



**WORKING PAPER**

**COMMITTEE ON AVIATION ENVIRONMENTAL PROTECTION (CAEP)**

**EIGHTH MEETING**

**Montréal, 1 to 12 February 2010**

**Agenda Item 1: Review of the assessments of the present and future impact of aircraft noise and engine emissions**

**OUTCOME OF GIACC AND HIGH-LEVEL MEETING**

(Presented by Secretariat)

**SUMMARY**

This paper provides the developments made by the Group on International Aviation and Climate Change (GIACC) and High-level Meeting on International Aviation and Climate Change, in fulfilling the mandate given by the last ICAO Assembly to address GHG emissions from international aviation. It also contains Recommendations from the High-level Meeting that will require actions by CAEP as part of its future work programme.

Action by the CAEP is in paragraph 5.

**1. INTRODUCTION**

1.1 The 36th Session of the International Civil Aviation Organization (ICAO) Assembly in September 2007 adopted Resolution A36-22: *Consolidated statement of continuing ICAO policies and practices related to environmental protection*. Particularly, the Assembly recognized, *inter alia*, “the critical importance of providing continuous leadership to international civil aviation in limiting or reducing its emissions that contribute to global climate change”.

1.2 The Assembly requested that the Council “facilitate action by States by vigorously developing policy options to limit or reduce the environmental impact of aircraft engine emissions, developing concrete proposals and providing advice as soon as possible to the Conference of the Parties of the UNFCCC, encompassing technical solutions and market-based measures, while taking into account potential implications of such measures for developing as well as developed countries”. In order to achieve this, the Assembly requested the ICAO Council:

- a) to “form a new Group on International Aviation and Climate Change ... with technical support provided by the Committee on Aviation Environmental Protection,

for the purpose of developing and recommending to the Council an aggressive Programme of Action on International Aviation and Climate Change”; and

- b) to “convene at an appropriate time, taking into account the fact that the fifteenth meeting of the Conference of the Parties (COP15) of the UNFCCC will be held in December 2009, a high-level meeting to review the Programme of Action recommended by the Group”.

## **2. GROUP ON INTERNATIONAL AVIATION AND CLIMATE CHANGE (GIACC)**

2.1 In response to the mandate mentioned in paragraph 1.2 a) above, the Council established the Group on International Aviation and Climate Change (GIACC) comprised of 15 senior government officials reflecting equitable participation from developed and developing States. The Group held its fourth and final meeting in May 2009, developed a Programme of Action on International Aviation and Climate Change and submitted it to the Council for its consideration. The Council fully accepted the Programme of Action in June 2009 as a positive development to limit or reduce aviation’s climate impact. Relevant Excerpts from Council Decision on the work of GIACC is provided in Appendix A.

2.2 Results of the Council’s deliberations included an agreement on global fuel efficiency goals, the need to adopt a basket of measures to address aviation emissions, the establishment of a mechanism to collect traffic and fuel consumption data and the concept of States’ action plans.

2.3 Areas for further work were also identified, including more ambitious medium and long-term goals, the development of a CO<sub>2</sub> standard, a framework for market-based measures, and exploring of approaches to provide technical assistance in the reporting process for developing States.

## **3. HIGH-LEVEL MEETING ON INTERNATIONAL AVIATION AND CLIMATE CHANGE**

3.1 In response to the mandate mentioned in paragraph 1.2 b) above, the High-level Meeting on International Aviation and Climate Change was convened at ICAO Headquarters from 7 to 9 October 2009 to review the Programme of Action developed by the GIACC and accepted by the Council. The Meeting was attended by 339 participants representing 73 States (responsible for 94% of the global international aviation traffic) and 26 international organizations.

3.2 The Meeting welcomed the decision of the ICAO Council to fully accept the GIACC’s Programme of Action, as an important first step to address GHG emissions from international aviation, and reaffirmed ICAO’s leading role in matters involving international civil aviation. The Meeting successfully approved a Declaration as well as Recommendations regarding further work by the ICAO Council on international aviation and climate change.

