



ASSEMBLY — 38TH SESSION

REPORT OF THE EXECUTIVE COMMITTEE ON AGENDA ITEM 17

(Section on Climate Change)

(Presented by the Chairperson of the Executive Committee)

The attached report on Agenda Item 17 has been approved by the Executive Committee. Resolution 17/2 is recommended for adoption by the Plenary.

Note.— After removal of this covering sheet, this paper should be inserted in the appropriate place in the report folder.

Agenda Item 17: Environmental protection

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17.3 CLIMATE CHANGE**Sustainable Alternative Fuels for Aviation**

17.3.1 The Council submitted WP/28 on the activities undertaken by ICAO to promote and facilitate the development and deployment of sustainable alternative fuels for aviation, including information sharing on best practices among States and other stakeholders, namely through the ICAO Workshop on Sustainable Alternative Fuels held in October 2011 and the update of the ICAO Global Framework for Aviation Alternative Fuels (GFAAF) website, as well as the promotion of global initiatives, including the launch, on the occasion of the Rio+20 Summit in June 2012, of the ICAO “Flightpath to a Sustainable Future” initiative.

17.3.2 In June 2012, the Sustainable Alternative Fuels Expert Group was established to develop recommendations on this subject. In addition, as presented in WP/26, the work of CAEP on the CO₂ trends assessment addressed the difficulty in quantifying the future production levels of aviation alternative fuels and in accounting for the changes in net CO₂ emissions on a life-cycle basis. These activities allowed for the identification of challenges and next steps, including the need to address initial economic barriers for commercial-scale deployment of aviation alternative fuels and to ensure the sustainability of such fuels, as well as the need to improve how the future production and changes in life-cycle emissions will be reflected in the ICAO environmental trends assessment.

17.3.3 In WP/164, Indonesia provided information on its “Green Aviation Initiatives for Sustainable Development” regarding alternative fuels for aircraft operations, as part of its State action plan on climate change. The Assembly was invited to take into account the initiative for the formulation of policy and recommended implementation measures regarding the mitigation of GHG emissions.

17.3.4 In WP/250, the Russian Federation provided its views on the challenges for the large-scale development and deployment of sustainable alternative fuels for aviation, in particular limited production capacity, high price, low ecological “output factor”, food security issues, etc.

17.3.5 In WP/108, the United States reported its efforts to advance research, development, demonstration and deployment of sustainable alternative jet fuels, including support to fuel certification, environmental and cost analyses and development of production capacity, and recognized the challenges that need to be overcome for the deployment of such fuels. The paper reaffirmed the importance of alternative jet fuels in addressing international aviation’s environmental goals, while challenges should be kept in mind in setting the projection for their possible contribution in the near term. The Assembly was invited to reaffirm the role of ICAO to support Member States’ efforts and facilitate the exchange of information and the sharing of best practices among States, on research, development, demonstration and deployment of sustainable alternative jet fuels.

17.3.6 In WP/83, Lithuania, on behalf of the European Union (EU) and its Member States and the other Member States of the European Civil Aviation Conference (ECAC), reported on the initiatives underway in Europe on sustainable alternative fuels for aviation, and supported a continuing role for ICAO, in particular by gathering information, promoting the application of sound sustainability criteria, facilitating policy convergence on mechanisms to assure sustainability of alternative fuels and to account for the benefits in terms of life-cycle GHG emissions, and participating in international fora on alternative fuels.

17.3.7 The Committee highlighted the progress achieved since the last Assembly, and supported further work by ICAO and its Member States to address the challenges in the development and deployment of sustainable alternative fuels for aviation, including the work on sustainability criteria and the projection of future production and life-cycle environmental benefits of such fuels.

States' Action Plans

17.3.8 The Council submitted WP/30 on developments in ICAO since the last Assembly related to States' action plans for CO₂ emissions reduction activities. To assist States to voluntarily prepare and submit action plans to ICAO by June 2012, as set forth by Assembly Resolution A37-19, ICAO developed within a two-year timeframe, a guidance document, an action plan template and web interface, as well as held eight hands-on training workshops. By mid-August 2013, 63 Member States, representing approximately 80 per cent of global international air traffic, prepared and submitted action plans to ICAO. It was expected that the submission of additional action plans by the end of 2013 would bring the total coverage of global international air traffic to over 90 per cent.

