



Noise Certification Workshop

Session 1: ICAO work on aircraft noise

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Background

- ICAO has been working with environmental issues since 1960s
 - Aircraft noise
 - Aircraft engine emissions

- Environmental activities are largely carried out through its **C**ommittee on **A**viation **E**nvironmental **P**rotection (**CAEP**), a Technical Committee of the ICAO Council

ICAO's Work on the Environment

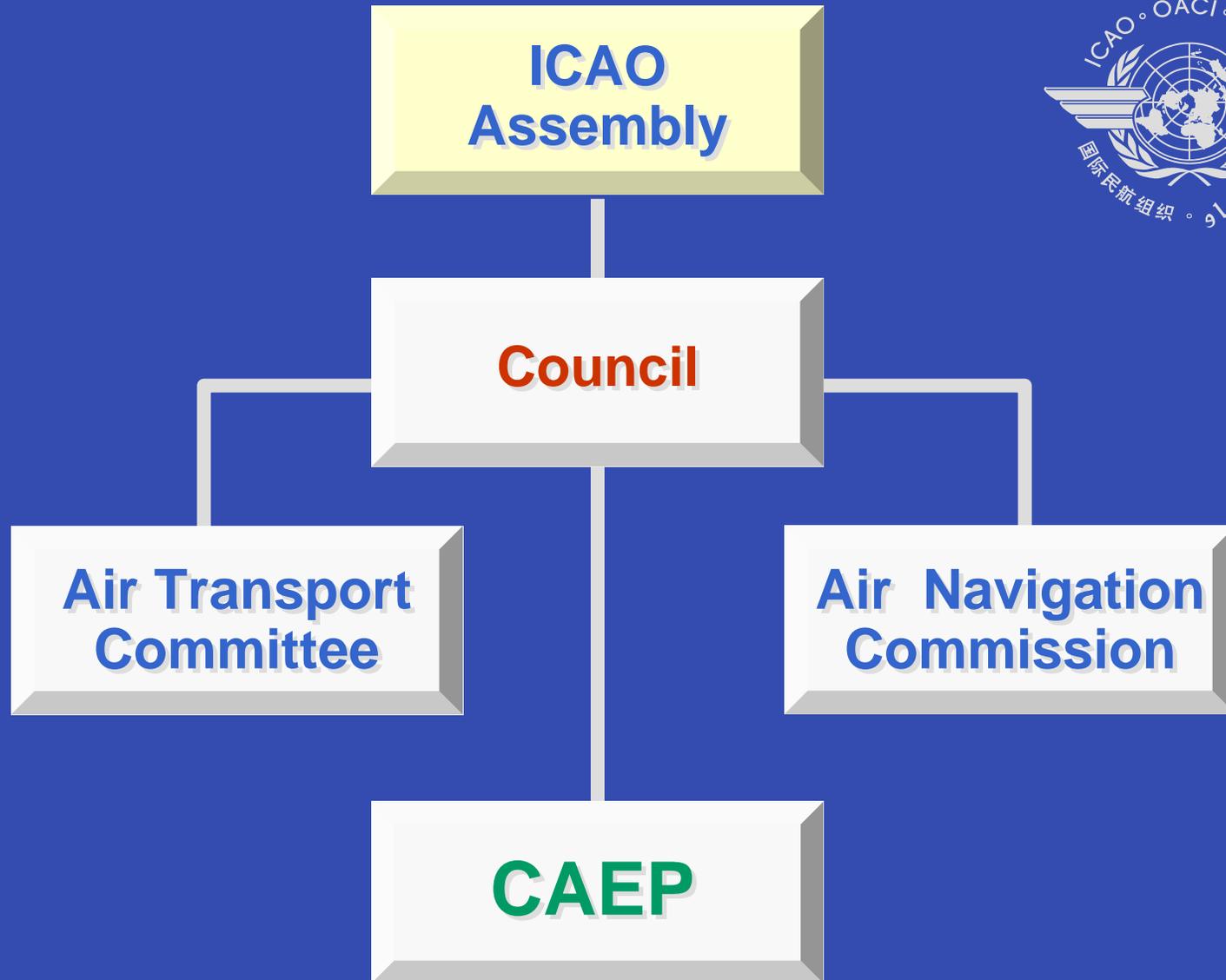
- 1970 ➤ **CAN** – Committee on Aircraft Noise
- 1971 ➤ First SARPs for aircraft noise, designated as Annex 16 to the *Convention on International Civil Aviation* (Chicago, 1944)
- 1977 ➤ **CAEE** – Committee on Aircraft Engine Emissions

