



GROUP ON INTERNATIONAL AVIATION AND CLIMATE CHANGE (GIACC)

THIRD MEETING

(MONTRÉAL, 17 TO 19 FEBRUARY 2009)

SUMMARY OF DISCUSSIONS — DAY 1

Agenda Item 1: Administrative Matters

Opening of the meeting

1. Opening the meeting, the President of the Council welcomed GIACC Members (and their Advisors) to the Third Meeting of the GIACC, in particular, Mr. O. Demidov (Russian Federation), replacing Mr. E. Bachurin, Captain M.A. Jamjoom (Saudi Arabia), replacing Dr. M.R. Berenji, and Mr. P. Griffiths (United Kingdom), replacing Mr. R. Cron (Switzerland), who were attending for the first time. It was noted that Dr. H.O. Demuren (Nigeria) could not attend due to unexpected urgent official matters.

2. The President began by thanking Members for their support of the GIACC process thus far, and for the progress they had made since the last meeting. He noted that, whereas up to now, the Group's focus had been on collecting and reviewing information related to specific aspects of climate change, starting today, it would shift its attention to actually formulating the Programme of Action on International Aviation and Climate Change.

3. The President then quickly reviewed and commented on some of the key elements of Appendix K (*ICAO Programme of Action on International Aviation and Climate Change*) of Assembly Resolution A36-22 (*Consolidated statement of continuing ICAO policies and practices related to environmental protection*) which created the GIACC and established its mandate. He underscored that, first and foremost, there was the acknowledgment of the principles of non-discrimination and fair opportunities enshrined in the Chicago Convention. Those were *sine qua non* with the existence and action of ICAO as the global standard setter for its 190 Member States. The global air transport system could not operate otherwise. At the same time, the Appendix acknowledged the principles and provisions on common but differentiated responsibilities (CBDR) and respective capabilities under the *United Nations Framework Convention on Climate Change* (UNFCCC) and the Kyoto Protocol. The GIACC Programme of Action must in turn also acknowledge and accommodate those principles. The President suggested that one way was to remember that the Group was dealing with international aviation emissions which could not practically be attributed geographically by State, as domestic emissions could be. The context was therefore quite different. The Group must also keep in mind that the aspirational goals to be identified by the GIACC were aimed at the air transport sector as a whole. They were to be achieved collectively, without specific national or regional responsibilities, and would ultimately contribute to the improved efficiency of airlines and the industry in general.

4. As for emissions trading schemes, whether global or regional, Assembly Resolution A36-22 stipulated that they were to be implemented on the basis of mutual agreement. That meant that the strategies and measures available to States should be voluntary. Finally, Assembly Resolution A36-22 promoted special considerations for developing countries and assistance, if required.

5. The President was confident that, as requested in Assembly Resolution A36-22, the GIACC would be able to come to an agreement based on consensus and the shared vision and strong will of all Contracting States.

6. Along those lines, the President had had the pleasure of attending the Ministerial Conference on Global Environment and Energy in Transport hosted by the Government of Japan in January 2009. A highlight of the Conference had been the adoption of a Ministerial Declaration on Global Environment and Energy in Transport. The President had been very pleased with the strong expression of support in the Declaration for the key role of ICAO as the competent United Nations (UN) body on aviation issues. There had also been strong encouragement from the Ministers for ICAO to continue to lead in developing globally effective measures to address greenhouse gas (GHG) emissions from international aviation. In fact, the Declaration reflected Assembly Resolution A36-22 which “Requests the Council to: ensure that ICAO exercise continuous leadership on environmental issues relating to international civil aviation, including GHG emissions” [*cf.* Appendix J (*Aviation impact on global climate — Cooperation with UN and other bodies*), Operative Clause 1 a)].

7. Equally important, the President believed, was the fact that the Conference had been attended by 21 States representing some of the largest aviation markets in the world. Many of those States were represented through a participant in the GIACC and all of the States were parties to the UNFCCC. It was expected that they would bring to the Fifteenth Conference of the Parties to the UNFCCC (COP15) in Copenhagen in December 2009 a position consistent with the Tokyo Declaration.

8. The President indicated that, in keeping with the GIACC’s focus on policy, the present meeting had been organized to provide updated information during the morning session. After that, the agenda would be solely dedicated to policy topics. The Group was fortunate that under the leadership of Ms. M. Mpfu, as the sitting Chairperson, and with the able leadership of the three Working Group Chairpersons, those topics were well-defined and understood. The President had been informed that the coordination meeting held the previous day (16 February 2009) had been useful in furthering understanding of the issues and the views held by the participants. He took this opportunity to thank Ms. Mpfu for her cooperation and leadership demonstrated since the beginning of GIACC/2.

9. Underscoring that the GIACC was well prepared for the discussions over the next three days, the President noted that it had at its disposal the Secretariat resources and the meeting rooms of ICAO, and that it could count on his full cooperation to assist the Group. All the ingredients were available to make it a very successful meeting. The text of the President’s opening address is available on the GIACC secure website and on the ICAO public website.

10. As sitting Chairperson, Ms. Mpfu then thanked the Chairpersons of the Working Groups and all GIACC participants for their excellent work over the past few months that had generated several of the working papers now before the Group. As Chairperson of the Second Meeting, she knew from personal experience that the GIACC’s work had been greatly facilitated in the interim period between GIACC meetings. Great strides had been achieved under the able leadership of the Working Groups’ Chairpersons. She reiterated that the GIACC’s Third Meeting was a crucial transition from the collection of data and information to the application of the latter to resolve policy questions before the Group.

Election of the Chairperson and Vice-Chairperson for GIACC/3

11. On a nomination by the sitting Chairperson, Ms. M. Mpofo (South Africa), the Group elected Mr. J. Doherty (Australia) as its Chairperson and Mr. G. López Meyer (Mexico) as its Vice-Chairperson for the Third Meeting.