3.3 In summary, ICAO and its member States:

- a) agreed on a global annual fuel efficiency improvement of 2% for the medium-term (up to 2020) and an aspirational global annual fuel efficiency improvement of 2% for the long-term (up to 2050);

- b) recognized that these goals are unlikely to deliver the level of reduction necessary to stabilize and subsequently reduce aviation's absolute emissions contribution to climate change, and that more ambitious goals will need to be considered to deliver a sustainable path for aviation;
- c) declared that ICAO and its member States, along with relevant organizations will keep working together to undertake further work on medium and long-term goals, including exploring the feasibility of more ambitious goals, including carbon-neutral growth and emissions reductions, for consideration by the 37th Session of the ICAO Assembly;
- d) agreed on the development of a global CO<sub>2</sub> Standard for aircraft;
- e) strongly encouraged wider discussions on the development of alternative fuel technologies and the promotion of the use of sustainable alternative fuels in aviation;
- f) agreed to facilitate the implementation of operational changes and the improvement of air traffic management and airport systems aiming to reduce emissions from international aviation;
- g) agreed that ICAO will establish a process to expeditiously develop a framework for market-based measures in international aviation;
- h) agreed to further elaborate on measures to assist developing States as well as facilitate access to financial resources, technology transfer and capacity building;
- i) in order to monitor progress towards reaching the goals, States are encouraged to submit their action plans, outlining their respective policies and actions, and annual reporting on international aviation CO<sub>2</sub> emissions to ICAO; and
- j) agreed that ICAO will regularly report CO<sub>2</sub> emissions from international aviation to the UNFCCC, as part of its contribution to assessing progress made in the implementation actions in the sector.

3.4 In November 2009, the ICAO Council fully accepted the outcome of the High-level Meeting, including its Declaration and Recommendations approved by the Meeting, and decided on further action for consideration by the 37th Session of the ICAO Assembly in September 2010 and beyond. The Report of the High-level Meeting, including its Declaration and Recommendations as accepted by the Council (provided respectively in Appendices B and C) is available at: <http://www.icao.int/HighLevel2009/>.

#### **4. IMPLICATIONS FOR CAEP'S FUTURE WORK**

4.1 The Declaration and Recommendations of the High-level Meeting (Appendices B and C, respectively) contain provisions of technical/operational nature that will require actions by CAEP with high priority as part of its future work programme, including:

- a) seek to develop a global CO<sub>2</sub> Standard for new aircraft types consistent with CAEP recommendations (2nd Recommendation);

- b) continue to maintain and update knowledge of the interdependency between noise and emissions in the development and implementation of measures to address GHG emissions from international aviation (3rd Recommendation);
- c) continue to work with relevant organizations on the scientific understanding and on measures to limit the non- CO<sub>2</sub> climate impacts of aviation (4th Recommendation);
- d) intensify its efforts in further development of Standards and Recommended Practices for technological and operational measures to reduce international aviation emissions, with the support and expertise from technical panels and committees of ICAO, in consultation with other relevant organizations, in particular on the development of new guidance on operational measures to reduce international aviation emissions (5th Recommendation);
- e) States are encouraged to submit their action plans, outlining their respective policies and actions, and annual reporting on international aviation CO<sub>2</sub> emissions to ICAO (7th Declaration / note: possible development of guidance for States on preparation of action plans)
- f) identify appropriate standard methodologies and a mechanism to measure/estimate, monitor and verify global GHG emissions from international aviation, and States support the work of ICAO on measuring progress through the reporting of annual data on traffic and fuel consumption (9th Recommendation);
- g) consider a de-minimis exception for States which do not have substantial international aviation activity levels, in the submission of action plans and regular reports on aviation CO<sub>2</sub> emissions to ICAO (11th Recommendation); and
- h) explore the relevance of the GIACC's fuel efficiency metric to international business aviation (13th Recommendation).

## 5. ACTION BY THE CAEP

### 5.1 The CAEP is invited to:

- a) note the progress made by the GIACC and the High-level Meeting on International and Climate Change; and
  - b) decide on further actions by CAEP, on the relevant Declaration and Recommendations by the High-level Meeting specified in paragraph 4, as part of its future work programme.
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## APPENDIX A

