



# Noise Certification Workshop

(Montreal, 20 to 21 October 2004)

NCW – BIP1/1  
13/10/04

## SESSION 1: ICAO WORK ON AIRCRAFT NOISE

### ICAO WORK ON AIRCRAFT NOISE

(Presented by Secretariat)

#### SUMMARY

This background information paper describes how ICAO's environmental activities are organized, in particular the work on aircraft noise, and explains the roles of the ICAO main bodies in this area.

#### 1. INTRODUCTION

1.1 ICAO first became involved in environmental matters in the late 1960s, when aircraft noise in the vicinity of airports became a major issue. In the three decades since there has been much change. The lowering of the noise levels of commercial aircraft by 20 decibels (dB) is an example of the evolution in aviation environmental performance throughout that period.

1.2 There has also been a major change in the way in which the aviation community addresses aircraft noise. ICAO has pursued the control and reduction of aircraft noise mainly through the development of aircraft certification Standards. In spite of dramatic growth in air traffic, there was a continued effort to reduce source noise, and the Standards in combination with airline fleet modernization, programmes to phase out older aeroplanes and effective land-use planning and management around the airports had, in general, proved effective.

1.3 However, some more sensitive airports continued to experience difficulties in dealing with the aircraft noise impact and during the 33rd session of the ICAO Assembly in 2001, the concept of the balanced approach to noise management was endorsed as a means to allow for more flexible and cost-effective solutions to the problem. The objective of the balanced approach is to reduce the impact on aircraft noise through a programme which takes into account the balance of four elements comprising:

- a) the reduction of noise at source;
- b) land-use planning and management;
- c) noise abatement operational procedures; and
- d) operating restrictions on aircraft use.

1.4 ICAO guidance material on the subject *Balanced Approach Guidance* (Doc 9829) was recently published.

1.5 This workshop will concentrate on the activities regarding the first element: reduction of noise at source and, in particular, on the most recent discussions regarding the noise certification and re-certification of aircraft that are part of the proposals for Amendment 8 of the Annex 16 – *Environmental Protection, Volume I – Aircraft Noise*.

## 2. CAEP

2.1 ICAO's current environmental activities are largely undertaken through the Committee on Aviation Environmental Protection (CAEP), which was established by the Council in 1983, superseding the Committee on Aircraft Noise (CAN, 1970) and the Committee on Aircraft Engine Emissions (CAEE, 1977).

2.2 The first Standards and Recommended Practices (SARPs) for aircraft noise were adopted in 1971 and designated as Annex 16 to the Chicago convention. In 1981, Annex 16 was expanded to encompass SARPs dealing with the control of aircraft engine emissions, and two separated Volumes were established for Annex 16: Volume I, entitled *Aircraft Noise* and Volume II, *Aircraft Engine Emissions*. Annex 16 Volume I is now in its 7th amendment and Volume II in its 4th amendment.

2.3 The *Environmental Technical Manual on the use of Procedures in the Noise Certification of Aircraft* (Doc 9501) that provides more detailed information on the aircraft noise certification procedures was updated and a new edition is being published.

2.4 CAEP is currently composed of 21 Members<sup>1</sup> and 12 Observers<sup>2</sup>.

2.5 CAEP assists the Council in formulating new policies and adopting new Standards on aircraft noise and aircraft engine emissions. CAEP's terms of reference are:

“To undertake specific studies, as approved by the Council, related to control of aircraft noise and gaseous emissions from aircraft engines.

In its work the committee shall take into account the following:

- a) effectiveness and reliability of certification schemes from the viewpoint of technical feasibility, economic reasonableness and environmental benefit to be achieved;

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<sup>1</sup> Argentina, Australia, Brazil, Canada, Egypt, France, Germany, India, Italy, Japan, Netherlands, Poland, Russian Federation, Singapore, South Africa, Spain, Sweden, Switzerland, Tunisia, United Kingdom and United States.