12. In his introductory remarks, the new Chairperson underscored that the Group was moving from the important stage of gathering data and information to putting together a coherent strategy and a persuasive Programme of Action. In recognizing Ms. Mpofo's contribution as Chairperson for the Second Meeting, he stressed the important progress which had been made at GIACC/2 and her efforts in the intervening time to generate momentum and to help coordinate and improve the actions of the Working Groups. Observing that the previous day's coordination meeting had been useful for tackling head on some of the most difficult and critical issues under consideration by the GIACC, the Chairperson noted the role played by Ms. Mpofo in leading that discussion and for working towards useful indications of direction. He also indicated that a draft summary of discussions of the coordination meeting would soon be circulated.

13. In then thanking the President of the Council for his support of the GIACC process and his guidance, the Chairperson underscored that at the recent Ministerial Conference on Global Environment and Energy in Transport in Tokyo the President had been a powerful advocate in that international environment of ICAO's leadership role in addressing GHG emissions from international aviation and of the GIACC process.

Review of the working arrangements

14. The GIACC took the action proposed in paragraph 8.1 of WP/1 and: approved the purpose of its Third Meeting as set forth in paragraph 2 thereof; noted the Agenda for the meeting contained in Appendix A; noted the Group's terms of reference as approved by the Council and previously accepted by the Group as presented in Appendix B; approved the proposed programme for the meeting as outlined in Appendix C; and noted the Group's working methods and working hours as set forth in paragraphs 6 and 7 of the paper. The Chairperson indicated that a brief summary of the key points addressed during each day's discussions would be circulated for comment. Further to a request from Mr. Zhanbin Wang (China), he agreed that his Advisor, Mr. Guoshun Sun, could participate directly in the Group's discussion of specific text of the Working Groups' reports and any other draft GIACC documents.

Approval of the summaries of discussion of GIACC/2

15. The GIACC reviewed and approved the summaries of discussion of its Second Meeting as contained in GIACC/2-SD/1, /2 and /3, on the understanding that Mr. M.V. Pinta Gama (Brazil) would submit his comments thereon to the Secretariat by no later than 26 February 2009 for appropriate action.

Agenda Item 2: Review of aviation emissions-related activities within ICAO and internationally

Presentation on the Ministerial Conference on Global Environment and Energy in Transport (MEET) (Tokyo, 15 and 16 January 2009)

16. Mr. K. Takiguchi (Japan) then elaborated on the Ministerial Conference on Global Environment and Energy in Transport (MEET), hosted by the Ministry of Land, Infrastructure, Transport and Tourism (MLIT) of Japan in Tokyo on 15 and 16 January 2009. The text of the Ministerial Declaration adopted by the Conference was contained in IP/3 presented by Japan.

17. Mr. Takiguchi noted that the Ministerial Conference had been attended by 21 States, including nine GIACC participating States (Australia, Canada, France, Germany, India, Japan, the Russian

Federation, the United Kingdom and the United States), and nine international organizations, including ICAO, the United Nations Framework Convention on Climate Change (UNFCCC) Secretariat and the European Commission (EC). The discussions had focussed on measures on GHG and air pollutant emissions from the transport sector.

18. The Ministerial Conference had been divided into three sessions, with international aviation issues having been addressed in the second session. In his keynote speech at the beginning of the latter session, the President of the Council of ICAO had emphasized that international aviation emissions were, by definition, global in nature and not contained within national boundaries. He had pointed out that Article 2.2 of the Kyoto Protocol stipulated that emissions from international aviation were to be dealt with through ICAO. In addition, the President had drawn close attention to the fact that the aviation industry had a remarkable track record of continuously improving the efficiency of its operations and minimizing the impact of air travel on the environment and specifically, on climate change. He had also emphasized that the 36th Session of the ICAO Assembly had, in Resolution A36-22, called upon ICAO to exercise even more leadership with regard to emissions from international aviation and to establish the GIACC, which was to develop and recommend to ICAO an aggressive Programme of Action in time for consideration by the UNFCCC Fifteenth Conference of the Parties (COP15) to be convened in Copenhagen in December 2009. The President of the Council of ICAO had pointed out that it was vital that ICAO continue building on its excellent cooperation with the UNFCCC and had also emphasized that ICAO had been very active in developing measures and programmes to enhance its contribution to the climate change challenge, such as relevant guidance material, the ICAO Carbon Emissions Calculator, the Workshop on Aviation and Alternative Fuels (Montréal, 10 to 12 February 2009) and the Workshop on Aviation and Carbon Markets (Montréal, 18 to 19 June 2008), *etc.*

19. Mr. Takiguchi recalled that after the keynote speech some Delegates had been invited to express their visions on how to address climate change. Participants had recognized the key role of ICAO as the competent UN body on aviation issues. That discussion had been reflected in the Ministerial Declaration on Global Environment and Energy in Transport adopted by the Conference (IP/3). Mr. Takiguchi highlighted paragraph 4 thereof, in which the Ministers committed themselves to working effectively and collaboratively with international organizations and individual countries and had welcomed the ongoing efforts by international organizations, including ICAO. He underscored that in paragraph 7 the Ministers had recognized the key role of ICAO as the competent UN body on aviation issues and encouraged it to continue to lead in developing globally effective measures to address GHG emissions from international aviation. In paragraph 10 the Ministers had reaffirmed the importance of expeditious discussions in ICAO on limiting or reducing GHG emissions from international aviation in order to fulfil the Ministers' long-term vision of realizing low-carbon and low-pollution transport systems. They had also, in that paragraph, expressed support for: the development by ICAO, preferably by the end of 2009, of an implementation framework that involved a comprehensive approach, consisting of work on technology and standards, and of appropriate operational and market-based measures to reduce GHG emissions from international aviation, as had been resolved by the 36th Session of the ICAO Assembly; and the efforts by ICAO to identify possible global aspirational goals, including in the form of fuel efficiency, for GHG emission reduction. In paragraph 11 the Ministers had welcomed ICAO's consideration of the feasibility and potential benefit of more stringent standards, in particular for NO_x emissions from aircraft engines, and had encouraged ICAO to continue the development of emissions certification standards for other emissions which contributed to aviation's negative environmental impact.