17.3.9 Building upon these initiatives and following the review of the information contained in the action plans submitted to ICAO, areas of improvement and next steps have been identified to enhance the quality of the action plans, help harmonize the data contained therein, and increase the number of action plans being prepared and updated.

17.3.10 In WP/305, Brazil recognized the importance of submitting voluntary action plans as a valuable instrument to report ongoing efforts and future plans of individual Member States in addressing the environmental impacts of international aviation. Brazil supported the initiatives of the Organization, highlighted the voluntary nature of States' action plans, and recommended that the action plans submitted be made publically available to promote the transparency and effectiveness of the initiatives.

17.3.11 In WP/165, Indonesia provided information on its "Green Aviation Initiatives for Sustainable Development" regarding renewable energy for airport operations as part of its State action plan on climate change. The Assembly was invited to take into account the initiative for the formulation of policy and recommended implementation measures regarding the mitigation of GHG emissions.

17.3.12 In WP/250, the Russian Federation highlighted the need to maintain the voluntary nature of States' action plans, and its value as an instrument to report ongoing efforts and future plans of individual member States.

17.3.13 In WP/234, the United States strongly supported the initiatives of the Organization and recognized States' action plans as an effective tool to highlight the ongoing efforts and future plans of individual Member States to address the climate impacts of aviation and to make progress toward the ICAO goals. The paper recommended the enhancement of action plans, including submitting and updating the plans every three years from June 2012, and in order to be most effective, making the action plans available to the public.

17.3.14 In WP/83, Lithuania, on behalf of the European Union (EU) and its Member States and the other Member States of the European Civil Aviation Conference (ECAC), emphasized the need for improvements in reporting by States of fuel consumption and CO₂ emission, so as to better track progress towards achieving global goals. The paper also encouraged partnerships between States for the development of action plans, including through the mobilization of financial and technical support for those States that are willing to develop action plans.

17.3.15 In WP/317, 18 Member States of the Latin American Civil Aviation Commission (LACAC) recognized the importance of States' voluntary action plans for achieving ICAO's environmental objectives and promoting sustainable aviation. Therefore, the Latin American region was highly committed to promoting the development of such plans, and it was noted that six States of Central America developed and submitted a joint action plan (WP/279 refers).

17.3.16 The Chairperson acknowledged five working papers (WPs 131, 268, 279, 328 and 346) submitted for information purposes.

17.3.17 The Committee acknowledged the successful outcome of the initiatives and the progress made by the Organization with respect to the preparation and submission of States' action plans, and supported the continued work of the Organization in further assisting States in the preparation and update of action plans, and the implementation of the measures contained therein.

17.3.18 The Committee highlighted the importance of reinforcing the voluntary nature of States' action plans. It encouraged Member States to voluntarily submit more complete and robust data in their action plans to facilitate the compilation of global emissions data by ICAO, and to make their action plans publically available. It also encouraged the partnerships among ICAO, States and other organizations to support the preparation of action plans, and emphasized the need for the Secretariat to provide further guidance and other technical assistance.

Assistance to States

17.3.19 The Council submitted WP/31 on developments in ICAO since the last Assembly concerning the provision of assistance to Member States in facilitating access to technology transfer, capacity building and financial resources, as well as in the preparation of States' action plans.

17.3.20 The high level of interest, cooperation and engagement of Member States and other stakeholders during the action plans initiative and the substantial progress made, within a very short timeframe, was in large part due to a robust capacity-building programme, ranging from the provision of guidance material and practical tools, such as the ICAO Fuel Savings Estimation Tool (IFSET), to hands-on training workshops and over 200 teleconferences with individual national focal points. Other outreach activities, including the ICAO Symposium on Aviation and Climate Change held in May 2013, as well as various publications, have enhanced capacity building for, and technology transfer to, States.

17.3.21 The ICAO Assistance for Action – Aviation and Climate Change Seminar, held in October 2012, identified opportunities to provide the assistance required to implement the measures identified in States' action plans. It was highlighted that ICAO has been building partnerships with other international organizations with a view to establishing processes that can facilitate financing to Member States that require such assistance. ICAO has entered into such partnerships with the Global Environment Facility (GEF), as well as the European Union (EU).