<sup>2</sup> Greece, Norway, Arab Civil Aviation Commission (ACAC), Airports Council International (ACI), European Commission (EC), International Air Transport Association (IATA), International Business Aviation Council (IBAC), International Co-ordinating Council of Aerospace Industries Associations (ICCAIA), International Federation of Air Line Pilots' Associations (IFALPA), International Coalition for Sustainable Aviation (ICSA), United Nations Framework Convention on Climate Change (UNFCCC) and World Meteorological Organization (WMO).

- b) developments in other associated fields, e.g. land-use planning, noise abatement operating procedures, emission control through operational practices, etc.;
- c) international and national programmes of research into control of aircraft noise and control of gaseous emissions from aircraft engines; and
- d) the potential interdependence of measures taken to control noise and to control engine emissions.”

2.7 The current structure of the committee includes three working groups and one support group. One of the working groups deals with the technical aspects of noise reduction and mitigation including the procedures for aircraft noise certification and the assessment of the technical feasibility of more stringent noise Standards. A second group addresses operational and land-use planning issues related to aircraft noise and related operational aspects of aircraft engine emissions. In that group the issue of the assessment of interdependencies of the various measures (also known as trade-offs) is also considered. The third working group deals with technical aspects of aircraft emissions. The support group is responsible for the CAEP forecasts and provides information on the economic costs and environmental benefits of the noise and emissions options considered by CAEP.

2.8 About once a year, CAEP meets as a Steering Group to review and provide guidance on the progress of the activities of the working groups. A formal CAEP meeting is scheduled in principle every three years. The meeting produces a report with specific recommendations on possible Standards and Recommended Practices as well as on policy options related to aviation environmental protection, for the consideration of the ICAO Council. The results of the most recent meeting (CAEP/6, Montreal, 2 to 12 February 2004) in the area of aircraft noise certification will be presented during this workshop.

### 3. THE ROLE OF THE COUNCIL

3.1 The Council of ICAO decides on CAEP’s work programme, usually on the basis of proposals submitted by CAEP. It may also request CAEP to undertake additional tasks, as necessary, and keeps CAEP’s terms of reference under review.

3.2 The Council acts on recommendations from CAEP in the light of any comments received from the Air Navigation Commission and, if there are economic aspects, from the Air Transport Committee.

3.3 In the case of recommendations to introduce or amend Standards and Recommended Practices, there are established procedures for consulting States, after which the final decision rests with the Council.

3.4 Every three years, the Council reports to the Assembly on the progress made on environmental issues.

3.5 On 26 May 2004, the Council considered amendments to Annex 16 — *Environmental Protection*, Volume I — *Aircraft Noise*, Annex 6 — *Operation of Aircraft*, Part III and Annex 14 — *Aerodromes*, Volume I which arose from the recommendations of CAEP/6. The

most significant aspects of the amendments are new provisions relating to documents attesting noise certification, provisions for re-certification, and references to the balanced approach to noise management. The proposals were sent to States and international organizations for comments<sup>3</sup> and will be further considered in light of these comments for adoption in 2005. The Council also agreed with a new work programme for CAEP leading to CAEP/7.

#### 4. THE ROLE OF THE ASSEMBLY

4.1 The Assembly considers major policy issues in the environmental field that are brought to its attention by the Council or States. Given the limited time available, Assembly action usually consists of endorsing material on which the development work has already been done. For example, on the basis of proposals from the Council, the Assembly reviews the *Consolidated statement of continuing ICAO policies and practices related to environmental protection*. The 35th Session of the Assembly was recently held at ICAO headquarters (28 September to 8 October 2004). The Assembly endorsed the technical work developed by ICAO and, in particular, by CAEP. The main focus of the meeting was on emissions and in particular, emissions levies. Documentation related to the meeting can be found on the ICAO web site.

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<sup>3</sup> State Letter AN1/17.14-04/48.