



**Statement from the
International Civil Aviation Organization (ICAO)
to the Fifteenth Session of the UNFCCC
Subsidiary Body for Scientific and Technological Advice (SBSTA)**

(Marrakesh, 30 October - 6 November 2001)

In 1998 the 32nd Session of the ICAO Assembly adopted a resolution¹ which called on the Council of ICAO, through its Committee on Aviation Environmental Protection (CAEP), to:

“study policy options to limit or reduce the greenhouse gas emissions from civil aviation, taking into account the findings of the IPCC Special Report on *Aviation and the Global Atmosphere* and the requirements of the Kyoto Protocol”.

At previous SBSTA Sessions, ICAO has reported² on the substantial activities underway in response to that resolution. Today’s report will describe the outcome of the 33rd Session of the ICAO Assembly, which ended on 5 October.

On the basis of reports from the Council of ICAO and a large number of papers from States and international organizations³, the Assembly reviewed progress in the environmental field, on both aircraft noise and the impact of aircraft engine emissions, and adopted a new *Consolidated statement of continuing ICAO policies and practices related to environmental protection*, in the form of a resolution⁴ which supersedes the one adopted in 1998.

The impact of aircraft engine emissions

The Assembly considered the information available concerning aviation’s contribution to global atmospheric problems. The most comprehensive assessment so far is contained in the Special Report on *Aviation and the Global Atmosphere*, which was prepared at ICAO’s request by the IPCC in collaboration with the Scientific Assessment Panel to the Montreal Protocol on Substances that Deplete the Ozone Layer and was published in 1999. This told us *inter alia*:

- I that aircraft emit gases and particles which alter the atmospheric concentration of greenhouse gases, trigger the formation of condensation trails and may increase cirrus cloudiness, all of which contribute to climate change; and
- I that aircraft are estimated to contribute about 3.5 per cent of the total radiative forcing (a measure of change in climate) by all human activities and that this percentage, which excludes the effects of possible changes in cirrus clouds, is projected to grow.

The IPCC Special Report recognized that the effects of some types of aircraft emissions are well understood, revealed that the effects of others are not, and identified a number of key areas of scientific uncertainty that limit the ability to project aviation impacts on climate and ozone.

Against this background, the Assembly urged States to promote scientific research aimed at addressing the uncertainties identified in this IPCC Special Report and requested the Council to

continue to co-operate closely with the IPCC and other organizations involved in the definition of aviation's contribution to environmental problems in the atmosphere.

Development of policy options

The Assembly also requested the Council to continue to study policy options to limit or reduce the environmental impact of aircraft engine emissions and to develop concrete proposals and provide advice as soon as possible to the Conference of the Parties. It called for special emphasis to be placed on the use of technical solutions while continuing consideration of market-based measures, and taking into account potential implications for developing as well as developed countries.

The “technical solutions” referred to include work that is in progress in two areas.

Firstly there is **technology and Standards**. ICAO's current emissions certification Standards (Volume II of Annex 16 to the Chicago Convention) are primarily aimed at ground level emissions and are based on an aircraft's landing and take-off (LTO) cycle. While based on the LTO cycle, these Standards have also helped to reduce emissions at altitude. ICAO is considering alternative parameters on which to base future high altitude emissions controls, taking into account trends in emissions reduction technology, as well as the performance of the whole aircraft and its productivity. Particular attention is being given to oxides of nitrogen (NO_x). In the case of carbon dioxide (CO₂), it has been decided not to develop an ICAO Standard, since CO₂ production is directly related to fuel consumption and there is already intense economic pressure to keep fuel consumption to a minimum and, in addition, there would be significant difficulties in designing a certification condition.

Secondly, there are **operational measures** which can be taken to save fuel and avoid unnecessary emissions. Recent studies have demonstrated that the introduction of new satellite-based Communications, Navigation and Surveillance/Air Traffic Management (CNS/ATM) systems would reduce fuel consumption. ICAO has also prepared and will shortly issue guidance material on industry best practices for reducing fuel consumption. In the light of these developments, the Assembly requested the Council to promote the use of operational measures as a means of limiting or reducing the impact of aircraft engine emissions.

Market-based measures

The new Resolution also contains a whole appendix⁵ devoted to market-based measures regarding aircraft engine emissions, including emissions trading, voluntary measures and emission-related levies.

The Assembly requested the Council to continue to develop guidance for States on the application of market-based measures aimed at reducing or limiting the environmental impact of aircraft engine emissions, particularly with respect to mitigating the impact of aviation on climate change. The Assembly encouraged States and the Council, taking into account the interests of all parties concerned, to evaluate the costs and benefits of the various measures with the goal of addressing

aircraft engine emissions in the most cost-effective manner, emphasising the need for States to take action in a consistent manner regarding both domestic and international aviation emissions.

