). Practical experience in applying statistical methods for the completion of statistical forms was provided to State representatives in order to familiarize participants with the revised ICAO Statistics Programme and to provide technical assistance in the reporting process.

3.3.2 In cooperation with CAE[1], ICAO has developed a set of air transport e-learning statistical courses (www.icao.caelearning.com). These courses cater to planners and managers of all air transport stakeholders.

3.4 Revenue Generating activities

3.4.1 Positive feedback has been received from various users of the ICAO Statistics Programme indicating this programme is a unique and accurate source of data collection. The direct commercialization of the statistics collected, combined with the outsourcing of sales to third-party users, has generated approximately CAD 400 000 of gross revenues in 2011 and 2012.

3.5 Other Activities

3.5.1 Apart from contributions to various international fora, several States and bodies in the UN system continue to be provided with ICAO aviation statistics, including statistical publications of the regional economic commissions. ICAO, an Observer of the UN Statistical Commission, has participated in the last two sessions of the Commission.

[1] A major international provider for aviation training services

4. THE ICAO CO_2 REPORTING AND ANALYSIS SYSTEM (ICORAS) PROJECT

4.1 Pursuant to a request from the 37th Session of the ICAO Assembly, the Secretariat initiated development of the ICAO CO_2 Reporting and Analysis System (ICORAS). The system is used to integrate fuel burn and traffic data reported by Member States, which is further supplemented by various sources of data in order to deliver accurate estimates of CO_2.

4.2 The key to success for the ICORAS project is the timely receipt of accurate fuel consumption data from States through Air Transport Reporting Form M – Fuel Consumption and Traffic. This form is a unique data source since it contains measured fuel burn by aircraft type for each reporting air carrier covering both scheduled and non-scheduled international operations. ICAO has currently received Form M from 55 States whose air traffic represents approximately 50 per cent of global international RTK, 80 per cent of which has been validated.

4.3 The very preliminary results from ICORAS are presented in Appendix D.

5. FUTURE WORK

5.1 With a view to advancing its Strategic Objectives, the Organization plans to conduct its work in the area of air transport statistics in the manner presented below.

5.2 The Organization will collect, analyse and disseminate statistics that are required in monitoring trends and conducting studies for the benefit of States and the aviation community at large.

5.3 The Organization will cooperate with States, international organizations and all industry stakeholders in sharing statistics that are of common interest in the air transport field.

5.4 Support to air navigation capacity and infrastructure planning, environmental analyses and oversight of the efficiency of the global air transport system will be provided by collecting, analyzing, and disseminating statistics, such as fuel consumption data. For harmonization purposes, this support will be provided by taking into account the need for pooling resources and avoiding duplication of efforts, while maintaining a single harmonized set of ICAO aviation data.

5.5 The upcoming Statistics Panel (STAP/15) meeting will be convened during the second quarter of 2014 to examine aviation data issues at large with the objective of ensuring that all ICAO data tools meet the needs of users and to review the implementation plan of STA/10 Recommendations.