### RELEVANT EXCERPTS FROM COUNCIL DECISION ON THE WORK OF GIACC (C-DEC 187/14)

#### PROGRESS REPORT ON THE GROUP ON INTERNATIONAL AVIATION AND CLIMATE CHANGE (GIACC) (SUBJECT NO. 50).

1. The Council resumed (187/13) and completed its consideration of the above subject, documented in a paper presented by the Secretary General (C-WP/13347), together with a proposed text of the Council's decision on this subject which had been prepared by the fifteen Council Representatives from States represented on the GIACC and reviewed by a large majority of Council Representatives. The proposed Council decision replaced the action indicated in the executive summary of C-WP/13385.
2. In taking the action proposed by the fifteen Council Representatives from States represented on the GIACC, the Council:
  - a) accepted fully the Programme of Action (Attachment A to C-WP/13385) as a positive development to limit or reduce aviation's climate impact;
  - b) reaffirmed the critical importance of addressing climate change, and thus recognized the need to strive to find ways and means to limit or reduce the impact of greenhouse gas (GHG) emissions from international civil aviation on the global climate;
  - c) underscored that the outcome of the GIACC and this decision of the Council would not prejudice the outcome of the negotiations under the UNFCCC and Kyoto Protocol;
  - d) acknowledged the principles and provisions on common but differentiated responsibilities and respective capabilities, and with developed countries taking the lead under the UNFCCC and the Kyoto Protocol;
  - e) also acknowledged the principles of non-discrimination and equal and fair opportunities to develop international aviation set forth in the Chicago Convention;
  - f) noted that while there was no consensus, some GIACC Members were of the view that the Programme of Action did not address the commitments under Article 2.2 of the Kyoto Protocol;
  - g) noted that notwithstanding the substantial fuel efficiency improvements achieved by the aviation sector and the impact of the current economic downturn, the Council recognized that the projected growth of international air traffic would

outweigh the gains made by currently projected fuel efficiency improvements resulting in an average year over year increase in total fuel burned;

- h) recommended a strategy for efforts to achieve global aspirational goals. The short term goal to 2012 agreed by the GIACC was for improvements in the in-service fleet average fuel efficiency of international aviation operations at the rate of 2% per annum, calculated on the basis of volume of fuel used per revenue tonne kilometre performed;
- i) supported the GIACC Agreement on goals in the form of fuel efficiency for the medium and longer terms. Specifically, the Council endorsed an annual improvement of 2% over the medium term until 2020. For the long term, the Council endorsed an aspirational global fuel efficiency improvement rate of 2% per annum from 2021 to 2050;
- j) recognized that these goals were established on the basis of forecasts and the Council directed that they be reviewed on a periodic basis in light of scientific and technological advances. To achieve these goals would require a significant investment in technological development;
- k) affirmed that in addition to fuel efficiency goals, the focus was on goals that could indicate stronger ambition. For the medium term, the discussions focused on a goal of carbon neutral growth by 2020. For the long term, there could be discussion of carbon emissions reductions. No consensus existed in either case, but further work was recommended on both medium and long term goals;
- l) recognized that while there was no consensus, some GIACC members were of the view that it would be necessary and feasible to achieve carbon neutral growth in the medium term, relative to a baseline of 2005, and to achieve substantial CO<sub>2</sub> emissions reduction for the long term for global international aviation;
- m) recognized that under the recommended strategy, goals would not attribute specific obligations to individual States. The different circumstances, respective capabilities and contribution of developing and developed States to the concentration of aviation GHG emissions in the atmosphere would determine how each State may contribute to achieving the global aspirational goals;
- n) agreed to adopt the basket of measures developed by GIACC, from which States may choose (<http://www.icao.int/>), covering aircraft-related technology development, improved air traffic management and infrastructure use, more efficient operations, economic/market-based measures, and regulatory measures. The basket includes measures to facilitate access to assistance, particularly for developing countries;
- o) directed that the ICAO Secretariat further develop the initial table showing the basket of measures, and directed that the Secretariat continue to develop, and update as necessary, guidance to States on the adoption of those measures, including measures to assist developing countries, as well as access to financial resources, technology transfer and capacity building;

- p) acknowledged that there remains disagreement on the application of market-based measures across national borders. The Council undertook to establish a process to develop a framework for market-based measures in international aviation, taking into account the conclusions of the High-Level Meeting and the outcome of the UNFCCC COP-15 with a view to complete this process expeditiously;
- q) encouraged States to develop action plans which articulate the proposed approach in that State, and file those plans with ICAO;
- r) directed the Secretariat to develop and implement a mechanism under Article 67 of the Convention to collect annually from States data on traffic and fuel consumption;
- s) would explore approaches for providing technical and financial assistance in the reporting process to developing countries;
- t) directed the Secretariat, working through CAEP, to develop a CO<sub>2</sub> standard for new aircraft types;
- u) directed that the Secretariat report every three years through the Council to the Assembly; and
- v) acknowledged, with thanks, the GIACC for the timely completion of its work, thereby fulfilling its assigned mandate (A36-22 Appendix K).

3. Furthermore, the Council directed that CAEP adjust its activities accordingly and undertake the tasks necessary to deliver the agreed Programme of Action.

