



International Civil Aviation Organization

**WORKING PAPER**

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**ASSEMBLY — 36TH SESSION**

**EXECUTIVE COMMITTEE**

**Agenda Item 17: Environmental protection**

**AIRPORTS AND THE ENVIRONMENT**

(Presented by the Airports Council International)

**EXECUTIVE SUMMARY**

Addressing environmental issues is fundamental to the ability of airports to maintain current operation levels and to handle the growing demand for air transportation.

ACI and its member airports consider noise to be the most important environmental issue and ICAO's Balanced Approach guidance document (Doc 9829) remains the basis for management of the issue. The reduction of noise at source is only achieved through ICAO's noise certification scheme and ACI urges ICAO to ensure that the standards remain up to date by regularly reviewing these noise stringency regulations of Annex 16, Volume I.

Local air quality is also a significant issue at many airports and is influencing the approval process for infrastructure expansion. Airports continue to address those emissions sources within their direct control with mitigation programmes, however aircraft emission standards are the domain of ICAO. ACI urges ICAO to ensure that its Annex 16, Volume II regulations are regularly reviewed so that they reflect the leading edge of technology.

In some regions, aviation's contribution to emissions that affect climate change has become an issue starting to adversely affect infrastructure planning. ACI works to ensure that its member airports address emissions sources and energy usage within their control and looks to ICAO for leadership on achieving global action.

**Action:** The Assembly is invited to:

- a) Endorse the action that ICAO noise and emissions certification stringency standards are reviewed on a regular basis, such as every second CAEP cycle, that is, every 6 years;
- b) Endorse the requirement that new noise certification standards require minimum improvements at all three noise certification locations (approach centreline, departure centreline and departure sideline) as well as a cumulative total of the three; and
- c) Develop a Roadmap to address aviation emissions that contribute to Climate Change.

<i>Strategic Objectives:</i>	This working paper relates to Strategic Objectives C ( <i>Environmental Protection – Minimize the adverse effect of global civil aviation on the environment</i> ).
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<i>Financial implications:</i>	Not applicable.
<i>References:</i>	Doc 9829, <i>Guidance on the Balanced Approach to Aircraft Noise Management</i> CAEP/7 WP/18 (Goals Assessment) CAEP/7 IP/16 (ACI Policy position on Climate Change)

## 1. INTRODUCTION

1.1 Aviation environmental issues continue to be of crucial importance for the ability of airports to meet current and future demand for air transportation. Noise has the most clearly identifiable impact on neighbouring communities and is the environmental issue most likely to mobilise local residents against both existing operations and future infrastructure or capacity expansion. Local air quality and the contributions from airport and aircraft emissions sources are increasingly drawing the attention of regulators and thus impacting upon expansion plans. As recently as in the past 12 months, some regions have commenced discussion of the significance of greenhouse gases (GHG) and climate change. Public and media pressure are mounting to curb aviation emissions, sometimes identified as a major and growing contribution to GHG emissions inventories.

1.2 Airports deal with these and other environmental problems on an ongoing basis. ACI has a role of providing policies and best practice guidelines to ensure all airport members have access to the best information and can share knowledge and experience. ACI's other important role is to represent the interests of airports at ICAO, to ensure that input from airports is available to ICAO and CAEP, and that results from ICAO provide the maximum benefits possible for airports and the aviation industry.

## 2. NOISE

### 2.1 Importance of the Issue

2.1.1 Noise continues to be the single most significant cause of objections to the operation and expansion of airports in developed and developing countries alike, and public pressure against existing operations and the development of new infrastructure could have a negative influence on the future growth of the aviation industry.

2.1.2 ICAO has the stated goal "to reduce or limit the number of people affected by significant aircraft noise." However, as indicated in the preliminary work on Goals Assessment (CAEP/7 WP/18), the forecast growth in aviation will result in an increase in the number of people impacted by such significant aircraft noise. This will very likely lead to increasing community opposition to future airport growth.

### 2.2 Balanced Approach to Airport Noise Management

2.2.1 ACI supports the updated version of the Balanced Approach to Aircraft Noise Management approved by the CAEP/7 meeting including its expansion to incorporate "people issues".

2.2.2 In ACI's view, the Balanced Approach should be implemented with equal emphasis given to all of its four elements – reduction of noise at source, land use planning, noise abatement operation procedures and operational restrictions. Because local conditions need to be taken into account, the implementation will continue to be on an airport-by-airport basis, as stated in the document.

### 2.3 **Aircraft Noise Reduction at Source**

2.3.1 This element of the Balanced Approach specifically refers to noise reduction “through the adoption and implementation of [ICAO] noise certification standards... specified in Annex 16” and is beyond the control of individual airports. This is the only element guaranteed to deliver improvements in the noise climate at all airports. This approach has to be global in nature, because individual airports or States cannot control aircraft design criteria, which are set by ICAO.

2.3.2 The Chapter 4 noise stringency was agreed at CAEP/5 in 2001 and was implemented in 2006. Although it applies only to aircraft newly certified after 2006, virtually all of the aircraft in production in 2001 already complied with the new standard. Consequently the Chapter 4 standard is not expected to result in any improvement of the noise environment around airports.