17.3.22 In WP/176, the Kingdom of Saudi Arabia provided its viewpoint on issues related to international aviation and climate change. Regarding assistance to States, the paper invited the Assembly to urge studying the identification and development of mechanisms to facilitate the provision of technical and financial assistance to developing countries, and facilitate their access to existing and new financial resources, technology transfer, capacity-building, and measures to adapt to environmental impacts. It also invited the Assembly to urge the study of innovative ideas on funding sources to cover the cost of adaptation measures, and technology transfer without resorting to the imposition of fees or taxes on the consumption of aircraft fuel.

17.3.23 The Chairperson acknowledged two working papers (WPs 166 and 270) submitted for information purposes.

17.3.24 The Committee acknowledged the developments in ICAO related to the provision of assistance to States on aviation and climate change, including the recent partnerships established with the GEF and with the EU to facilitate financing for States' action plans. It also supported the continued work of the Organization in providing assistance to States in the preparation and implementation of action plans and in continuing to facilitate access to existing and new financial resources, technology transfer and capacity building to developing countries.

Cooperation with Other United Nations (UN) Bodies and International Organizations

17.3.25 The Council submitted WP/32 on developments since the last Assembly related to the environmental work of ICAO, undertaken in cooperation with other UN bodies and international organizations. Information provided in WP/32 included the developments emanating from: the United Nations Framework Convention on Climate Change (UNFCCC) process; the International Maritime Organization (IMO); the United Nations Conference on Sustainable Development (UNCSD), also known as the Rio+20 Summit; the Intergovernmental Panel on Climate Change (IPCC); the United Nations Development Programme (UNDP); and the World Tourism Organization (UNWTO).

17.3.26 Regarding the mobilization of revenue for climate finance and the use of international aviation as a potential source of such revenue to the other sectors under discussion by the UNFCCC process, text conveying a concern that international aviation should not be targeted as a source of such revenue in a disproportionate manner, was proposed in the action of WP/32, as well as draft Assembly Resolution text on international aviation and climate change, as proposed in WP/34.

17.3.27 The Committee agreed to the proposed actions contained in WP/32, and recommended the Assembly to:

- a) support the continued cooperation of ICAO with other UN bodies and international organizations, in particular in the field of international aviation and climate change;
- b) request Member States to express a clear concern, through the UNFCCC process, on the use of international aviation as a potential source for the mobilization of revenue for climate finance to the other sectors, in order to ensure that international aviation would not be targeted as a source of such revenue in a disproportionate manner; and
- c) request Member States to communicate and coordinate with their delegations of Parties to the UNFCCC process regarding developments on international aviation and climate change under ICAO.

17.3.28 The Council submitted WP/33 on the progress of ICAO in providing support to the other UN agencies under the UN Climate Neutral Initiative. The ICAO Carbon Emissions Calculator continued to serve as the official UN tool to estimate the air travel component of UN bodies' emissions inventories, and updates and technical assistance for the Calculator were provided. ICAO also developed the Green Meetings Calculator which generates an optimal location for a meeting in terms of air travel CO₂ emissions of the meeting participants. ICAO's carbon emissions inventory is updated annually, and substantial work was also undertaken by the Secretariat task force to develop the Emissions Reduction Plan for the Organization.

17.3.29 The Committee requested the Council to continue to cooperate with the UN Climate Neutral Initiative and to maintain its leadership by developing methods and updating tools for quantifying

aviation's GHG emissions. It also requested the Council to further develop and implement the strategy for reducing GHG emissions and enhancing sustainability management practices within the Organization.

Market-based Measures (MBMs)

17.3.30 The Council submitted WP/29 on the work of the Organization related to market-based measures (MBMs) in response to the last Assembly, which requested the Council to: develop a framework for MBMs; review the *de minimis* threshold to MBMs; explore the feasibility of a global MBM scheme; collect information on the volume of carbon offsets; and study the Clean Development Mechanism of the Kyoto Protocol for application to international aviation.

17.3.31 WP/29 informed that, regarding the feasibility of a global MBM scheme, potential options for a global scheme were reviewed, and in June 2012, the Council reduced the options to three, for further elaboration of design elements and impacts analysis. In November 2012, the Council recognized that the results of the qualitative and quantitative analysis of the three options demonstrated that they were technically feasible. In 2013, the analysis was further refined, using updated traffic forecasts and CO₂ trends from CAEP. WP/29 also covered the work on the development of a framework for MBMs, which was undertaken in parallel with the work on a global scheme, and focused on the key issues including: the purpose of the framework, geographical coverage of MBMs, and how to accommodate States' special circumstances and respective capabilities.

