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## **ECONOMIC COMMISSION FOR AFRICA**

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4-7 September 2001

### **REPORT ON STATISTICAL ACTIVITIES**

**INTERNATIONAL CIVIL AVIATION ORGANISATION  
(ICAO)**



**THE INTERNATIONAL CIVIL AVIATION ORGANIZATION (ICAO)  
STATISTICS PROGRAMME**

**PRESENTED BY THE ICAO SECRETARIAT TO  
THE SECOND MEETING OF THE  
COMMITTEE ON DEVELOPMENT INFORMATION (CODI)**

(Addis Ababa, 4-7 September 2001)

**1. Introduction**

1.1 The purpose of this paper is to provide a description of the scope and coverage of the statistical activities of the International Civil Aviation Organization (ICAO), its relationship with other international and regional organizations as well as recent developments in the Organization which led to the creation of a newly integrated civil aviation statistical data base to become available on-line to the international community in 2003.

**2. Background**

2.1 The need for complete and reliable aviation statistics was foreseen at the Chicago Conference in 1944 and several provisions concerning statistics were included in the articles of the Convention on International Civil Aviation (the Chicago Convention) adopted that year. When the Provisional International Civil Aviation Organization (PICAO) was established in 1945, one of the first tasks of its Interim Council was to implement these articles of the Convention by appointing an Economic and Statistical Committee for the task of preparing statistical reporting forms. The Committee duly prepared reporting forms covering airline traffic, origin and destination, fleet, personnel and airline financial statistics and these forms were introduced in 1946. A "Draft Statistical Statement - 1946" was presented to the first Session of the ICAO Assembly in 1947 and, having been favourably received, the first "Statistical Summary" was published in April 1948. The latter publication contained monthly airline traffic statistics for 1946 and 1947.

2.2 The ICAO Statistics Programme has been under continuous review and development since that time, and now comprises a wide range of air transport elements.

### 3. Administration and Management of the Programme

3.1 The regular Statistics Programme of ICAO is established and administered by the ICAO Council whose authority is required for any modification in the structure and content of the Programme. Normally, modifications to the Programme whether additions, deletions or other adjustments, are considered by the Council on the recommendation of its subsidiary body, the Air Transport Committee. On matters of great importance, the Council may seek direction from the supreme body of ICAO, the Assembly. When the Committee makes recommendations to the Council it usually takes into account the opinions and recommendations of its two advisory bodies on statistical matters, the Statistics Division and the Statistics Panel.

3.2 The Air Transport Bureau of the Secretariat is responsible under the direction of the Secretary General for the management and efficiency of the established Statistics Programme. This function involves the timely collection, processing, analysis, estimation, and dissemination of civil aviation data relating to commercial air carriers, airports and air navigation services, civil aircraft on register and aircraft accidents rates.

3.3 In addition to the management of the established Statistics Programme, the Secretariat is also responsible for studies of the needs of users and capabilities of providers to assist the Council in adjusting the programme as required by changing circumstances.

### 4. Contents of the Programme

4.1 Statistics of commercial air carriers (i.e., scheduled airlines and non-scheduled operators) are collected in a number of subject areas, the scope and frequency varying according to the size of the operator (in terms of traffic or fleet) and the types of services provided.

4.2 The programme for international scheduled airlines was established in 1947, with the exception of the on-flight origin and destination collection which was started in 1976. The collection of traffic statistics for domestic scheduled airlines also began in 1947, but the data collection on fleet and personnel of domestic airlines did not start till 1973. The data collection for non-scheduled operators started with the year 1971.

4.3 The following statistics are collected for commercial air carriers and are published in the respective Digests of Statistics:

- a) air carrier traffic statistics are collected on a monthly or annual basis, according to the size of the carrier, and they provide measures of aircraft activity, passenger, freight and mail traffic for scheduled and non-scheduled revenue flights;
- b) fleet and personnel data covering the number, capacity and utilization for each type of aircraft in the airline's fleet, and expenditures for personnel by category are collected annually;
- c) air carrier financial data covering revenues and expenses as well as their assets and liabilities are collected on an annual basis; and

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- d) two series of traffic flow statistics are collected in respect of the international scheduled services of airlines: on-flight origin and destination on a quarterly basis, and traffic by flight stage on an annual basis.

4.4 Monthly traffic statistics are collected in quarterly reports for major international airports. This programme was established in 1960 and the reported data are published in the annual Airport Traffic Digest. A collection of airport financial data (revenues, expenses and net capital investments) has been undertaken since 1976 and the reported data are published in a Digest together with statistics related to air navigation services data.

4.5 The financial data relating to air navigation services (revenues, expenses and net capital investments) and the corresponding traffic statistics (number of flights moving through a flight information region - FIR/UITR) are collected annually. Both series of air navigation services data have been collected since 1976 and reported data are published in a Digest together with the airport financial data.

4.6 Contracting States also have been reporting the number of civil aircraft on their national register as of 31 December each year since 1961. The reported data are published in the Civil Aircraft on Register Digest.