4. The President of the Council thanked the fifteen Council Representatives from States represented on the GIACC for having facilitated the work of the Council by providing the text for Council action; the GIACC process had started at the beginning of 2008 and had not been an easy process, but had provided a good product which was today's Council decision. The President invited all Representatives to encourage their authorities to participate in the High-Level Climate Change Meeting which would take place from 7 to 9 October 2009 at ICAO Headquarters, and to provide any papers they wished to submit for that meeting on time for their translation. The minutes recording the Council's discussions on this item (187/13 & 14) would be included in the material to be distributed to the High-Level Meeting. The President trusted that the High-Level Meeting would bring positive results and clear guidance for ICAO in preparation for the COP-15 United Nations Climate Change Conference (Copenhagen, 7 – 18 December 2009) and for its future work related to the environment. The President wished to thank, especially, the Members of the GIACC and the Secretariat who had done excellent work during the GIACC meetings.

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## APPENDIX B

### DECLARATION BY THE HIGH-LEVEL MEETING

The High-Level Meeting on International Aviation and Climate Change, convened by the International Civil Aviation Organization (ICAO) at its Headquarters in Montreal on 7 to 9 October 2009 was attended by Ministers and other high-level officials representing 73 States (responsible for 94% of the global international aviation traffic<sup>1</sup>) and 26 international organizations:

*Whereas* the 36th Session of the ICAO Assembly requested the Council to convene a high-level meeting to review the Programme of Action on International Aviation and Climate Change recommended by the Group on International Aviation and Climate Change, taking into account that the fifteenth meeting of the Conference of the Parties (COP15) of the United Nations Framework Convention on Climate Change (UNFCCC) will be held in December 2009;

*Welcoming* the Decision of the ICAO Council to fully accept the Programme of Action on International Aviation and Climate Change, which includes global aspirational goals in the form of fuel efficiency, a basket of measures and the means to measure progress, as an important first step in the work of Member States at ICAO to address greenhouse gas (GHG) emissions from international aviation;

*Reaffirming* ICAO as the lead United Nations agency in matters involving international civil aviation, and *emphasizing* ICAO's commitment to provide continuous leadership in addressing international civil aviation matters related to the environment;

*Acknowledging* the principles and provisions on common but differentiated responsibilities and respective capabilities, and with developed countries taking the lead under the UNFCCC and the Kyoto Protocol;

*Also acknowledging* the principles of non-discrimination and equal and fair opportunities to develop international aviation set forth in the Chicago Convention;

*Reemphasizing* the vital role which international aviation plays in global economic and social development and the need to ensure that international aviation continues to develop in a sustainable manner;

*Acknowledging* that international aviation emissions, currently accounting for less than 2 per cent of total global CO<sub>2</sub> emissions, are projected to grow as a result of the continued development of the sector;

*Recognizing* that the international aviation sector must play its part to confront the global challenge of climate change, including by contributing to the reduction of global GHG emissions;

*Noting* the scientific view that the increase in global average temperature above pre-industrial levels ought not to exceed 2°C;

*Noting* the continuous efforts of the sector to minimise aviation's impact on climate change and the improvement in fuel efficiency achieved over the last 40 years, resulting in aircraft today that are 70 per cent more fuel efficient per passenger kilometre;

*Affirming* that addressing GHG emissions from international aviation requires the active engagement and co-operation of States and the industry, and noting the collective commitments

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<sup>1</sup> expressed in Revenue Passenger Kilometre.

announced by ACI, CANSO, IATA and ICCAIA on behalf of the international air transport industry to continuously improve CO<sub>2</sub> efficiency by an average of 1.5 per cent per annum from 2009 until 2020, to achieve carbon neutral growth from 2020 and reducing its carbon emissions by 50 per cent by 2050 compared to 2005 levels;

*Recognizing* the different circumstances among States in their capacity to respond to the challenges associated with climate change and the need to provide necessary support, in particular to developing countries and States having particular needs;

*Recognizing* that the aspirational goal of 2 per cent annual fuel efficiency improvement is unlikely to deliver the level of reduction necessary to stabilize and then reduce aviation's absolute emissions contribution to climate change, and that goals of more ambition will need to be considered to deliver a sustainable path for aviation;

***Declares that:***

1. The HLM endorses the ICAO Programme of Action on International Aviation and Climate Change as accepted by the ICAO Council;

2. In pursuing the implementation of the ICAO Programme of Action on International Aviation and Climate Change, States and relevant organizations will work through ICAO to achieve a global annual average fuel efficiency improvement of 2 per cent over the medium term until 2020 and an aspirational global fuel efficiency improvement rate of 2 per cent per annum in the long term from 2021 to 2050, calculated on the basis of volume of fuel used per revenue tonne kilometre performed;