17.3.32 The Committee acknowledged the work undertaken by the Organization on MBMs in responding to the requests of the last Assembly.

17.3.33 In WPs 250 and 275, the Russian Federation presented an analysis of an MBM's capacity to reduce the volume of CO₂ emission within the international aviation sector. WP/250 proposed an alternative approach for reductions of CO₂ emissions within the sector. It proposed to revise the global aspirational goals, so that the goals could be achieved by reducing CO₂ emissions within the sector and to study the possibility of replacing the concept of MBMs with the concept of "economic incentives" to achieve "real" reductions. The paper also proposed examining the possibility of creating an ICAO climate fund to provide assistance to developing States, and establishing "an aviation mobile forest fire fighting forces" under the auspices of the UN as an alternative for the sector to provide financial resources to the UNFCCC Green Climate Fund. The paper also urged States to abandon the principle of *de minimis* exemptions to MBMs. WP/275 proposed amendments to draft Resolution text on international aviation and climate change being submitted by the Council in WP/34.

17.3.34 In WP/176, the Kingdom of Saudi Arabia provided its viewpoint on issues related to international aviation and climate change. Regarding MBMs, the paper invited the Assembly to focus on more effective measures than MBMs to reduce emissions, and to request further study by the Secretariat on the economic impact of MBMs on developing and remote States.

17.3.35 In WP/258, the United Arab Emirates provided its views on the proposed Resolution text contained in WP/34. The paper invited the Assembly to: adopt a framework for MBMs applicable within the airspace of the implementing State without the requirement of mutual consent; agree to develop a global MBM scheme for international aviation including a roadmap and timeline; request the Council to present the results of such work to the 39th Session of the Assembly in 2016; request Council to develop ICAO Standards for monitoring, reporting and verification (MRV) with respect to GHG emissions from aircraft operators engaged in international aviation; and request the Council to further explore an alternative fuel efficiency metric.

17.3.36 In WP/350, Viet Nam invited the Assembly to request States to refrain from taking unilateral MBMs and to work collaboratively with ICAO to address aviation emissions. The paper also urged ICAO to provide strong leadership in continuing its efforts to reduce aviation's contribution to climate change, while keeping aviation safe, affordable and accessible.

17.3.37 In WP/272, 54 African States outlined their position, in particular on MBMs. The paper invited the Assembly to request the Council to develop, for consideration at the 39th Session of the Assembly in 2016, an administratively simple global MBM Scheme, which should be a transitional measure and complementary to technical measures. It also invited the Assembly to resolve that any MBM that a State or a Region proposes with respect to international civil aviation prior to the adoption of the global scheme, should be based on mutual consent of concerned States and should grant exemptions on the routes to and from developing States whose international civil aviation activities is below the threshold of 1% of total revenue tonne kilometres of international civil aviation activities.

17.3.38 In WP/234, the United States welcomed technical work undertaken to assess the feasibility of a global MBM scheme and consider elements of a framework for MBMs. The United States supported the finding that MBMs would be technically feasible. The paper stressed the need to build on the work already completed and to work towards the development of a global MBM scheme with the Council making a recommendation on such a scheme at the 39th Assembly in 2016. Future work would include the development of a common approach to MRV of emissions, establishment of acceptable types of carbon credits that would be eligible for compliance with an MBM, and development of approaches to address special circumstances and respective capabilities. The framework should provide guidance to States and Regions for the implementation of MBMs in the absence of a global MBM scheme.

17.3.39 In WP/83, Lithuania, on behalf of the European Union (EU) and its Member States and the other Member States of the European Civil Aviation Conference (ECAC), highlighted the progress made since the last ICAO Assembly, including the recognition by the ICAO Council in November 2012 that global MBMs would be technically feasible. The support for adoption of a global MBM by the global aviation industry and by civil society organisations was also highlighted. This paper invited the Assembly to: agree to establish a long-term global goal for emissions reduction and adopt a work programme and timetable for completing the design of the global MBM, including a set of tasks to deliver the key technical elements, for endorsement at the 39th Session of the Assembly in 2016; agree to the application of a global MBM by 2020; and work towards an enabling framework for MBMs implemented by States or groups of States, pending the entry into force of the global MBM.