## 5. Regional Statistical Workshops

5.1 Statistical workshops are conducted by ICAO constitute a continuous, systematic effort to improve the quality of aviation statistics. These informal workshops provide those responsible in administrations, air carriers and airports for the preparation of statistics for ICAO, an opportunity to work out solutions to practical problems through pooling of experience and ideas. The workshops, which are held in different regions of the world, are usually served by statistical officers from the Air Transport Bureau. Including the first workshop in 1960, a total of 42 have been conducted in different regions of the world, 18 in Africa and the Middle East, 16 in Latin America, 6 in Asia and the Pacific and 2 in Europe. Several of the workshops have been organized at the specific request of regional civil aviation bodies, particularly the African Civil Aviation Commission (AFCAC) and the Latin American Civil Aviation Commission (LACAC), whose governing bodies have periodically acknowledged the importance of statistical workshops

## 6. International cooperation and Inter-agency coordination

6.1 Within the United Nations (UN) system each UN office and specialized agency is responsible for a specific field of activity, such as for example agriculture, civil aviation, education, environment, health. Article XIII of the agreement signed between ICAO and the UN in 1948 recognizes ICAO "... as the central agency responsible for the collection, analysis, publication, standardisation, improvement and dissemination of statistics within its special sphere ..." There has been no significant infringement of this agreement within the UN system and other UN bodies ask ICAO for any civil aviation statistics they require such as the civil aviation statistics published in the UN Monthly Bulletin of Statistics, and the statistical publications of the regional economic commissions. Coordination of statistical activities within the UN system is undertaken by the UN Statistical Office primarily through the Administrative Committee on Coordination (ACC) Sub-Committee on Statistical Activities.

6.2 Outside the UN system, in addition to ICAO there are other international organizations which collect and publish statistics on civil aviation at a global or regional level. ICAO maintains close

contacts with all these organizations to try to avoid duplication of effort as well as maintain common definitions throughout the industry so as not to overburden reporting entities and confuse users. Coordination with international organizations such as the International Air Transport Association (IATA) and Airports Council International (ACI) is achieved at the strategic level through their participation as Observers at the meetings of ICAO.

## **7. The ICAO integrated statistics data base (ISDB) system**

7.1 Computerization of the ICAO statistics programme was carried out during the 1970's. The earliest data available in electronic form (air carrier traffic) cover the year 1968. Other electronic data series have more recent dates. Today, the data for the statistics programme have become fragmented into various types of data files and systems. For example, some in Excel, some in Fox-Pro, while one is still being processed in the mainframe. Although this has a limited impact on the production of individual Digests, it creates serious difficulties when trying to produce the Statistical Yearbook, replying to enquiries (particularly where historical series are concerned) and carrying out data cross-checks among the various related programmes. In view of this situation it was decided that there was a need to bring all the data set into a single integrated database.

7.2 The analysis and design of a new integrated civil aviation statistics database for the Organization based on the Oracle software was completed by the end of October 2000. At present the Organization is in the development, testing and implementation phase of the new database. By the second quarter of 2002 all data entry will be done through the new system.

7.3 The new data base will be Web-enabled thus ICAO Contracting States as well as regional civil aviation organizations will be able to access the database via the Internet through a standard browser. States are already encouraged to submit data electronically either by e-mail or diskettes.

7.4 A main feature of the ISDB is the tracking system which follows each Reporting Form from the moment it is received by ICAO until it is finally loaded into the data base. Hence, even though data reception, data entry, analysis and validation appear to be distinct functions, these are intimately related to each other through the data tracking function.

7.5 Once the data have been entered and accepted by the system, they will be placed in a temporary data base where a number of quality control checks will be carried out prior to finally loading the data into the ISDB. The new system will carry out these checks within the same data set such as, for example, average aircraft speed, average stage length, average passenger weight, etc., for the air carrier traffic data; compare data with previous submissions such as the previous month and/or previous year; as well as across data sets, such as between the air carrier traffic and the on-flight origin and destination figures to ensure that the data are homogeneous. Where the system detects deviations or "errors" in the data submitted, States or other reporting entities will be asked to provide a clarification and, if necessary, resubmit amended data.

7.6 On the output side of the ISDB the system will have a data warehouse which will contain tables that will make it easier for casual users to access the information and speed-up the query process. These tables will be generated on a periodic basis, say once every week, from the data contained in the ISDB. The type and number of tables which will form part of the data warehouse will be determined on the basis of the type of queries which are most often addressed to the system. Finally the tracking of the ad hoc queries function will allow designated users to register and follow up ad hoc requests for statistical information.

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## 8. Conclusion

8.1 Through the ISDB ICAO plans to remain the main public international source of civil aviation data. However, while ICAO will provide the means to disseminate these data on-line, the overall coverage and timeliness of the data are to a large extent dependent on individual States fulfilling their obligations under the Chicago Convention to file statistical reports with ICAO. It is only through this vital contribution by States and other reporting entities that this major effort being undertaken by ICAO will bear fruit. Then the Organization will be able to provide its Contracting States, as well as the international air transport community at large, with up-to-date and reliable worldwide civil aviation statistics.

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