ICAO's Work on the Environment

- 1981
- Annex 16 expanded to encompass SARPs dealing with the control of aircraft engine emissions

Annex 16:

- Volume I, Aircraft Noise
 - Volume II, Aircraft Engine Emissions
-
- 1983
 - **CAEP** (Committee on Aviation Environmental Protection)
 - ➔ Superseded CAN and CAEE



***Structure for the Consideration
Of Environmental Proposals***

CAEP Structure leading up to CAEP/7



WG1 - Noise Technical Issues

**Future of
the Scheme**

Re-Certification

Rotorcraft

Technology

Technical Issues

**Environmental
Technical Manual**

SST

Noise Database

Who Participates in CAEP?

Airlines

Airports Environmental Ngo's

Manufacturers

States from Different Regions

Pilots

Other UN bodies

Members (21)

Argentina

India

South Africa

Australia

Italy

Spain

Brazil

Japan

Sweden

Canada

Netherlands

Switzerland

Egypt

Poland

Tunisia

France

Russian Fed

United Kingdom

Germany

Singapore

United States

Observers (12)

Greece

EC

IFALPA

Norway

IATA

ACSA

ACAC

IBAC

UNFCCC

ACI

ICCAIA

WMO

CAEP Terms of Reference

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

Taking into account the:

CAEP Terms of Reference

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

CAEP Terms of Reference

- b) Developments in other associated fields, eg. Land-use planning, noise abatement operating procedures, emission control through operational practices, etc.

CAEP Terms of Reference

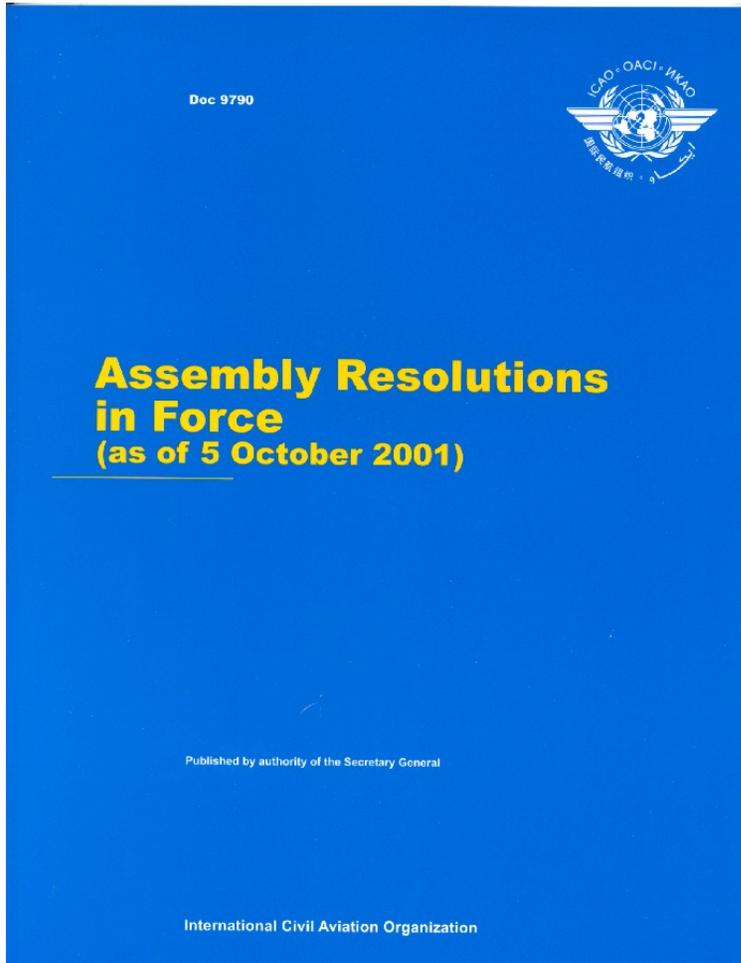
- c) International and national programmes of research into control of aircraft noise and control of gaseous emissions from aircraft engines; and