5.6 The Organization will enhance its ability to develop key air transport indicators on a regular basis.

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APPENDIX A

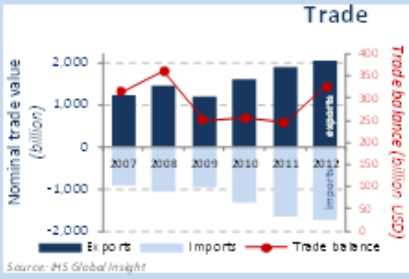
State A - ATB Brief - Economic issues

Economic Indicators

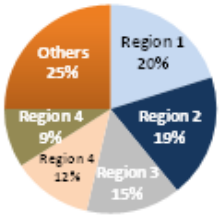
Economic growth

*Special Administrative Region
Source: IHS Global Insight

Trade



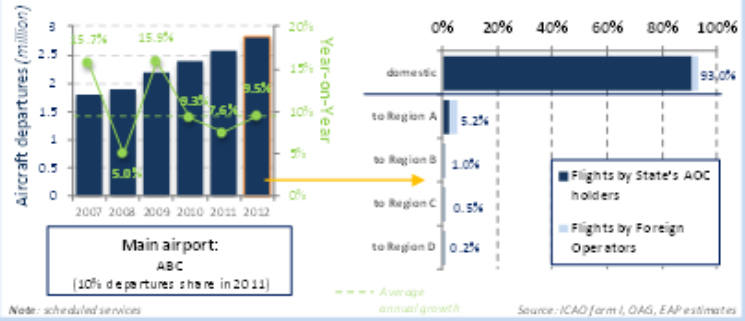
Source: IHS Global Insight



Exports by value (2011)
Source: European Commission

Aviation Indicators

State's airport traffic



Main airport:
ABC
(10% departures share in 2011)

Average annual growth

Note: scheduled services
Source: ICAO form I, OAG, EAP estimates

State's operator traffic

Main operator:
AA Airline (22.5% RPK share in 2011)
406 aircraft, orders: 13
40% Boeing 54% Airbus 6% Embraer

Average annual growth

Source: ICAO Form A, airlines websites

Reporting status

- State A is submitting in a timely and accurate manner the airline and airport statistics requested (except form M).
- State A has not reported form M on air carrier fuel burn.
- DOC 7100: State A reported charges data in a timely and accurate manner.

2011 State's operator key figures

292 million *passengers (+9.7% YoY)*

81.8% *passenger Load Factor*

5.5 million *tonnes of freight*

Note: scheduled services

Analysis

Hidden

Air Transport Regulation

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Hidden

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APPENDIX B

Air Transport Monthly Monitor
March 2013

ATB/EAP

WORLD KEY FIGURES	JAN 2013	RPK ⬆ +2.7% (vs. Jan. 2012)	ASK ⬆ +2.2% (vs. Jan. 2012)	LF ⬆ +0.5 pt (vs. Jan. 2012)	FEB 2013	ASK ⬆ +0.9% (vs. Feb. 2012)

Analysis

World figures (JAN 13)

World passenger traffic grew +2.7% in Jan 2013 compared to Jan 2012. Capacity grew at +2.2%. We anticipate a low year-on-year traffic growth of **+0.9% in ASK for Feb 2013**, mainly explained by the leap year in 2012.

In Jan 2013 and for the full-year 2012, international passenger markets grew faster than domestic ones. Compared to Jan 12, **international traffic grew at +3.7% in Jan 13** and we can expect that international tourist arrivals follow the same monthly trend.

Top 15 airlines (FEB 13)

In terms of RPK, **9 airlines showed a positive** growth in February 2013 compared to last year. **Chinese carriers performed healthy growth rates**, with a maximum for **China Eastern of +28.9%**, mainly due to the Chinese new year that fell in January last year and in February this year. Cathay recorded the first positive growth since September 2012. Those positive results compensate the negative growth recorded in Jan 13 for Chinese airlines. **Emirates** is estimated to have increased by +15.9% year-on-year. **British Airways** recorded a good performance at **+5.1%**, having completed BMI acquisition during 2012. The largest decrease is recorded by **United, the world largest carrier, with a -3.4%** growth rate in Feb 13, whereas the airline showed a +0.9% increase in Jan 13. **LATAM** (merger of LAN airlines and TAM airlines) is the only Latin American group being part of the top 15 airlines and recorded a **+4.3% increase in Jan 13**.

Top 15 airports (JAN 13)

11 airports showed negative growth in Jan 13. **The fastest** growth was recorded by **Dallas** (+5.8%) which performed healthy growth rates since November 2012. **Charlotte** (+1.4%), **Toronto** (+1.4%) and **Beijing** (+1.2%) recorded also positive growth rates. **The largest decrease** was performed by **European airports** such as **Frankfurt** (-6.8%), **London** (-5.6%) and **Paris** (-5.5%). We can attribute those declines to the **reduction in flight offers** implemented by many airlines for the winter 2012/13 timetable as well as **weather-related cancellations**.