20. In concluding his presentation, Mr. Takiguchi affirmed that the Ministerial Conference on Global Environment and Energy in Transport and its Ministerial Declaration could embolden the political will of States to move forward and to facilitate the work of ICAO in this field, as the President of the Council of ICAO had emphasized in his keynote speech. He noted that Italy would host the Second Ministerial Conference on this subject in Rome in December 2009.

21. The Group noted the above information, as well as IP/3. The Chairperson expressed appreciation to the Government of Japan for hosting the Ministerial Conference and for engaging a further debate on this important issue.

Presentation by the Air Transport Action Group (ATAG) on industry goals and measures to address CO₂ emissions from aviation

[on behalf of Airports Council International (ACI), the Civil Air Navigation Services Organisation (CANSO), the International Air Transport Association (IATA) and the International Coordinating Council of Aerospace Industries Associations (ICCAIA)]

22. Mr. P. Steele, the Executive Director of ATAG, noted that his briefing had been triggered by a request by GIACC Working Groups 1 and 2 for an aggregated set of aspirational goals for the aviation industry in terms of reducing CO₂ emissions from aviation. In reviewing the main output of that work, he underscored that the CO₂ efficiency potential using 2005 as a baseline was 15 per cent by 2012, 32 per cent by 2020 and at least 50 per cent by 2050. Mr. Steele outlined potential measures in five areas (technology development and implementation; improved air traffic management (ATM) and infrastructure use; more efficient operations; economic/market-based measures; and regulatory measures) to achieve CO₂ emissions reductions. In also elaborating on the use of less carbon-intensive aviation fuels such as jatropha, camelina, halophytes and algae, he underscored that such sustainable alternative fuels were crucial to reducing aviation's carbon footprint. Referring to the ICAO Workshop on Aviation and Alternative Fuels (Montréal, 10 to 12 February 2009), Mr. Steele noted that it had been encouraging and underscored that it was now necessary to transform the technical reality of alternative fuels into a commercial, implementable reality. In concluding, he emphasized that the aviation industry firmly supported the GIACC process, which it recognized as being crucial in moving its interests forward and in meeting the key challenge of reducing CO₂ emissions from aviation and addressing climate change. Mr. Steele's presentation is available on the GIACC secure website and on the ICAO public website.

23. Responding to a query regarding the use of biofuels for aviation, Mr. Steele noted that over the last twelve months tests had been done of various mixes of jet fuel with biofuels. He recalled that in a recent test flight by Continental Airlines a 50-50 biofuel blend had been used consisting of 50 per cent jet fuel and 50 per cent algae and jatropha mix. The aviation industry was exploring the ability, depending on the development and availability of biofuels in different parts of the world, to readily interchange biofuels with jet fuel so that over time the quantity of biofuels mixed into the system could be increased. To a point raised regarding carbon neutral growth, Mr. Steele clarified that he had not stated that the ATAG had adopted a carbon neutral timeline of 2050; rather, he had said that in looking at the biofuel opportunity, if a timeline of 2020 were set for carbon neutral growth, then certain volumes of biofuels would be required, and that beyond 2050, biofuels could drive emissions well below current levels. A massive collaborative effort on the part of all stakeholders was required to make that a reality. It was noted that the use of biofuels for aviation was encouraged in Saudi Arabia, a developing country. As the biofuel crops could be grown in the desert and irrigated with sea water, they did not compete with food crops for land or fresh water. Mr. Steele observed, in this context, that jatropha, camelina, halophytes, algae and other biofuel crops could be grown with either waste water or sea water and that some could be used as rotational crops.

24. To further questions, Mr. Steele clarified that 2005 had been used as the baseline in ATAG's analysis of CO₂ efficiency potentials in order to be aligned with the European Union's (EU) Emissions Trading Scheme (ETS) timeline of 2004-2006. He further noted that only CO₂ had been assessed and no equivalents. In light of an additional point raised, Mr. Steele indicated that he could provide the GIACC with a breakdown, on a regional basis, of the envisaged global 12 per cent reduction in CO₂ emissions resulting from airspace design and ATM modernization if that would be useful.

25. With regard to the proposal made recently in the UNFCCC process by the Maldives, on behalf of a group of fifty Least Developed Countries (LDCs), for a flat levy on all air tickets, from all

countries, to fund adaptation work, Mr. Steele observed that, from the aviation industry's perspective, there was a potential for a myriad of different levies, taxes and charges that were all supposedly for the cause of the environment. The aviation industry was prepared to pay its fair share for its CO₂ emissions and it recognized that there were issues that needed to be dealt with in developing countries. However, if any such levy was not reinvested in further developing the initiatives which he had highlighted in his presentation, then it would be another example of taking much needed cash and capital out of the aviation industry that needed to be reinvested in order to make real CO₂ emissions reductions. In reiterating the need for a global solution to a global problem, Mr. Steele emphasized that a multilayering of taxation should be avoided. Noting the situation of the aviation industry during the current recession, he underscored that fiscal policies should be developed in such a way as to assist the aviation industry in moving forward in achieving CO₂ emissions reductions.

26. The Chairperson thanked Mr. Steele for his informative presentation, as well as for the useful input from the aviation industry which ATAG had provided to Working Groups 1 and 2.