2.3.3 In addition, the Chapter 4 stringency is defined as a cumulative 10 dB below the Chapter 3 standards. It includes no requirement for a minimum improvement at each of the 3 reference noise measurement points. Given that aircraft noise affects communities to the side of airports, as well as under the approach and departure routes, Chapter 4 does not guarantee an improvement at all of the reference noise measurement points, and as a result does not guarantee progress toward ICAO's goal to limit or reduce the number of noise-affected people.

2.3.4 Accordingly, ACI urges ICAO to adopt a new approach to noise certification that explicitly acknowledges the need for ongoing tightening of noise certification requirements at regular CAEP rounds to keep pace with aviation growth, reflect technological improvements and provide greater certainty to the industry.

2.3.5 In addition, ACI urges ICAO to ensure that future improvements in its aircraft noise certification standards include a reduction of the maximum noise levels at each of the 3 reference noise certification locations, as well as provide a minimum cumulative improvement.

## 3. **EMISSIONS AFFECTING LOCAL AIR QUALITY**

### 3.1 **Importance of the Issue**

3.1.1 Mitigation of adverse impacts to local air quality (LAQ) constitutes a serious concern for the operation, expansion and construction of airports around the world. NO<sub>x</sub> is a major pollutant emitted by airport sources and aircraft engines typically represent 60 to 80% of airport NO<sub>x</sub> emission inventories. Compliance problems with regional LAQ standards and the increasing share of aviation's contribution could affect the ability of airports to meet aviation's needs for expanding capacity.

## 3.2 Progress

3.2.1 ACI welcomes ICAO's new Guidance Material on Airport Air Quality and will continue to participate in the development of the forthcoming sections on measurement, mitigation, and interdependencies.

3.2.2 Airports implement a range of local emissions mitigation measures addressing sources within their immediate control, including use of alternatively-fuelled ground service equipment, such as electric and CNG/LPG vehicles, provision of alternative power and pre-conditioned air supplies for aircraft at terminal gates, modernization of electricity and heat generating plants, and development of ground transportation networks for passengers and staff.

## 3.3 ICAO Role

3.3.1 ICAO is the forum for setting stringency standards for the emissions from aircraft engines as contained in Annex 16, Volume II. In view of the anticipated growth of the aviation industry, increasing stringency will be a fundamental part of ICAO's efforts towards its stated goal "to limit or reduce the impact of aviation emissions on local air quality".

3.3.2 ACI urges ICAO to adopt an approach to aircraft emissions certification that explicitly acknowledges the need for ongoing tightening of certification requirements at regular CAEP rounds to keep pace with aviation growth, reflect technological improvements and provide greater certainty to the industry.

## 4. EMISSIONS AFFECTING CLIMATE CHANGE

### 4.1 Importance of the Issue

4.1.1 Although only responsible for approximately 2% to 3% of global GHG emissions, aviation is a fast growing sector and there is no immediate alternative to fossil fuel. There are no short to medium term possibilities to fully mitigate the predicted increase in GHG emissions by improved technology and operations. In a scenario where other industries achieve significant emissions reductions, aviation could then find itself accounting for a greater proportion of emissions. In addition, uncertainties remain regarding emissions at altitude and the effects of contrails/cirrus clouds. Although airports and ground based sources produce only a small proportion of the total GHG emissions of aviation, the issue has consequences for the whole industry.

4.1.2 The negative media and public perceptions regarding aviation and the environment, particularly in some regions, are continuing to generate opposition to planning applications for capacity and infrastructure expansions, and opposition is also likely to become significant in other regions.

### 4.2 ACI Position on Climate Change

4.2.1 ACI published its policy position on climate change in 2006 (CAEP/7 IP/16) which includes the following features:

- Aviation should address its climate change impacts at a global level.

- ACI supports ICAO taking a leadership role on generating international consensus to address the issue.
- Airports should take action to minimise GHG emissions and energy consumption within their control.
- ACI believes that the policy with the least negative impact on aviation will be integration of aviation CO<sub>2</sub> emissions into a global emissions trading system. ACI recognises the significant differences in attitudes to climate change in different regions and therefore supports regional solutions to climate change impacts as an interim step to a global solution.

### 4.3 ICAO Leadership

4.3.1 ACI suggests that ICAO leadership could take the following form.

- Develop a Roadmap with a long-term strategy that identifies environmentally effective, economically efficient and politically viable measures for each category of emissions, and phases for their implementation.
- Include an Action Plan that identifies interim stages, specific measures and policy milestones for achieving aviation's emissions objectives by 2050, with specific mid-term objectives.
- The Action Plan should also identify the measures and timeframes for addressing the climate change impacts of NO<sub>x</sub> and contrails/cirrus clouds, once there is greater certainty over the scale and nature of those impacts. In the future, if the effects of NO<sub>x</sub> and other non-Kyoto gaseous emissions are addressed by aviation, it will be important that they also be addressed by other industrial and transport sectors.

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