CAEP Terms of Reference

- d) The potential interdependence of measures taken to control noise and to control engine emissions



ICAO's policies on
Environmental Protection are
revised by each ICAO
Assembly and are published
as ICAO Assembly
Resolutions



ICAO POLICIES

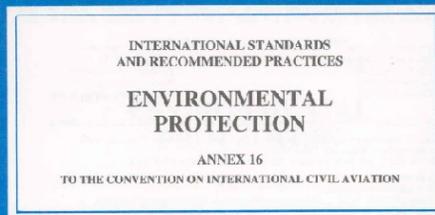
A33-7: Consolidated statement of continuing ICAO policies and practices related to environmental protection

Noise – Balanced Approach

- Concept started in CAEP/2
- Developed by CAEP/ 5 – response to Council request
- Comprises four elements:
 - Noise at source
 - Land-use planning management
 - Operational measures
 - Operating restrictions

Noise at Source

Annex 16, Vol I



VOLUME I
AIRCRAFT NOISE
THIRD EDITION — JULY 1993



This volume represents all amendments to Annex 16 adopted by the Council after 22 March 1993 and comprises, as of December 1993, all pertinent editions of the Annex.

For information regarding the applicability of the Standards and Recommended Practices and Procedures set forth in this volume, it is suggested that you contact:

INTERNATIONAL CIVIL AVIATION ORGANIZATION

Current SARPs for jet aircraft are included in Annex 16 as:

Noise at Source

**CHAPTER 2. SUBSONIC JET AEROPLANES — APPLICATION FOR
CERTIFICATE OF AIRWORTHINESS FOR THE PROTOTYPE ACCEPTED
BEFORE 6 OCTOBER 1977**

**Chapter 2 (before Oct 1977,
eg B727, early B737 and DC9)**

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- maximum certificated mass for airworthiness; or
- b) powered by engines with a by-pass ratio of 2 or more and for which a certificate of airworthiness for the individual aeroplane was first issued before 1 March 1972; or

120 m (395 ft) vertically below the 3° descent path originating from a point 300 m beyond the threshold. On level ground this corresponds to a position 2 000 m from the threshold.

2.4 Maximum noise levels

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Noise at Source

- CHAPTER 3.**
- 1.— SUBSONIC JET AEROPLANES —
Application for Certificate of Airworthiness
for the Prototype accepted on or after
6 October 1977 and before 1 January 2006**
 - 2.— PROPELLER-DRIVEN AEROPLANES OVER 5 700 kg —
Application for Certificate of Airworthiness
for the Prototype accepted on or after
1 January 1985 and before 17 November 1988**
 - 3.— PROPELLER-DRIVEN AEROPLANES OVER 8 618 kg —
Application for Certificate of Airworthiness
for the Prototype accepted on or after
17 November 1988 and before 1 January 2006**

Chapter 3 (Oct 1977)

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Noise at Source

**CHAPTER 4. 1.— SUBSONIC JET AEROPLANES —
Application for Certificate of Airworthiness
for the Prototype accepted on or after 1 January 2006**