Presentation by the International Coalition on Sustainable Aviation (ICSA)

27. On behalf of ICSA, Mr. T. Johnson [Director, Aviation Environment Federation (AEF)], Dr. D. Rutherford [Staff Scientist for the International Council for Clean Transportation (ICCT)] and Mr. B. Hemmings [Aviation Policy Advisor to the European Federation for Transport and Environment (T&E)] gave a briefing on non-governmental organizations' views on aviation and climate change. In his presentation, Mr. Johnson underscored the need for ICAO to set an absolute emissions reduction goal for the short to medium term, with a baseline, in time for the UNFCCC Fifteenth Conference of the Parties (COP15) in Copenhagen in December 2009. He cautioned that the absence of an effective strategy would result in action by other bodies and/or States/regions to limit or reduce GHG emissions from international aviation. Dr. Rutherford, who participated in the work of Working Group 3 (WG3) of the Committee on Aviation Environmental Protection (CAEP), *inter alia*, noted that there was no certainty that aspirational efficiency targets for national fleets would reduce GHG emissions. In emphasizing that ICAO should recommend efficiency or GHG emissions standards for new aircraft, he recalled that the United States Federal Aviation Administration (FAA) had requested CAEP WG3 in November 2008 to work on the technical basis for a CO₂ emissions standard for aircraft. In also underscoring that sustainably produced alternative fuels might play a role in a comprehensive, long-term strategy to control GHG emissions, Dr. Rutherford stressed that any targets established by ICAO must be based upon lifecycle emissions reduction rather than volumetric requirements. Noting that, despite aviation industry calls for a global emissions trading scheme (ETS), ICAO had rejected the opportunity to work thereon in 2004, Mr. Hemmings affirmed that a global ETS had many advantages for aviation. In underscoring the need for ICAO to identify any prerequisites for such a global ETS in order for the latter to be seriously considered in the future, he indicated that there was a role for the GIACC in deliberating on such issues. ICSA's presentation is available on the GIACC secure website and on the ICAO public website.

28. In expressing appreciation for ICSA's constructive work through the CAEP, the Chairperson noted that there was a clear call from the non-governmental organizations for action by ICAO.

Review of developments since GIACC/2

29. The Chief of the Environmental Unit (C/ENV), who is also the Secretary of the Committee on Aviation Environmental Protection (CAEP), then presented WP/5 on recent environmental developments in other United Nations (UN) bodies, including: the results of the UNFCCC Accra Climate Change Talks (21 to 27 August 2008) and the Poznan Climate Change Conference (1 to 13 December 2008), the International Maritime Organization (IMO) 58th Session of the Maritime Environmental Protection Committee (MEPC58) (6 to 10 October 2008); and the activities of the United Nations Environment Programme (UNEP) Environment Management Group (EMG). She presented key climate

change milestones and drew a parallel between the activities of the IMO and ICAO leading to the UNFCCC COP15. C/ENV also outlined the calendar of activities in ICAO, the IMO and the UNFCCC process and informed on the main challenges and opportunities for ICAO.

30. C/ENV then presented WP/6, which provided an update on relevant CAEP activities, including: work to establish technological and operational environmental goals relating to the reduction of fuel burn; work related to the assessment of future CO₂ emissions trends; and an overview of work on guidance material on operational measures to reduce fuel burn and of studies on market-based measures. In addition, C/ENV elaborated on the parallels between policy frameworks for aviation noise and aviation greenhouse gas (GHG) emissions as outlined in Information Paper IP/1. She also provided a summary of the outcome of the Aviation and Alternative Fuels Workshop hosted by ICAO from 10 to 12 February 2009. C/ENV's presentations are available on the GIACC secure website and on the ICAO public website.

31. It was noted, from Appendix B to WP/5, that the IMO MEPC58 had discussed technical measures to reduce CO₂ emissions from international shipping and the applicability of the principle of common but differentiated responsibilities (CBDR) to international maritime but had not reached consensus. A Member indicated that the IMO would be presenting a package of possible measures, which were to be implemented on a voluntary basis in order to test their efficiency, to the UNFCCC COP15 in Copenhagen in December 2009. In 2010, the IMO would be discussing the application of the proposed measures based on the action taken at that meeting. It was suggested that the GIACC look into the IMO's strategy of separating the issues for discussion to determine if it could follow a similar approach. It was also proposed that the Chairperson of the GIACC contact the Chairperson of the MEPC58 to exchange information and views on their respective processes and on how ICAO and the IMO could coordinate their work and contribute in parallel to the UNFCCC COP15.

Subsequent discussion of issues arising from the presentations by ATAG, ICSA and the Chief of the Environmental Unit (C/ENV)

32. The Chairperson invited responses to the suggestion for greater engagement with the IMO, as well as on any other issues arising from the presentations by ATAG, ICSA and C/ENV.

33. One Member indicated that it was her understanding that the IMO was working differently from ICAO in addressing GHG emissions inasmuch as it was working towards a standard, with its Member States having thus only one measure to apply. The GIACC, on the other hand, was working towards a basket of measures from which its Member States could choose, according to their capabilities. ICAO's process therefore seemed to be a little further ahead of the IMO's process. She would like to be more informed regarding the latter if the GIACC wished to learn about the development of an IMO standard with a view to the possible development of an ICAO standard for aviation CO₂ emissions as only one of several measures. The Member would be loathe to restrict the GIACC to one particular measure.

34. Another Member indicated that the presentations had underscored the need for the GIACC to develop its own roadmap for COP15 and to come up with a Programme of Action that would protect ICAO's credibility in addressing aviation emissions. She noted that the presentation on the Ministerial Conference on Global Environment and Energy in Transport (Tokyo, 15 and 16 January 2009) had importantly reflected certain developments at the Ministerial level between the participating States. Observing that the presentation by ATAG had indicated what the aviation industry was capable of doing to reduce aviation emissions, the Member emphasized that ICAO should focus on a gap analysis to determine what issues were outstanding and what action needed to be taken. She considered that the ICSA presentation was of even more relevance as it had raised the strategic question of what ICAO needed to present to COP15 that would ensure that it retained global credibility in what it presented to the world as a global solution for addressing aviation emissions. The Member noted that the presentation by C/ENV had been useful as it had given the context of developments taking place in other fora. Her view, based on the

said presentations, was that there was need for an action plan led by ICAO going to COP/15. Interactions with various institutions were important. ICAO must be externally focussed so that it could develop correct objectives.