Regionally (JAN 13)

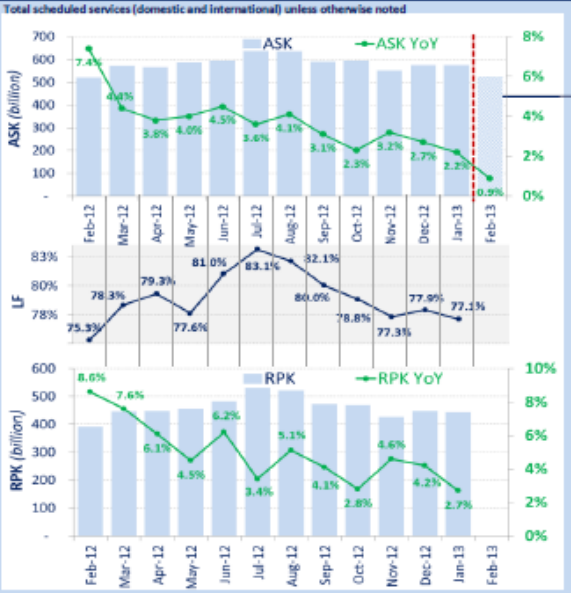
Airlines from **Asia/Pacific account for 33%** of the worldwide capacity (ASK) and **grew at +4.3%** compared to Jan 2012. **Middle East** recorded a **+10.4% growth rate**, being the fastest growing region. **Europe** 's traffic capacity **declined** in Jan 2013. Latin Amercia/Caribbean recorded a healthy gowth rate of **+6.3%** while North America showed a slight increase of **+1.5%** during Jan 2013.

Outlook (MAR 13)

Based on OAG, we anticipate a **+4.1% growth rate in ASK in March 2013**.

Air Transport Indicators

Total scheduled services (domestic and international) unless otherwise noted



Feb 2013 — **Top 15 airlines**

	RPK (billion)	YoY
United	22.1	-3.4%
Delta	20.4	-2.2%
AF-KLM	15.8	-0.1%
American Airlines	15.7	-1.1%
Emirates*	15.5	15.9%
China Southern	11.9	18.0%
Southwest Airlines	11.4	-2.3%
Air China	11.2	14.8%
China Eastern Airlines	10.0	28.9%
Lufthansa	9.5	-1.0%
British Airways	8.9	5.3%
LATAM	8.5	4.3%
Cathay Pacific group	7.9	1.8%
Singapore Airlines	7.2	5.1%
US Airways	7.1	2.2%

Jan 2013 — **Top 15 airports**

Airport	Departures	YoY
Atlanta, GA US (ATL)	37 278	-0.2%
Chicago, IL US (ORD)	33 897	-0.1%
Dallas Fort Worth TX, US (DFW)*	27 880	5.8%
Los Angeles, CA, US (LAX)	24 156	-2.3%
Denver, CO US (DEN)	23 928	-3.4%
Beijing, CN (PEK)	22 845	1.2%
Charlotte NC, US (CLT)	22 598	1.4%
Houston TX, U S (IAH)	20 597	-3.4%
Las Vegas NV, US (LAS)	20 164	-2.9%
Phoenix AZ, U S (PHX)	18 494	-3.0%
London, GB (LHR)	18 436	-5.6%
Paris, FR (CDG)	18 417	-5.5%
Philadelphia PA, US (PHL)	17 901	-1.3%
Toronto ON, CA (YYZ)	17 858	1.4%
Frankfurt, DE (FRA)	17 546	-6.8%

Capacity by region

	Jan-13 ASK (billion)	%	YoY	YTD ASK (billion)	%	YoY
ASIA/PACIFIC	187	33%	⬆ 4.3%	187	33%	⬆ 4.3%
NORTH AMERICA	144	25%	⬆ 1.5%	144	25%	⬆ 1.5%
EUROPE	141	25%	⬇ -1.1%	141	25%	⬇ -1.1%
MIDDLE EAST	50	9%	⬆ 10.4%	50	9%	⬆ 10.4%
LATIN AMERICA/CARIBBEAN	35	6%	⬆ 6.3%	35	6%	⬆ 6.3%
AFRICA	16	3%	N/A	16	3%	N/A