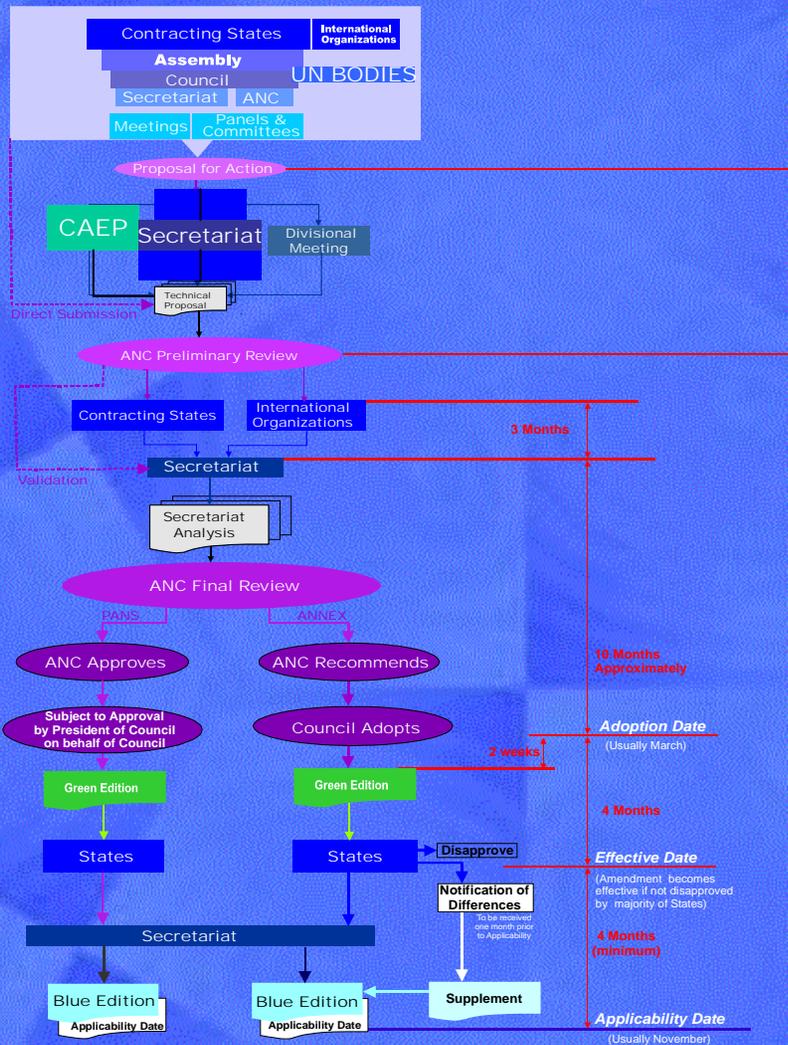
**2.— PROPELLER-DRIVEN AEROPLANES OVER 8 618 kg —
Application for Certificate of Airworthiness for the
Prototype accepted on or after 1 January 2006**

Chapter 4 (Jan 2006 / re-certification of Chap 3)