35. Noting that her State served as Deputy Chairperson at the IMO and that she herself attended IMO meetings, including those of the MEPC, whenever she was able to do so, the Member agreed that the IMO's strategy was fundamentally different. The locale of debate on addressing emissions was the MEPC, which was the equivalent of the CAEP. No other special body, group or additional institutional framework such as the GIACC had been established by the IMO to take the issue forward. In detail, the MEPC's work was very similar to the work that the CAEP had been doing before the GIACC had been established. It was focussed on technical measures rather than policy. ICAO, on the other hand, had adopted a policy approach and had deliberately established the GIACC to move the emissions debate to a higher strategic level to assist it in putting a proposition forward to the COP15. Thus in a sense the IMO was lagging behind ICAO. While interaction with the IMO was critical, she cautioned as to expectations of leadership from the IMO. In her own assessment, such leadership did not exist: the IMO was a little behind ICAO in addressing emissions. Although synergies between ICAO and the IMO were important, the fact that the two organizations had adopted different approaches meant that they were dealing with particular issues differently. They had different points of emphasis. The Member underscored that, in addition to looking for interactions with the IMO, ICAO should also look for interactions with other external organizations to map its way forward to at least the High-level meeting at which GIACC's Programme of Action would be presented. Such interactions would maximize the latter's potential benefit.

36. In light of the presentation by C/ENV, another Member emphasized that the CAEP should be encouraged to produce interim results for GIACC/4, or sooner, regarding its work in the areas of forecasting, initial round 2 results, market-based measures and the updating of Circular 303 (*Operational Opportunities to Minimize Fuel Use and Reduce Emissions*). Such information would be helpful in providing input on how different kinds of measures could assist in achieving the overall aspirational goals. The Member also supported the interpolation of data referred to by C/ENV in terms of adapting the CAEP's timelines to those of the GIACC, which were more consistent with the UNFCCC's thinking at the present time, namely, 2012, 2020 and 2025. The CAEP should also be requested to provide any insights regarding 2050, even if they were not at the same level of detail. It would also be helpful to have an indication from the CAEP, based on its data and forecasting, as to when it might be possible to attain carbon neutrality. Recalling that the value of a CO₂ emissions standard for aircraft had been emphasized during the ICSA presentation, and underscoring that it was an issue that would catch the public's attention, whether such a standard existed or not, she enquired whether the CAEP had considered establishing such a standard and how long and difficult it might be to achieve, given the tradeoffs with a NO_x emissions standard and other considerations. Referring to the comment made on the need to provide the UNFCCC process with the most effective presentation possible of its Programme of Action, the Member enquired whether there was a series of messages which the GIACC could collectively endorse for ICAO and its Member States.

37. Observing that each GIACC Member had his own view of the IMO's process based on his State's participation therein, another Member emphasized that the GIACC should not await clarifications from the IMO regarding its process to assist it in formulating ICAO's process.

38. Responding to points raised during the discussion, C/ENV agreed that, in terms of deliberations and products, ICAO was more advanced than the IMO. ICAO had, for example, longstanding Standards for NO_x emissions and guidance on emissions trading, whereas the IMO was only exploring those issues. Recalling that ICAO and the IMO were linked together under Article 2.2 of the Kyoto Protocol on addressing GHG emissions from aviation and shipping, she underscored that there was a substantial benefit in having a common strategy for addressing the UNFCCC. Such a strategy would encompass not only how to proceed in that forum but also having a common position on the current legal text of the Kyoto Protocol and on any post-2012 negotiating text.

39. Emphasizing that there was already cooperation between ICAO and the IMO, C/ENV noted the participation of each organization's senior management in the other organization's meetings and the contacts between each organization's high-level officials. Observing that such cooperation also existed with the UNFCCC Secretariat, she stressed that in that way all three processes would be understood and connected.

40. C/ENV confirmed that the CAEP would be able to provide, through its relevant working groups, the said interpolation of data for 2012, 2020, 2025 and 2050. However, it would be necessary for the GIACC to define carbon neutrality before it requested the CAEP's view on when it might be achieved. With regard to a standard for aircraft engine CO₂ emissions, C/ENV recalled that the Fifth Meeting of the CAEP (CAEP/5) (8-17 January 2001) had concluded that there was sufficient economic pressure on the use of fuel in aviation to promote more efficient aircraft engine technology, fuel comprising a large part of airlines' operational costs, and that such a standard was thus not considered necessary at that time. The issue had recently been brought before the CAEP again and would be addressed by Working Group 3 at its next meeting and reported on to the CAEP Steering Group.

41. Recalling that a standard for aircraft engine CO₂ emissions was included in the list of potential measures to reduce aviation emissions contained in the Report of Working Group 2, the Chairperson requested that C/ENV report to GIACC/4 on the outcome of the CAEP's deliberations thereon.

Agenda Item 3: Planning of actions and policy elements to be developed by the Group

Initial review of the Chairperson's draft summary of discussions of the coordination meeting held on 16 February 2009

42. The Group then gave initial consideration to the Chairperson's draft summary of discussions of the previous day's coordination meeting entitled *Aspirational Goals: A way forward in the GIACC process*.