17.3.40 In WP/68, the Airports Council International (ACI), the Civil Air Navigation Services Organisation (CANSO), the International Air Transport Association (IATA), the International Business Aviation Council (IBAC) and the International Coordinating Council of Aerospace Industries Associations (ICCAIA) recognized the complementary and transitional nature of MBMs in the context of the four-pillar strategy, and called for the Assembly to establish a clearly defined process for the Council to develop, for adoption at the 39th Session of the Assembly in 2016, a single, global MBM based on the principles set out in the Appendix to WP/68. Such principles included maximizing environmental integrity, while minimizing competitive distortion and administrative complexity. The aviation industry believed that a simple carbon offsetting scheme would be the quickest to implement, the easiest to administer and the most cost-efficient. WP/68 invited the Assembly to request the Council to develop key design elements of a global MBM scheme, including the development of an ICAO Standard for the MRV of emissions with the principle that each operator should report its emissions to one State only.

17.3.41 In WP/288, the International Coalition for Sustainable Aviation (ICSA) stressed that a global MBM would be the only feasible mechanism to close the gap between emission goals and

projected actual emissions, highlighting the importance of taking early action. This paper invited the Assembly to agree to develop a global MBM for adoption in 2015 and implementation in 2016 which would be effective in reducing emissions, non-discriminatory, non-distortive, and accommodates Special Circumstances and Respective Capabilities (SCRC) concerns. It also recognized that national and regional MBMs would be essential tools in the interim if the sector is to make its fair contribution to ensure global warming remains below 2 degrees.

17.3.42 In WP/289, ICSA called for establishing a more effective committee-based decision-making process on environmental issues and enhancing transparency by embracing opportunities for positive public participation in ICAO work on the climate change impacts of international civil aviation.

17.3.43 The Chairperson acknowledged two working papers (WPs 183 and 271) submitted for information purposes.

Discussion

17.3.44 In WP/34, the Council submitted a proposal for updating Assembly Resolution A37-19, *Consolidated statement of continuing ICAO policies and practices related to environmental protection – Climate change*, in light of the progress made since the last Assembly in key areas of work on international aviation and climate change. It was highlighted that since 2010, the Council was engaged in extensive discussions and consultations to bridge the different views and expectations on important issues and to develop draft Assembly Resolution text that would reflect a good level of compromise that would be acceptable by most. While the Council decided to submit the proposal presented in the Appendix to WP/34, some Council members expressed divergent views on issues related to MBMs.

17.3.45 During the discussion on WP/34, a substantial number of States expressed the view that, although draft Assembly Resolution text presented in the Appendix to WP/34 was not perfect, they were ready to accept the proposed text, as it represented the results of significant efforts made by the Council and it would be a well-balanced and acceptable compromise.

17.3.46 Several other States expressed concern, in particular on paragraphs 17 and 18 of draft Assembly Resolution text related to MBMs and other issues, and suggested that further discussion and consultation be undertaken to improve the proposed text. A few States suggested the establishment of a working group to move forward.

17.3.47 Noting the different views expressed by States, in particular on issues related to MBMs, the Chairperson proposed, and the Committee agreed, that the Chair would undertake informal consultations with delegations to bridge the different views, using the proposed text presented in the Appendix to WP/34 as the basis to move forward.

17.3.48 At its seventh, eighth, ninth and tenth meetings, the Executive Committee considered possible amendments to the draft Assembly Resolution text in WP/34. The Committee was informed of the progress of the informal consultations, which were undertaken in a true spirit of cooperation, and was presented with a revised proposal for the revisions to Assembly Resolution A37-19 as reflected in WP/378. It also received additional proposals to amend draft Assembly Resolution text, including those contained in WPs 424, 425, 426, 427 and 432. The proposals contained in WP/425 were accepted by voting in accordance with Standing Rules of Procedure of the Assembly, and were reflected in the draft Assembly Resolution text accordingly. Other proposals and amendments were considered and, after substantial discussion, amendments to paras. 18 and 19 of the draft Assembly Resolution in WP/378, as well as a new item in the list of guiding principles contained in the Annex to the draft Assembly

Resolution, were accepted by consensus. The Committee agreed to recommend that the Assembly adopt the following draft Resolution:

Resolution 17/2: Consolidated statement of continuing ICAO policies and practices related to environmental protection – Climate change

Whereas ICAO and its member States recognize the critical importance of providing continuous leadership to international civil aviation in limiting or reducing its emissions that contribute to global climate change;

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;

Whereas the ultimate objective of the United Nations Framework Convention on Climate Change (UNFCCC) is to achieve stabilization of greenhouse gas (GHG) concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system;