**“Chapter 4” = Chap. 3 less a 10 EPNdB
cumulative margin**

Re-Certification Procedures

Making an ICAO Standard



Origin of Proposal

Development Phase

Review Phase

Adoption/
Publication Phase

Origin of Proposal

Other UN
Bodies

CONTRACTING STATES

ASSEMBLY

COUNCIL

SECRETARIAT

ANC

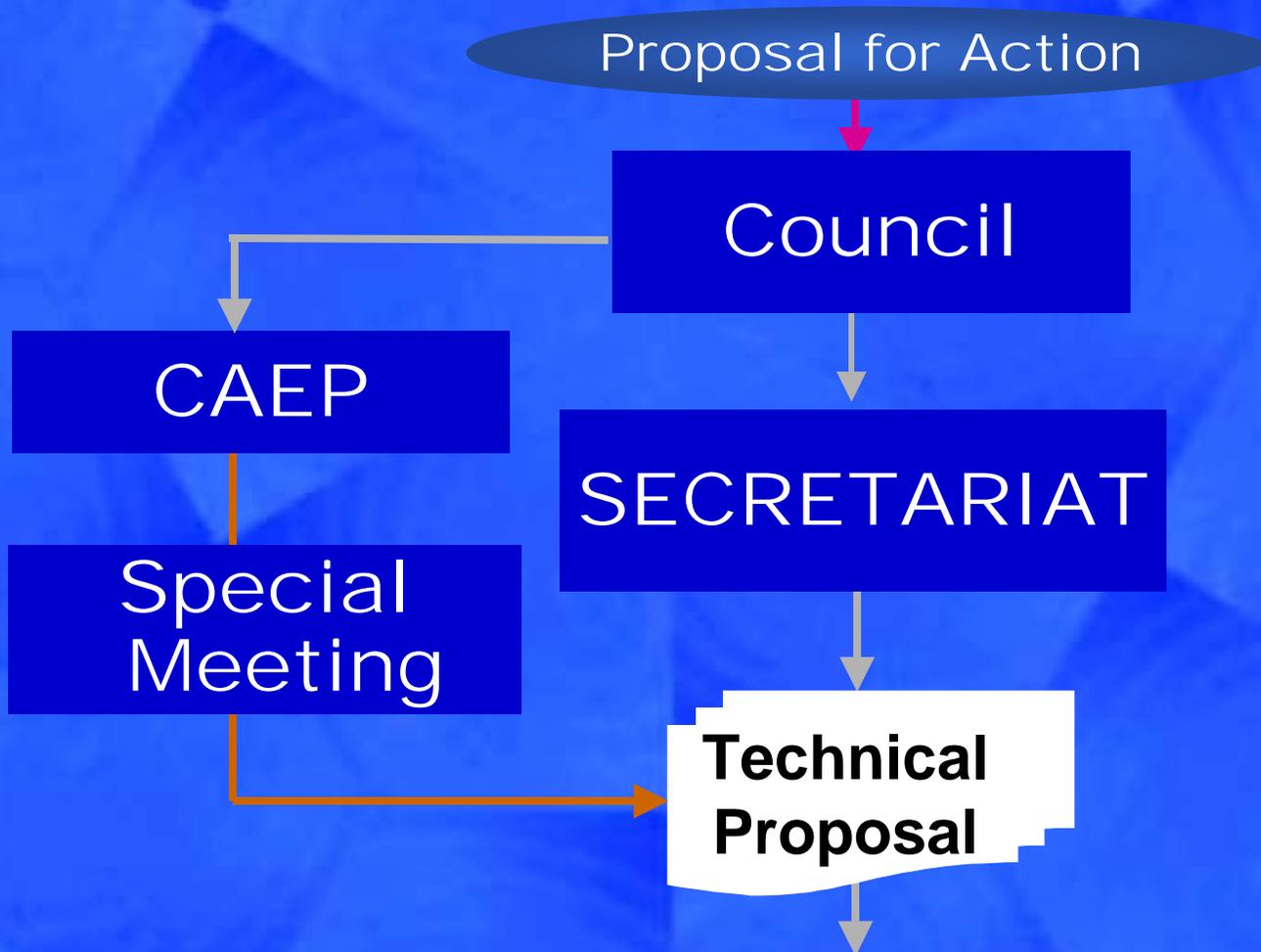