43. A Member reiterated the misgivings he had expressed during the coordination meeting that the first paragraph of the draft summary limited the global, collective aspirational goals to those in the form of fuel efficiency. He had stated the reasons why he considered that that was completely insufficient and he remained of the same opinion. The Member noted that one possible solution that had been suggested during the coordination meeting would be to put the phrase "in the form of fuel efficiency" in parentheses, on the understanding that the text would be revisited later during GIACC/3. He would not, however, subscribe to that. An alternative would be to align the text with the language used in paragraph 10 (2) of the Ministerial Declaration on Global Environment and Energy in Transport adopted by the MEET Conference on 16 January 2009 ("Support the efforts by the ICAO to identify possible global aspirational goals, including in the form of fuel efficiency, ..."), which went further than the text of the draft summary. Recalling that the Ministers of many GIACC Members, including his Minister, had signed that Declaration, he emphasized that he did not wish to deviate from his Government's commitment to combating climate change. In suggesting that the Group review the said language used in the Ministerial Declaration in order to find a solution, the Member underscored that he had difficulty with the current text of the first paragraph of the draft summary.

44. The Chairperson noted that the draft summary was a record of the consensus reached during the coordination meeting. It was his recollection that there had not been general agreement that the GIACC should recommend global aspirational goals that went beyond fuel efficiency, although it had been recognized that it was an issue to be discussed during GIACC/3 in the context of the Report of Working Group 1. The Member maintained that the issue had been totally left open at the end of the coordination meeting and should be left open.

45. In advocating the retention of the existing wording in the draft summary of discussions, a number of other Members expressed concern over changing the GIACC's mandate as reflected in Assembly Resolution A36-22, Appendix K, Operative Clause 2, and putting the phrase "in the form of fuel efficiency" in parentheses. A Member averred that if that phrase was put in parentheses, then both of the paragraphs comprising the draft summary of discussions should be put in parentheses as they did not address Article 2.2 of the Kyoto Protocol, according to which Annex I parties should limit or reduce their emissions from international aviation, and did not fully reflect the UNFCCC principle of common but differentiated responsibilities (CBDR). He had strong reservations regarding the two paragraphs of the draft summary of discussions, especially if the said phrase were put in parentheses. It would be totally unacceptable. Another Member drew attention to paragraph 35 of the Report of Working Group 1, which indicated that "WG/1 discussed the technical issue of a metric for carbon-neutral growth that would be expressed in terms of fuel efficiency. Carbon-neutral growth will be achieved when the rate of fuel efficiency improvement is equal to the rate of increase in Revenue Tonne Kilometers", and emphasized that it was therefore not necessary to put the phrase "in the form of fuel efficiency" in parentheses.

46. The Member who had expressed misgivings recognized that Assembly Resolution A36-22, Appendix K, was something that should always be recalled. He underscored, however, that the GIACC's terms of reference (*cf.* WP/1, Appendix B) called for the Group to consider short-, medium- and long-term goals to guide the Programme of Action. In his view, that clearly meant that the GIACC was not precluded from going beyond fuel efficiency in considering global aspirational goals. The Member indicated that he could accept the said language used in paragraph 10 (2) of the Ministerial Declaration on Global Environment and Energy in Transport as it recognized that while fuel efficiency was an important part of the GIACC's work, the latter was not limited to fuel efficiency. The Member asked that that be kept in mind when the Group came to its final conclusion. Recalling that the GIACC was to work on the basis of consensus, he wished to place on record that he did not support the consensus to which the Chairperson had referred.

47. The Chairperson affirmed that the draft summary of discussions accurately reflected the discussion during the coordination meeting. To a suggestion that the word "capabilities" used in the second sentence of the first paragraph be replaced with the words "historical responsibilities" in order to be in line with Article 2.2 of the Kyoto Protocol, he underscored that the existing wording was what had been agreed to the previous day. The Chairperson suggested, and it was agreed, that the draft summary of discussions be retained in its current form as it reflected the point the discussion had reached during the coordination meeting, but without closing off future views which might lead to the Group revisiting that document.

Presentation of the Report of Working Group 1 on Global Aspirational Goals

48. Ms. B. Gravitis-Beck (Canada), the Chairperson of Working Group 1 on Global Aspirational Goals, elaborated on the Working Group's Report (WP/2), which had been presented during the previous day's coordination meeting. She noted that by the end of that meeting some degree of convergence had been reached. Many of the comments had related to how to phase GIACC's dialogue. A foundation had been laid, which could now be fine-tuned. The GIACC and ICAO should be looking at setting global aspirational goals at a collective level which would not attribute specific obligations to individual States. Working Group 1 had taken a similar approach and then had considered appropriate timelines for such a collective effort, short-, medium- and long-term, and how they could be defined. It had also considered what would be a fuel efficiency metric and the global aspirational goals themselves.

49. There had been a general view that it was important for whatever global aspirational goals were decided upon that the timelines be aligned as much as possible with those of the UNFCCC, recognizing that those may continue to evolve and that it was necessary to monitor them. Notionally, a

timeline for the short-term would be 2012, for the medium term, 2020 and for the longer term, 2050. The nuances to that discussion were reflected in the Working Group's Report.

50. The Working Group had endorsed two options for a fuel efficiency metric: one which was based on liters of fuel consumed divided by Revenue Tonne Kilometers (RTK) performed; and one which was being considered by the CAEP and which was very similar, fuel mass consumed divided by payload times distance. In considering a short-term fuel efficiency goal, the Working Group had used historical levels as an initial indicator for the future. It had used 1990 as a baseline for comparability with the UNFCCC. Recalling that the ATAG had used 2005 as its baseline, the Chairperson of the Working Group indicated that the GIACC might wish to discuss the issue of baselines. She noted that an average annual fuel efficiency improvement of 1.7 per cent to 2.1 per cent had been determined for 1990-2006. When that average annual range was applied to the entire short-term period of 1990 to 2012, the total accumulated fuel efficiency improvement was in the order of 31.5 per cent to 37.8 per cent. The absolute fuel efficiency achieved at the end of the short-term period, 2012, was 35.5 liters to 37.9 liters per 100 RTK. These ranges reflected some of the challenges the Working Group had faced with the data. There were also differences in the methodologies used. The Chairperson of the Working Group indicated that the GIACC should consider whether the magnitude of the said indicative figures, which were also set forth in Appendix A to WP/2, were acceptable. In its consideration, the GIACC should also discuss what was likely attainable in terms of measures (technology, operational efficiencies, *etc.*) and to what degree it wished to have stretch goals. As had been pointed out during the previous day's coordination meeting, aspirations should be stretch objectives.

