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

(Bonn, 7 to 18 May 2007)

The International Civil Aviation Organization appreciates this opportunity to bring the SBSTA up-to-date on our continuing work regarding aircraft engine emissions.

We are pleased to report that 2007 has so far been a very fruitful year of continuing progress in relation to environmental issues in ICAO. The Organization's Committee on Aviation Environmental Protection held its seventh meeting (CAEP/7) last February, and adopted several recommendations that address potential environmental impacts of aviation. Aircraft engine emissions is the main subject of the upcoming ICAO Colloquium on Aviation Emissions to be held in Montreal from 14 to 16 May 200l. This event is designed to enhance the level of information available to States and other Stakeholders and provide a forum to facilitate discussion and high-level decision-making on aviation emissions at the 36th Session of the ICAO Assembly to be held at the headquarters from 18 to 28 September 2007. We are also pleased to announce the publication this summer of the first ICAO Environmental Report, which will be issued every Assembly year from now on.

The following Statement describes recent developments in ICAO with focus on the outcome of the CAEP/7 meeting and subsequent ICAO Council discussion and deliberations. It also includes information concerning ICAO's cooperation with the UNFCCC secretariat and other United Nations bodies.

Methodological issues regarding aviation emissions (Air traffic and Fuel information)

ICAO has a module that estimates fuel consumption by applying a set of fuel burn relationships for each aircraft type to all scheduled flights reported in the Official Airline Guide. In addition, with a view to improving accuracy, ICAO is working on ways to update and improve its methods of estimating fuel burn within its database of scheduled flights.

Carbon Offset

Numerous methodologies for offsetting emissions from aviation are being proposed by various stakeholders (NGO's, airlines, etc). These methodologies are not harmonized and might not produce an accurate assessment of emissions produced by aircraft which is paramount to identify the amount of carbon to be offset. ICAO is therefore developing an harmonized methodology that can be used as a reference for any Carbon Offset project.

CAEP/7

CAEP/7 dealt with various environmental matters and produced a number of recommendations based on the work of leading experts. The meeting adopted several recommendations regarding aircraft engine emissions that were subsequently approved by the ICAO Council. They reflect the three primary approaches promulgated by ICAO to limit or reduce emissions, namely action at source, operational measures to reduce emissions and market-based measures.

Reduction of emissions at source

Aircraft produced today are required to meet engine certification standards adopted by ICAO. Of particular relevance to climate change is the Standard for nitrogen oxides (NOx), a precursor for ozone, which at higher altitudes becomes a greenhouse gas. The first standards for NOx were adopted in 1981 and made more stringent in 1993, 1999 and 2004.

CAEP/7 proposed provisions for modernizing current emissions certification methods, measurement and sampling requirements and procedures for regulated emissions and aviation fuel supply composition, as well as guidance material related to engine emissions certification. The meeting did not recommend new stringencies to the NOx standard; however, a major achievement at CAEP/7 was the definition of long-term technological goals for NOx emissions. A Panel of Independent Experts, tasked with reviewing technologies to control NOx considered information on the relationship between goal setting and standard setting in relation to atmospheric science and current/developmental technology. They assessed the industry's ability to reduce NOx emissions at source, provided information on possible trends in future emissions reduction over the long-term, and considered possibilities for improvement. Based on this work, they developed medium- and long-term technology goals for NOx. Relative to mid-term goals (2016), the group estimated a 45% reduction from the current standards. As for the long-term goal (2026), it estimated that a reduction of some 60% would be attainable under specific pressure ratio conditions.

This was a very beneficial experience and ICAO decided to undertake the same process for the definition of medium and long-term technology goals for aircraft noise and fuel burn.

Operational measures to reduce fuel burn

Efficient management of aircraft operations - reducing delays and optimizing routing - can reduce fuel burn and associated emissions. ICAO Circular 303 – Operational Opportunities to Minimize Fuel Use and Reduce Emissions – provides guidance to airports, airlines and other stakeholders on various measures to achieve emissions reduction. Building on Circular 303, further work on the estimated benefits to the environment of CNS/ATM systems implementation (e.g. fuel savings and emission reductions) was undertaken and practical guidelines developed.

At CAEP/7, a new ICAO circular providing the effects of noise abatement departure procedures (NADP) on both noise and emissions was developed with a view to provide information to airports and operators on the changes on noise and emissions (NOx and CO2/fuel) accrued from the use of optimized aircraft procedures.

Market-based measures

ICAO guidance on two market-based measures have been developed such as emissions related charges and open emissions trading. A report on voluntary market-based measures was also prepared.

Voluntary measures to reduce environmental impact - ICAO has developed a template and guidance to assist interested parties in establishing voluntary agreements to address emissions. The template supports ICAO's aim of harmonized efforts (http://www.icao.int/icao/en/env/measures.htm). CAEP/7 underscored the importance of voluntary initiatives in addressing the problem of emissions and recommended that information on concrete measures adopted by States, airports and airlines be posted at the ICAO public website. We already have information on 10 voluntary initiatives and encourage States to submit more information to ICAO for inclusion in this database.