Meetings

Panels &
Committees

International
Organizations

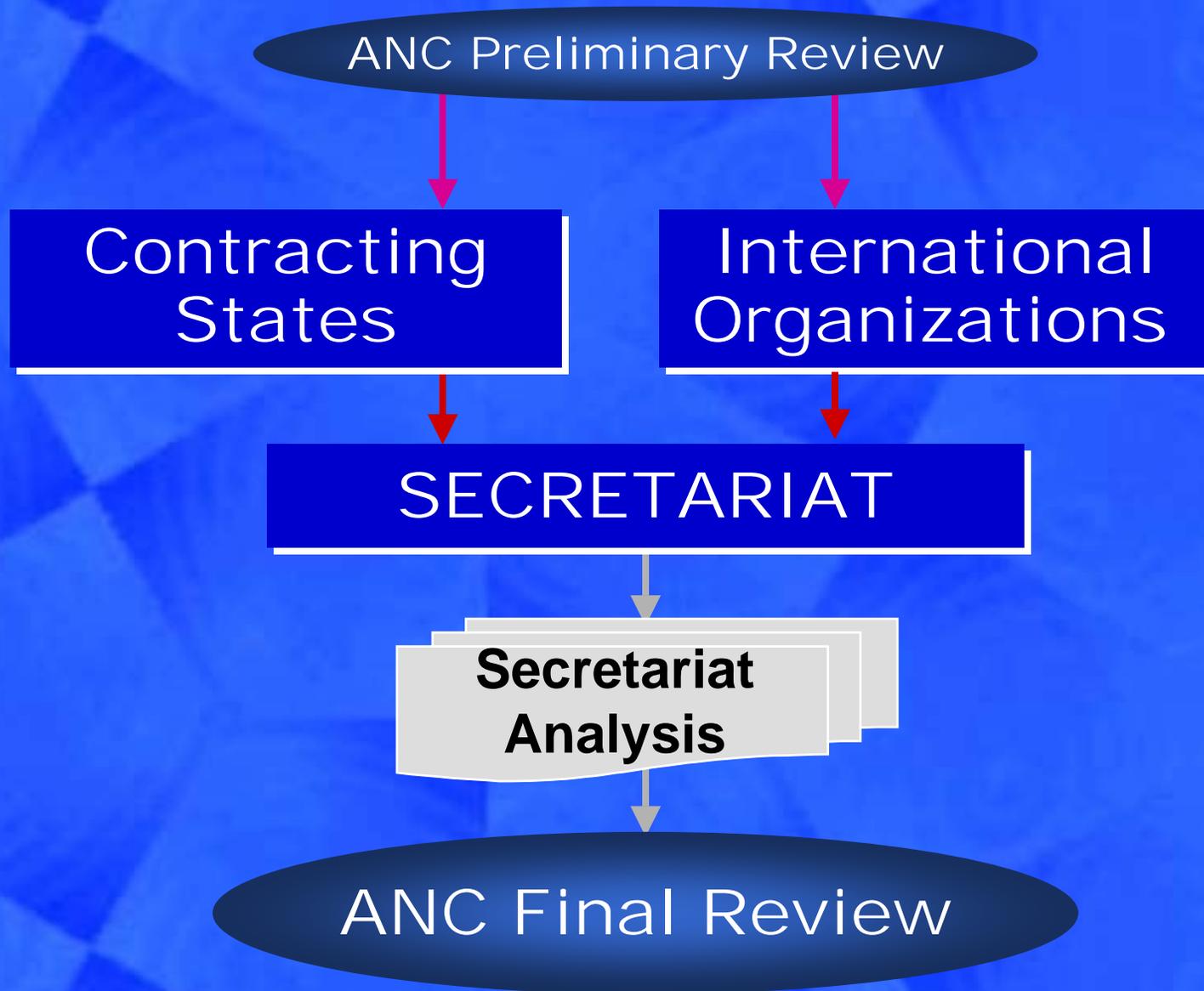
Proposal for Action

Development Phase



Council usually refers to ANC for Preliminary Review

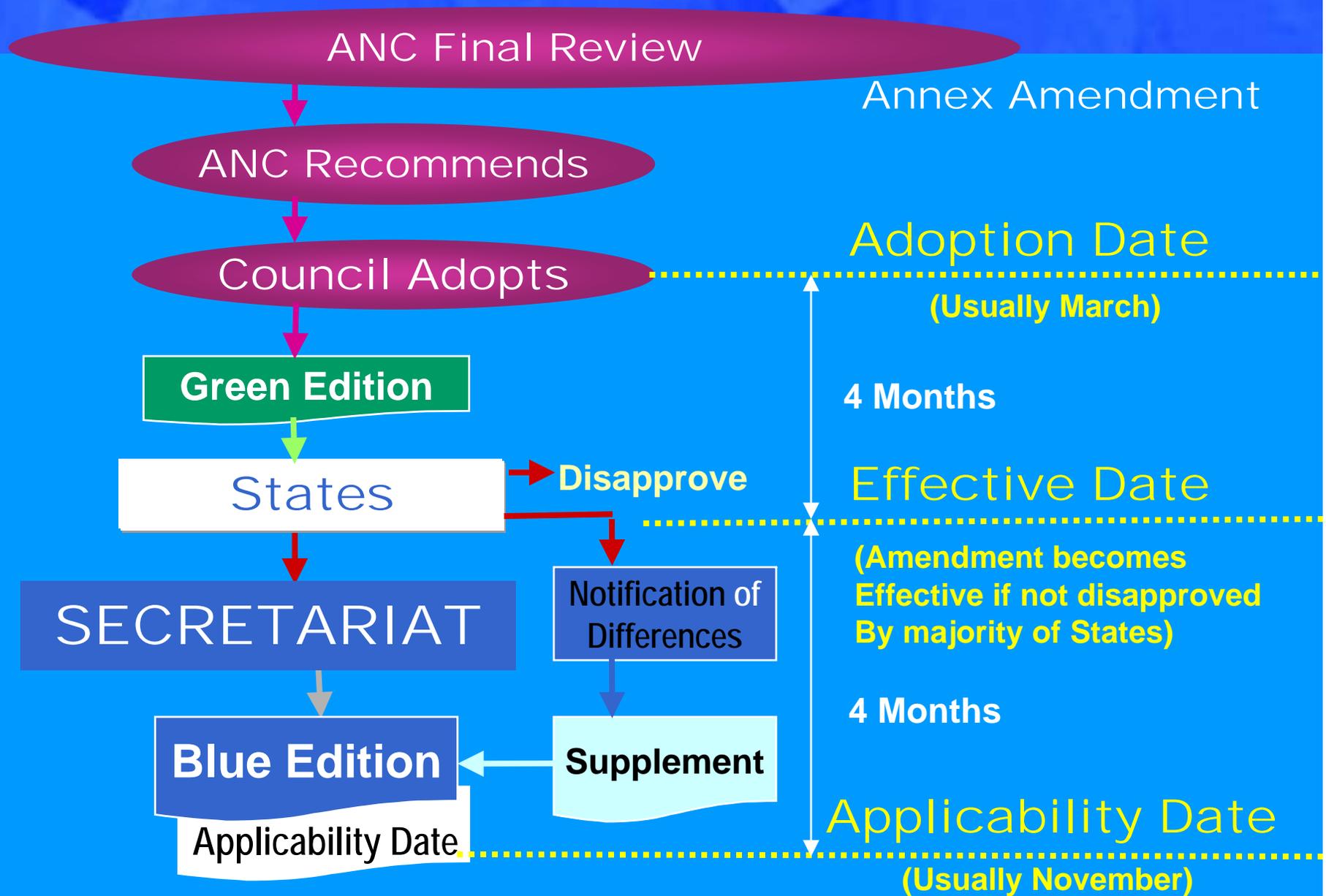
Review Phase



Adoption/Publication Phase



Adoption/Publication Phase