Whereas the Kyoto Protocol, which was adopted by the Conference of the Parties to the UNFCCC in December 1997 and entered into force on 16 February 2005, calls for developed countries (Annex I Parties) to pursue limitation or reduction of greenhouse gases from “aviation bunker fuels” (international aviation) working through ICAO (Article 2.2);

Acknowledging that international aviation emissions, currently accounting for less than 2 per cent of total global CO₂ emissions, are projected to grow as a result of the continued development of the sector;

Whereas a comprehensive assessment of aviation’s impact on the atmosphere is contained in the special report on *Aviation and the Global Atmosphere*, published in 1999, which was prepared at ICAO’s request by the Intergovernmental Panel on Climate Change (IPCC) in collaboration with the Scientific Assessment Panel to the Montreal Protocol on Substances that Deplete the Ozone Layer;

Whereas the IPCC special report recognized that the effects of some types of aircraft emissions are well understood, it revealed that the effects of others are not, and identified a number of key areas of scientific uncertainty that limit the ability to project aviation’s full impacts on climate and ozone;

Whereas ICAO requested that the IPCC include an update of the main findings of the special report in its Fourth Assessment Report, published in 2007 and its Fifth Assessment Report to be published in 2014;

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

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;

Recognizing that this Resolution does not set a precedent for or prejudge the outcome of negotiations under the UNFCCC and its Kyoto Protocol nor represent the position of the Parties to the UNFCCC and its Kyoto Protocol;

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;

Noting that, to promote sustainable growth of aviation, a comprehensive approach, consisting of work on technology and standards, and on operational and market-based measures to reduce emissions is necessary;

Acknowledging the significant technological progress made in the aviation sector, with aircraft produced today being about 80 per cent more fuel efficient per passenger kilometre than in the 1960's;

Welcoming the agreement by the Committee on Aviation Environmental Protection (CAEP) of certification requirements for a global CO₂ Standard for aircraft;

Recognizing that air traffic management (ATM) measures under the ICAO's Global Air Navigation Plan contribute to enhanced operational efficiency and the reduction of aircraft CO₂ emissions;

Welcoming the adoption of the Aviation System Block Upgrades (ASBUs) strategy at the ICAO Twelfth Air Navigation Conference in November 2012;

Recalling that Assembly Resolution A37-19 requested the Council, with the support of member States, to undertake work to develop a framework for market-based measures (MBMs) in international aviation, including further elaboration of the guiding principles listed in the Annex to A37-19, for consideration by the 38th Session of the ICAO Assembly;

Recognizing the importance of avoiding a multiplicity of approaches for the design and implementation of MBM framework and MBM schemes;

Recalling that Assembly Resolution A37-19 requested the Council to explore the feasibility of a global MBM scheme to address emissions from international aviation;

Noting the decision of the Council on 9 November 2012, which recognized that the results of the qualitative and quantitative analysis of the three options for a global MBM scheme evaluated by the Secretariat with the support of the Experts on MBMs demonstrated that all three options were technically feasible and had the capacity to contribute to achieving ICAO's environmental goals, and that the Council agreed that further quantitative analysis of the three options needed to be undertaken to develop more robust and concrete conclusions;

Recognizing the potential desirability of a global MBM scheme in terms of providing an additional means of promoting achievement of the aspirational global goal referred to in paragraph 7;

Noting the support of the aviation industry for a single global carbon offsetting scheme, as opposed to a patchwork of State and regional MBMs, as a cost effective measure to complement a

broader package of measures including technology, operations and infrastructure measures;

Noting that the Conference on Aviation and Alternative Fuels in November 2009 (CAAF/09) endorsed the use of sustainable alternative fuels for aviation, particularly the use of drop-in fuels in the short to mid-term, as an important means of reducing aviation emissions;

Also noting that the CAAF/09 established an ICAO Global Framework for Aviation Alternative Fuels (GFAAF);

Noting the progress achieved in proving the technological feasibility of drop-in sustainable alternative fuels for aviation and that such fuels will require the introduction of appropriate policies and incentives to create a long-term market perspective;

Acknowledging the need for such fuels to be developed and deployed in an economically feasible, socially and environmentally acceptable manner and the need for increased harmonization of the approaches to sustainability;