3. Taking into account the relevant outcomes of the 15th Conference of the Parties to the United Nations Framework Convention on Climate Change, and recognizing that this declaration shall not prejudice the outcome of those negotiations, ICAO and its Member States, with relevant organizations will also keep working together in undertaking further work on medium and long-term goals, including exploring the feasibility of goals of more ambition including carbon-neutral growth and emissions reductions, taking into account the collective commitments announced by ACI, CANSO, IATA and ICCAIA on behalf of the international air transport industry, the special circumstances and respective capabilities of developing countries and the sustainable growth of the international aviation industry, for consideration by the 37th Session of the ICAO Assembly;

4. Such fuel efficiency improvements or other aspirational emission reduction goals would not attribute specific obligations to individual States. The different circumstances, respective capabilities and contribution of developing and developed States to the concentration of aviation GHG emissions in the atmosphere will determine how each State may contribute to achieving the global aspirational goals;

5. ICAO will establish a process to develop a framework for market based measures in international aviation, taking into account the conclusions of the High-level Meeting and outcome of the UNFCCC COP 15 and bearing in mind relevant ICAO Assembly resolutions and the appendices with a view to complete this process expeditiously;

6. ICAO will regularly report CO<sub>2</sub> emissions from international aviation to the UNFCCC, as part of its contribution to assessing progress made in the implementation actions in the sector based on information approved by its Member States;

7. States are encouraged to submit their action plans, outlining their respective policies and actions, and annual reporting on international aviation CO<sub>2</sub> emissions to ICAO;

8. ICAO and its Member States will strongly encourage wider discussions on the development of alternative fuel technologies and the promotion of the use of sustainable alternative fuels, including biofuels, in aviation in accordance with national circumstances.

## APPENDIX C

### RECOMMENDATIONS BY THE HIGH-LEVEL MEETING

In addition to the recommendations from the GIACC as accepted by the Council, the High-level Meeting on International Aviation and Climate Change recommended, in order to progress the work leading to the upcoming 37th Session of the ICAO Assembly in 2010 and beyond, that the ICAO Council:

1. *Work* expeditiously together with the industry to foster the development and implementation of more energy efficient aircraft technologies and sustainable alternative fuels for aviation;
2. *Seek to develop* a global CO<sub>2</sub> Standard for new aircraft types consistent with CAEP recommendations;
3. *Continue* to maintain and update knowledge of the interdependency between noise and emissions in the development and implementation of measures to address GHG emissions from international aviation;
4. *Continue* to work with relevant organizations on the scientific understanding and on measures to limit the non-CO<sub>2</sub> climate impacts of aviation;
5. *Intensify* its efforts in further development of Standards and Recommended Practices for technological and operational measures to reduce international aviation emissions, with the support and expertise from technical panels and committees of ICAO, in consultation with other relevant organizations, in particular on the development of new guidance on operational measures to reduce international aviation emissions;
6. *Commit*, in cooperation with the industry, to facilitate the implementation of operational changes and the improvement of air traffic management and airport systems aiming to reduce emissions from international aviation sector;
7. *Further elaborate* on measures to assist developing States as well as to facilitate access to financial resources, technology transfer and capacity building including possible application of flexible mechanisms under UNFCCC, such as the Clean Development Mechanism (CDM), to international aviation;
8. *Encourage* States and international organizations to actively participate in the Conference on Aviation and Alternative Fuels in Rio de Janeiro in November 2009 (CAAF2009) to share their efforts and strategies to promote such measures, and bring its results to COP15;
9. *Identify* appropriate standard methodologies and a mechanism to measure/estimate, monitor and verify global GHG emissions from international aviation, and States support the work of ICAO on measuring progress through the reporting of annual data on traffic and fuel consumption;
10. *Request* States to continue to support the efforts of ICAO on enhancing the reliability of measuring/estimating global GHG emissions from international aviation;

11. *Consider* a de-minimis exception for States which do not have substantial international aviation activity levels, in the submission of action plans and regular reports on aviation CO<sub>2</sub> emissions to ICAO;
12. *Consider*, with due priority, the allocation of resources for environment-related activities under the next ICAO Regular Programme budget and analyse the possibility of establishing voluntary contributions;
13. *Explore* the relevance of the GIACC's fuel efficiency metric to international business aviation;
14. *Explore* approaches for providing technical and financial assistance in the reporting process to developing countries; and
15. *Invite* the international air transport industry to further elaborate the implementation framework and strategies for the collective commitment of the international air transport industry.

— END —