Emissions charges - Local Air Quality Charges - ICAO first adopted a policy statement of an interim nature on emission related levies in 1996. This statement strongly recommended 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 mitigation to the extent that costs can be properly identified and directly attributed to air transport. In 2001, the Assembly recognized the continuing validity of this policy, and urged States to refrain from unilateral action to introduce emission-related levies inconsistent with the policy and called for further guidance on the subject and also requested the development of further guidance on this subject.

CAEP/7 reached consensus on a policy and the "Guidance on Aircraft Emissions Charges Related to Local Air Quality" document was developed. The guidance is consistent with ICAO policy and encouraged States to evaluate the costs and benefits of the various measures available to governments, with the goal of addressing emissions in the most cost-effective manner. Also CAEP/7 conducted an airport case study of the cost-effectiveness of existing aircraft emission charges on local air quality.

Emissions trading - In 2001, the ICAO Assembly endorsed the development of an open trading system for international aviation emissions and the development of the necessary guidelines including the structural and legal basis for international aviation's participation in such a regime. After extensive discussion and technical work, CAEP/7 agreed by consensus on guidelines for incorporating international aviation emissions into national emissions trading schemes, consistent with the UNFCCC process.

The draft guidance focuses on aviation-specific issues, identifies options and offers potential solutions. In brief, the guidance recommends that:

- Aircraft operators be deemed the accountable international aviation entity for purposes of emissions trading;
- Total aggregated emissions from all covered flights performed by each aircraft operator should be included in the scheme;
- Aggregated air transport activity (e.g. CO2 emissions) and/or aircraft weight should be the basis for inclusion in a scheme;
- An emissions trading scheme starts with the inclusion of CO2 emissions only;
- The Intergovernmental Panel on Climate Change definitions for international and domestic emissions should be applied for the purpose of accounting for greenhouse gas emissions as applied to civil aviation;
- Accounting arrangements should be put in place to ensure that emissions from international aviation are counted separately and not against the specific reduction targets that States may have under the Kyoto Protocol;
- Regarding trading units, States will need to consider economic efficiency, environmental integrity, and equity and competitiveness should be considered when making a choice.

On the question of geographic scope/coverage, the draft guidance included the different options to geographic scope describing their advantages and disadvantages and conveyed the recommendation of the ICAO Council to start to address the integration of foreign aircraft operators under a mutually agreed basis, and continue to analyze further options. This draft guidance will be published with a foreword reflecting the views of the 36-member ICAO Council. The foreword conveys that a majority of the Council member States have indicated that any approach for the inclusion of aviation in emissions trading schemes should be on the basis of mutual agreement. The ICAO Assembly will further consider this issue.

CAEP/7 also developed guidance material on voluntary emissions trading schemes and will disseminate this information on its website.

Modelling and Assessment

A great effort was undertaken by ICAO/CAEP in the development of appropriate modelling tools and databases to estimate aircraft noise, emissions and their trade-offs. Various candidate models made available to ICAO were evaluated and will be used in the future ICAO assessments. An initial assessment of the evolution of local air quality and global greenhouse gases emissions related to aircraft operators was undertaken using four models[1] with a view to provide the information for assessment of progress towards the ICAO emissions environmental goals and provided preliminary trend results.

Cooperation with other UN bodies

ICAO continued to cooperate closely with other UN organizations dealing with the environment, notably with the UNFCCC secretariat and the Intergovernmental Panel on Climate Change (IPCC). Liaison also continued with other UN specialized agencies such as the International Maritime Organization (IMO); the World Meteorological Organization (WMO) and the World Health Organization (WHO).

Cooperation with UNFCC has been mainly on data assessment and technical aspects related to emissions trading.

The Organization has also been involved in the draft process of the IPCC 4th Fourth Assessment Report (4AR), mainly on Working group I - The Physical Science Basis and Working groups III – Mitigation. ICAO experts have submitted substantial comments to WG III on the "Transport and its infrastructure (road, rail, aviation, shipping, including transport fuels)"chapter, to ensure that it appropriately reflects the work of ICAO in the areas of forecasting and statistics, air traffic management (ATM), and the work undertaken by CAEP on the assessment and modelling of aviation emissions and on operational measures to address emissions. Extensive comments related to aviation emissions and science data were also provided.

Concluding remarks

ICAO embraces its responsibility in addressing civil aviation's contribution to climate change and will continue its efforts to develop authoritative information and necessary guidance to address all aspects of international aviation emissions and its environmental impacts, in-line with its environmental strategic objectives to limit or reduce the environmental impact of aircraft engine emissions and will do so in cooperation with the UNFCCC Secretariat, assisting the SBSTA and the IPCC with regard to methodological issues as required.

ICAO will provide information on the current status and latest developments related to the impact of aviation emissions and further explore mitigation measures on the upcoming Colloquium on Aviation Emissions to be held next week in Montreal, from 14 to 16 May. We encourage wide participation from your Member States.

Also potential measures to address the impact of aviation on the environment will be discussed in ICAO's upcoming Assembly and we will be happy to report the Organization's policy discussions in this area at the upcoming UNFCCC meeting in Bali.

— END —

[1] AEDT/SAGE; AERO2k; AEM; and FAST