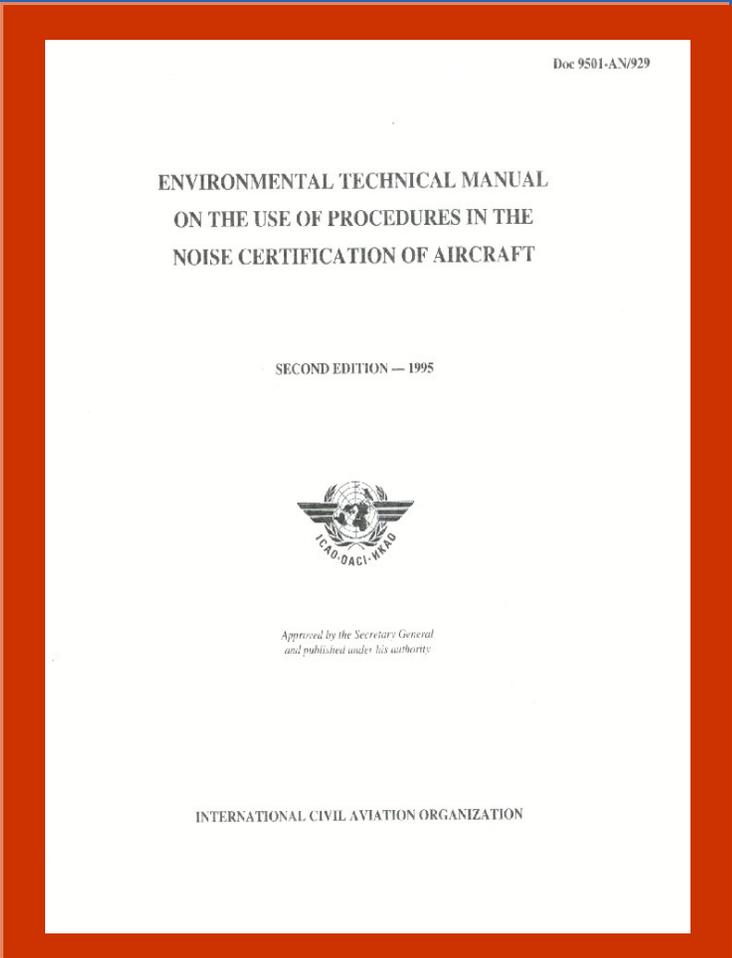
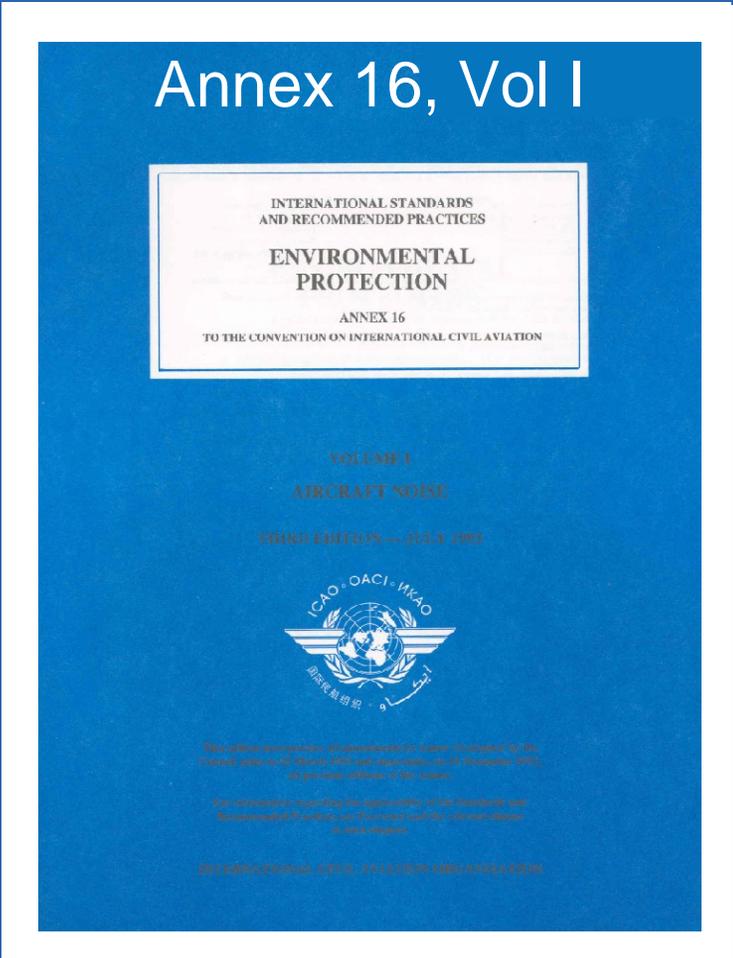


→ On 26 May 2004, the Council considered amendments to Annex 16 — Environmental Protection, Volume I — Aircraft Noise, Annex 6 — Operation of Aircraft, Part III and Annex 14 — Aerodromes, Volume I which arose from the recommendations of CAEP/6.

- 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.

- Proposals sent to States and international organizations for comments 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.

Noise Certification



Noise Certification Requirements

Annex 16 - All Regions

Number of non-compliances by Region