The analyses that have been undertaken so far within ICAO regarding the possible use of market-based measures have focussed on carbon dioxide.

One of the principal findings is that an **emissions-trading system** – that is, a system whereby the total amount of emissions would be capped and allowances in the form of permits to emit carbon dioxide could be bought and sold to meet emission reduction objectives – would be a cost-effective measure to limit or reduce carbon dioxide emitted by civil aviation in the long term, provided that the system is an open one across economic sectors. The Assembly consequently endorsed the development of an open emissions trading system for international aviation. It requested the Council to develop as a matter of priority the guidelines for open emissions trading, focussing on establishing the structural and legal basis for aviation's participation in an open trading system, and including key elements such as reporting, monitoring, and compliance, while providing flexibility to the maximum extent possible consistent with the UNFCCC process.

Our analyses have also indicated that short-term **voluntary measures** – that is, a mechanism under which industry and governments agree to a target and/or to a set of actions to reduce emissions – could serve as a first step towards future actions to further reduce emissions. The Assembly consequently encouraged short term action by States and other parties involved to limit or reduce international aviation emissions, in particular through voluntary measures. It also urged the Council to facilitate actions by developing guidelines (such as for quantifying, monitoring and verifying emission reductions or actions) for such measures, including a template voluntary agreement as appropriate. The Assembly also recognize the need to ensure that those taking early action would benefit from such actions and would not subsequently be penalized for so doing.

ICAO has also been considering **emission-related levies** – that is, charges or taxes. ICAO's present policy, adopted by the Council on 9 December 1996, recommends that any such levies be in the form of charges rather than taxes and that the funds collected should be applied in the first instance to mitigating the environmental impact of aircraft engine emissions. Such charges should be based on the costs of mitigating this impact, to the extent that such costs can be properly identified and directly attributed to air transport. The Assembly recognized the continuing validity of the 1996 policy regarding emission-related levies, urged States to refrain from unilateral action to introduce emission-related levies inconsistent with the current guidance, and called for the Council to carry out further studies and develop further guidance on the subject. In addition, many developing countries at the Assembly raised concerns regarding the introduction of emission-related levies.

Looking ahead

As you can see, substantive progress has been made but much remains to be done in a field where policy-making is exceedingly complex.

In going ahead with this work, we will need to take account of the impact on aviation of the tragic events of 11 September. One of the factors driving concerns about aviation's contribution to greenhouse gases is its rapid growth rate. The IPCC report and industry forecasts for the period

up to 2015 are based on annual average growth rates of about 5 per cent for traffic⁶, and about 3 per cent for total aviation fuel use and hence CO₂ emissions. At this stage, it is not clear how these forecasts may be affected. Immediately after 11 September, some airlines particularly in the United States, cut back their services by about 20 per cent. However, we do not know how much of a reduction will occur in traffic, how geographically widespread it might be or how long-lasting. The impact might be much greater during the short to medium term than for the longer term. In the long term, growth of air transport is expected to continue to depend primarily on world economic and trade growth as well as airline cost developments, such as the price of fuel and insurance. However, this growth will also be influenced by the extent to which the industry faces up to major challenges such as providing increased security for the air transport system, airport and airspace congestion, environmental protection and increasing capital investment needs. The shape and size of the air transport system will also be affected by governmental decisions, notably those determining the type and extent of economic regulation of airlines.

Summary

ICAO is continuing to make progress on addressing greenhouse gas emissions from aviation. The 33rd Session of the Assembly has given further impetus to this work and has urged closer cooperation with the UNFCCC process.

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1. Appendix F to Resolution A32-8, *Consolidated statement of continuing ICAO policies and practices related to environmental protection*.
 2. For the report to the 14th SBSTA Session, see FCCC/SBSTA/2000/INF.1. For earlier SBSTA Sessions, statements are accessible on the ICAO web site, www.icao.int (click on "Environment", then on "Statements").
 3. Documentation for the 33rd Session of the Assembly is accessible on the ICAO web site, www.icao.int (click on "ICAO Assembly", then on "Working Papers by Agenda Item" and scroll down to Item 14).
 4. Resolution A33-7. Full text is accessible on the ICAO web site, www.icao.int. Concerning emissions, see in particular Appendices H and I.
 5. Resolution A33-7, Appendix I.
 6. Measured in revenue passenger kilometres.