Noting that, consistent with Assembly Resolution A37-19, a substantial strategy for capacity building was undertaken by the Organization to assist the preparation and submission of States' action plans, including the holding of hands-on training workshops and the development of guidance material, an interactive web-interface and the ICAO Fuel Savings Estimation Tool (IFSET);

Welcoming that, as of 30 June 2013, 61 member States that represent 78.89 per cent of global international air traffic voluntarily prepared and submitted their action plans to ICAO;

Noting that the ICAO "Assistance for Action – Aviation and Climate Change" Seminar in October 2012 highlighted the active involvement of member States and international organizations in the activities related to States' action plans, explored possible sources of financial support for environmental action and provided an opportunity to share information and build partnerships in order to facilitate assistance identified by States for the preparation and implementation of their action plans;

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;

Affirming that specific measures to assist developing States as well as to facilitate access to financial support, technology transfer and capacity building should be initiated as soon as possible;

Whereas the Kyoto Protocol provides for different flexible instruments (such as the Clean Development Mechanism — CDM) which would benefit projects involving developing States;

Affirming that addressing GHG emissions from international aviation requires the active engagement and cooperation of States and the industry, and *noting* the collective commitments announced by Airports Council International (ACI), Civil Air Navigation Services Organisation (CANSO), International Air Transport Association (IATA), International Business Aviation Council (IBAC) and International Coordinating Council of Aerospace Industries Associations (ICCAIA) on behalf of the international air transport industry, to continuously improve CO₂ efficiency by an average of 1.5 per cent per annum from 2009 until 2020, to achieve carbon neutral growth from 2020 and to reduce its carbon emissions by 50 per cent by 2050 compared to 2005 levels;

Recognizing the need to monitor and report the potential impacts of climate change on international aviation operations and related infrastructure; and

Recognizing the progress made by ICAO in its implementation of the Climate Neutral UN initiative and the significant support provided by ICAO to the initiative, in particular through the development of a common methodology for calculating GHG emissions from air travel;

The Assembly:

1. *Resolves* that this Resolution, together with Resolution A38-yy: Consolidated statement of continuing ICAO policies and practices related to environmental protection - General provisions, noise and local air quality, supersede Resolutions A37-18 and A37-19 and constitute the consolidated statement of continuing ICAO policies and practices related to environmental protection;

2. *Requests* the Council to:

- a) ensure that ICAO exercise continuous leadership on environmental issues relating to international civil aviation, including GHG emissions;
- b) continue to study policy options to limit or reduce the environmental impact of aircraft engine emissions and to develop concrete proposals and provide advice as soon as possible to the Conference of the Parties of the UNFCCC, encompassing technical solutions and market-based measures, and taking into account potential implications of such measures for developing as well as developed countries; and
- c) continue to cooperate with organizations involved in policy-making in this field, notably with the Conference of the Parties to the UNFCCC;

3. *Reiterates* that:

- a) ICAO should continue to take initiatives to promote information on scientific understanding of aviation's impact and action undertaken to address aviation emissions and continue to provide the forum to facilitate discussions on solutions to address aviation emissions; and
- b) emphasis should be on those policy options that will reduce aircraft engine emissions without negatively impacting the growth of air transport especially in developing economies;

4. *Reaffirms* that this Resolution does not set a precedent for or prejudice the outcome of negotiations under the UNFCCC and its Kyoto Protocol nor represent the position of the Parties to the UNFCCC and its Kyoto Protocol;

5. *Resolves* that States and relevant organizations will work through ICAO to achieve a global annual average fuel efficiency improvement of 2 per cent until 2020 and an aspirational global fuel efficiency improvement rate of 2 per cent per annum from 2021 to 2050, calculated on the basis of volume of fuel used per revenue tonne kilometre performed;

6. *Agrees* that the goals mentioned in paragraph 5 above would not attribute specific obligations to individual States, and 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 voluntarily contribute to achieving the global aspirational goals;

7. *Also resolves* that, without any attribution of specific obligations to individual States, ICAO and its member States with relevant organizations will work together to strive to achieve a collective medium term global aspirational goal of keeping the global net carbon emissions from international aviation from 2020 at the same level, taking into account: the special circumstances and respective capabilities of States, in particular developing countries; the maturity of aviation markets; the sustainable growth of the international aviation industry; and that emissions may increase due to the expected growth in international air traffic until lower emitting technologies and fuels and other mitigating measures are developed and deployed;