51. The Chairperson of the Working Group noted that although the Working Group had also considered medium- and long-term global aspirational goals, it had not reached consensus thereon. A number of options had been identified and were included in WP/2. The Working Group had made two recommendations relating to global aspirational goals, one on the importance of improving data collection by 2012, which was a very relevant objective for ICAO, and the other on the importance of reporting, which had also been captured in the reports of Working Groups 2 and 3.

52. The ensuing discussion was based on the final report of Working Group 1 set forth in WP/2 excluding Appendix B in light of a comment made that it did not reflect the views of all Members.

53. One Member recalled the suggestion that the United States had made at the level of Working Group 1 that 2025 be used as a medium-term timeline instead of 2020 as it would enable the GIACC to be more ambitious in setting its global aspirational goals and would allow new technology insertion at a more global level, thus increasing the ability of States to meet those goals. The expectation of significantly more progress was related not only to the introduction of alternative fuels for aviation but also to technology advances, such as those associated with NextGen and SESAR. She noted that there was a common timeframe of some twelve to fifteen years for new technologies to be inserted in the market.

54. The Chairperson of Working Group 1 noted, in this regard, that there had been a general sense that the closer the GIACC stayed to the UNFCCC timelines, the better. Recognizing, however, that those timelines might change, the Working Group had considered that it might need to retain some flexibility to shift the GIACC's timelines depending on what emanated from the UNFCCC process. The Chairperson of Working Group 1 considered that, if setting 2025 as a medium-term timeline enabled the achievement of a more ambitious outcome, then it might be worth the trade-off. While that had not been specifically discussed by the Working Group, it was an important consideration. Responding to a query regarding the baseline used by the Working Group, the Chairperson clarified that it had been considered more powerful, from the communications point of view, to recognize accomplishments in improving fuel efficiency since 1990. It would not resonate as well if the Group were to report only on future fuel efficiency improvements for two years, 2010 to 2012.

55. A Member underscored that it would be easier to set the timelines and assess their reasonableness if the global aspirational goals were first defined. He observed, in this context, that Working Group 1 had not reached consensus on a medium-term global aspirational goal. There had been general support, however, that for a long-term relative goal, as a minimum, aviation should continue to represent no more than 3 per cent of the total GHG emissions globally in 2050. The Member also emphasized that the UNFCCC had not yet set any timelines for reducing GHG emissions. The only date was 2012, the end of the first commitment period under the Kyoto Protocol. It was not known if 2012 would be the year for the beginning of the second commitment period. He underscored that the broad division of 2012 for the short-term, 2020 for the medium-term and 2050 for the long-term was based upon the scenarios of the Intergovernmental Panel on Climate Change (IPCC), not any UNFCCC timelines. The Chairperson of GIACC/3 agreed.

56. Observing that the UNFCCC would be considering timelines for the reduction of GHG emissions during the UNFCCC COP15 in December 2009, a Member indicated that, while it might be appropriate for the GIACC to work in sync with the timelines of 2012, 2020 and 2050 for the time being, it was premature to settle on those dates now. Another Member underscored that the timelines adopted by the GIACC should be in line with any timelines eventually decided upon in the UNFCCC process.

57. In summarizing the discussion, the Chairperson of GIACC/3 indicated that the Group should continue to work, at the moment, on the basis of the timelines of 2012 for the short term, 2020 for the medium term and 2050 for the long term based upon the IPCC scenarios. That would not rule out the possible presentation of additional information regarding expectations for 2025 if that would be useful. It was necessary for the Group to consider the substance of the proposed global aspirational goals before firming up on the timelines for their attainment. If a different schedule were to emanate from the UNFCCC COP15 process and this matter was still being considered in some ICAO forum, then there would be an opportunity to revisit the timelines for those goals at that stage. It was not to be assumed that the GIACC would still be in existence at that time.

58. The Group then considered the issue of a fuel efficiency metric. While supporting a volumetric assessment of liters of fuel consumed divided by RTK performed, one Member expressed concern regarding the use, in one method of calculation of RTK, of the Official Airline Guide (OAG) planned activity data as the latter did not include charter flights, which, in some States, represented a fair amount of traffic. Averring that that could skew the metric, she emphasized the need for actual data. The Chief of the Environmental Unit (C/ENV) noted that in State letter 08/44 dated 27 May 2008, ICAO had requested fuel consumption data for both total international scheduled and non-scheduled flights. The data on international scheduled flights would be matched against the data which the Organization had already received from States and the OAG data, while the data on international non-scheduled flights would be new, additional data. Noting that the other source of information was modelled information, she indicated that the CAEP was using the principle of gate-to-gate in some of its sophisticated models, which included data on international non-scheduled flights. In stressing the need for more data on the latter, C/ENV noted that data on international scheduled flights was much easier to obtain. The Secretary of the GIACC cautioned that it should not be assumed that the Organization would receive a complete set of actual data on international scheduled and non-scheduled flights as not all States responded to its State letters. The Secretariat noted, in this regard, that fewer than 50 States had thus far replied to State letter 08/44 of 27 May 2008. Furthermore, when the reported data had been compared with the OAG data, there had sometimes been large discrepancies. It would thus be very difficult to estimate the total fuel consumption for global aviation based on that *ad hoc* collection of data. The Secretariat further noted that the Statistics Panel would be discussing the issue of fuel consumption data collection during its upcoming meeting in March 2009. There were various approaches which could be taken, including one which used fuel consumption data for international and domestic traffic with a breakdown into scheduled and non-scheduled traffic. It was hoped that when such data collection became a constant element of ICAO's statistics programme, the reporting by States would be better than the response rate to the said State letter. The Chairperson of GIACC/3 underscored that

States would thus have to do as much as possible to improve the collection of data if that was an important part of reporting progress against the global aspirational goals.