Note: expressed in terms of ASK by airline domicile

* Source: OAG+ICAO estimates

Sources: ICAO, IATA, OAG, ACI, UNWTO, airlines and airports websites

APPENDIX C

The World of Civil Aviation: Facts & Figures

2.9 billion — *Passengers carried in 2012** — *+5.0% growth rate vs. 2011*

→ **6.3 billion** — *Forecasted passengers carried in 2030* — *+4.5% average annual growth rate*

31 million — *Aicraft departures in 2012** — *+1 million vs. 2011*

→ **59 million** — *Forecasted aicraft departures in 2030* — *+3.6% average annual growth rate*

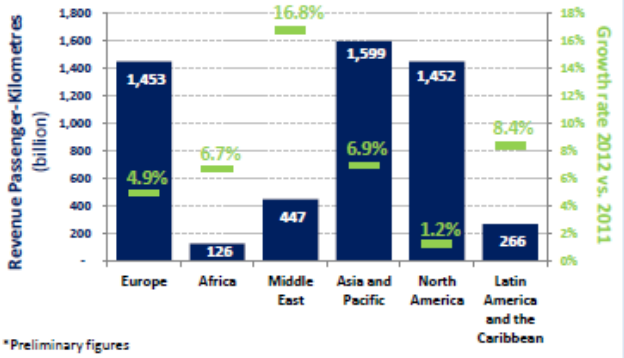
*Preliminary figures

5.3 trillion — *Revenue Passenger-Kilometres in 2012** — *+5.5% growth rate vs. 2011*

World passenger traffic expressed in terms of Revenue Passenger-Kilometres (RPK) on total scheduled services (i.e. international and domestic services combined) increased by 5.5 per cent in 2012 compared to 2011, according to data provided to the International Civil Aviation Organization by its Member States and ICAO estimates.

This represents the third consecutive positive growth for the air transport industry since 2009 and corresponds to an increase of 5.0 per cent over 2011 in the number of passengers carried, reaching 2.9 billion passengers in 2012.

World passenger traffic - Regional distribution in 2012*



*Preliminary figures

The number of aircraft departures reached the record level of 31 million in 2012, one million more than in 2011.

By 2030, an average annual growth rate of 4.5 per cent for world scheduled passenger traffic will result in more than twice of RPK of the 2012 level, according to ICAO forecasts.

180 billion — *Freight Tonne-Kilometres in 2012** — *-1.2% growth rate vs. 2011*

The world air cargo market declined in 2012 (-1.2 per cent in term of Freight Tonne-Kilometres performed, compared to 2011). This represents the second consecutive negative growth since 2010. World scheduled freight traffic is forecasted to grow at an average annual rate of 5.3 per cent over the next twenty years.

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APPENDIX D

1. The ICORAS process generates the following preliminary results for Fuel Burn (FB) and traffic (RTK and ATK), accounting for worldwide international scheduled traffic.

Year	Fuel Burn (Bn Litres)	RTK (Bn)	ATK (Bn)	FB/RTK (Litres/RTK)	FB/ATK (Litres/ATK)
2010					
2011					
YoY					

Year	Fuel Burn (MT)	RTK (Bn)	ATK (Bn)	FB/RTK (kg/RTK)	FB/ATK (kg/ATK)
2010					
2011					
YoY					

Source: ICAO, ICORAS database

2. The preliminary ICORAS results have been generated for air carriers representing 100% of international scheduled traffic, showing actual reported fuel burn for carriers representing around 39% of international traffic. For the remaining air carriers representing 61% of international traffic, the traffic is based on performed traffic data and fuel is modeled according to the Revenue Cost Analysis (RCA) formula which estimates the volume of fuel consumption for each airline on the basis of a fuel consumption formula specific to each aircraft type. This formula takes into account fuel efficiency improvements due to changes in aircraft operations and establishes precise equations for new aircraft types entered into service during the last few years and for those that will be part of the airlines´ fleets in the next few years.

— END —