59. Averring that the fuel efficiency metric only dealt with the commercial side of energy consumption and not with the emission rate, another Member stressed that at some stage it would be necessary to inject the effect of the emission rate produced per liter of fuel used. He underscored that it was anticipated that the existing emission rate would be even more pronounced in future. In then observing that States did not retain data from airlines, the Member suggested that ICAO request data on international scheduled and non-scheduled flights from the International Air Transport Association (IATA). The Secretary of the GIACC noted that IATA represented only 250 airlines and that there were gaps in its data in regions where airlines were not Members. IATA thus did not have a complete set of data regarding international scheduled and non-scheduled flights.

60. The Chairperson of GIACC/3 observed that while there was now only a small variation in the carbon emissions of current aviation fuels, it might increase as the fuel supply diversified, in particular, as the supply of alternative fuels increased. It would therefore be necessary, in future, to look beyond the proposed fuel efficiency metric to one that more closely reflected the different CO₂ emissions factors. He indicated that the CAEP should be requested to consider the development of a new fuel efficiency metric that took into account alternative fuels, as well as a CO₂ standard for aircraft engines as suggested by a Member. C/ENV recalled that the CAEP had previously discussed how to take into account the net life cycle environmental benefits of alternative fuels and considered that it could be incorporated into the current fuel efficiency metric when more information was available. The CAEP could further explore that issue. Referring to a suggestion that any proposed CO₂ engine emissions standard be submitted to the IPCC for assessment, C/ENV underscored that ICAO worked closely with the IPCC. ICAO was responsible for the aviation portion of the IPCC's emissions database and if the Organization expanded its database, it would become part of the IPCC's database.

61. Noting that the Working Group recommended that the Great Circle Distance between airports be used in the fuel efficiency metric rather than the actual distance flown, a Member underscored that for his State and other developing countries the latter was not the same as the Great Circle Distance, due to ATM and other factors. He therefore did not share the Working Group's view. In then drawing attention to paragraph 32 of the Working Group's Report on a baseline against which fuel efficiency improvements would be measured, the Member emphasized that the global aspirational goals were collective and did not attribute specific obligations to individual States. He therefore suggested that the words "an airline's or Member State's" be deleted so that the paragraph would read "In terms of a baseline against which fuel efficiency improvements would be measured, WG/1 recommends that a three-year average would provide a more accurate reflection of performance, rather than a single year". This was agreed.

62. Another Member stressed that if the Great Circle Distance were not adopted, then there would not be any way to reflect improvements to air navigation systems on international routes in the fuel efficiency metric. It was emphasized that as, under Article 67 (*File reports with Council*) of the Chicago Convention, RTK was reported to ICAO on the basis of the Great Circle Distance, the latter should be used in the fuel efficiency metric as a matter of practicality. It was underscored that the Great Circle Distance was the common way to measure distance and that States should conform to that standard. It was also stressed that it would be difficult to determine the actual distance flown for every international flight. The Chairperson of GIACC/3 observed that there was a broad view in favour of retaining the Great Circle Distance for the fuel efficiency metric.

63. With regard to the Working Group's recommendation that ICAO establish a standard average weight for passengers to be used in the fuel efficiency metric, a Member observed that there was already a standard average weight for passengers that was well-promulgated within ICAO and through national legislation and that was used by airlines. As it was a complicated and lengthy process to change weights, the use of a standard average weight should be encouraged. It was noted, however, that there were

variations to take into account seasonal changes, such as passengers wearing heavier clothing in the winter, as well as other circumstances, such as the nature of the flight (charter or scheduled). Airlines produced their RTK figures based on the standard weight being used at the time. Clarification was sought as to whether the Working Group's recommendation was for a single standard average weight for passengers or whether it would permit the definition of different standard average weights in different circumstances.

64. In suggesting that this issue could be referred to the CAEP for advice, the Chairperson of Working Group 1 noted that the Working Group had considered whether, in order to standardize the measurement and simplify data for the calculation of RTK, the average passenger weight should be homogenized. The answer might be no, in which case there would always be a fairly high degree of complexity and difference and a great reliance on the accuracy of individual State's individual weight measurements that were seasonal, *etc.* It was for the GIACC to decide if it could accept that ambiguity or difference for the purposes of its fuel efficiency metric. The Working Group had considered that the average passenger weight should be homogenized. If it were not standardized, it would not be critical to the fuel efficiency metric. It was an area for advice from the CAEP.

65. In indicating that allowance could be made for regional variations, a Member averred that that was not the main difficulty. The main difficulty was a variation in the average passenger weight used on a single route. Noting that 100 kg was used as an average passenger weight by the United States and 75 kg by China, he expressed concern that if a principle were not defined, the passengers' weight would be measured differently according to whether they were onboard an American or a Chinese carrier. That would not be coherent or consistent. The Member therefore suggested the adoption of a general principle such as "one route, one rule", which would at least harmonize the variability of the average passenger weight on a given route, if there were regional variations.

66. The Chairperson of GIACC/3 noted that the weight of opinion was in favour of the use of a standard average passenger weight which allowed differentiation to represent operational realities. He suggested that the issue of how to achieve consistency in the use of standard average passenger weights across carriers on a given route be referred to the CAEP for further consideration. The Chairperson of GIACC/3 further suggested that the Group prioritize the issues that it was referring to the CAEP so as to ensure that there were sufficient resources therefor.

67. The Chairperson of GIACC/3 noted that no objection had been raised to the use of a three-year average as a baseline against which to measure fuel efficiency improvements.

68. Further consideration of the Report of Working Group 1 was deferred to the next meeting.

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