8. *Recognizes* the many actions that ICAO member States have taken and intend to take in support of the achievement of the collective aspirational goals, including air traffic management modernization, acceleration of the use of fuel-efficient aircraft technologies, and the development and deployment of sustainable alternative fuels, and *encourages* further such efforts;

9. *Agrees* to review, at its 39th Session, the goal mentioned in paragraph 7 above in light of progress towards the goal, studies regarding the feasibility of achieving the goal, and relevant information from States;

10. *Requests* the Council to continue to explore the feasibility of a long term global aspirational goal for international aviation, through conducting detailed studies assessing the attainability and impacts of any goals proposed, including the impact on growth as well as costs in all countries, especially developing countries, for the progress of the work to be presented to the 39th Session of the ICAO Assembly. Assessment of long term goals should include information from member States on their experiences working towards the medium term goal.

11. *Further encourages* States to submit their voluntary action plans outlining their respective policies and actions, and annual reporting on international aviation CO₂ emissions to ICAO;

12. *Invites* those States that choose to prepare or update their action plans to submit them to ICAO as soon as possible preferably by the end of June 2015 and once every three years thereafter, in order that ICAO can continue to compile the information in relation to achieving the global aspirational goals, and the action plans should include information on the basket of measures considered by States, reflecting their respective national capacities and circumstances, information on the expected environmental benefits from the implementation of the measures chosen from the basket, and information on any specific assistance needs;

13. *Encourages* States that already submitted their action plans to share information contained in their action plans and build partnerships with other member States in order to support those States that have not prepared their action plans;

14. *Encourages* States to make their action plans available to the public, taking into account the commercial sensitivity of information contained in States' action plans;

15. *Requests* the Council to facilitate the dissemination of economic and technical studies and best practices related to aspirational goals and to continue to provide guidance and other technical

assistance for the preparation and update of States' action plans prior to the end of June 2015, in order for States to conduct their necessary studies and to voluntarily submit their action plans to ICAO;

16. *Resolves* that States, when designing new and implementing existing MBMs for international aviation should:

- a) engage in constructive bilateral and/or multilateral consultations and negotiations with other States to reach an agreement, and
- b) grant exemptions for application of MBMs on routes to and from developing States whose share of international civil aviation activities is below the threshold of 1% of total revenue ton kilometres of international civil aviation activities, until the global scheme is implemented;

17. *Requests* the Council to review the *de minimis*, including the *de minimis* threshold of MBMs mentioned in paragraph 16 b) above, taking into account the specific circumstances of States and potential impacts on the international aviation industry and markets, and with regard to the guiding principles listed in the Annex, to be presented for consideration by the 39th Session of the Assembly in 2016;

18. *Decides* to develop a global MBM scheme for international aviation, taking into account the work called for in paragraph 19;

19. *Requests* the Council, with the support of member States, to:

- a) finalize the work on the technical aspects, environmental and economic impacts and modalities of the possible options for a global MBM scheme, including on its feasibility and practicability, taking into account the need for development of international aviation, the proposal of the aviation industry and other international developments, as appropriate, and without prejudice to the negotiations under the UNFCCC;
- b) organize seminars, workshops on a global scheme for international aviation participated by officials and experts of member States as well as relevant organizations;
- c) identify the major issues and problems, including for member States, and make a recommendation on a global MBM scheme that appropriately addresses them and key design elements, including a means to take into account special circumstances and respective capabilities as provided for in paragraphs 20 to 24 below, and the mechanisms for the implementation of the scheme from 2020 as part of a basket of measures which also include technologies, operational improvements and sustainable alternative fuels to achieve ICAO's global aspirational goals; and
- d) report the results of the work in sub-paragraphs a), b) and c) above, for decision by the 39th Session of the Assembly;

20. *Resolves* that an MBM should take into account the special circumstances and respective capabilities of States, in particular developing States, while minimizing market distortion;

21. *Also resolves* that special circumstances and respective capabilities of developing States could be accommodated through *de minimis* exemptions from, or phased implementation for, the application of an MBM to particular routes or markets with low levels of international aviation activity, particularly those serving developing States;

22. *Also resolves* that, the administrative burden associated with the implementation of an MBM to States or aircraft operators with very low levels of international aviation activity should not exceed the benefits from their participation in the MBM, and that exemptions from the application of the MBM to such States or aircraft operators should be considered, while maintaining the environmental integrity of the MBM;

23. *Also resolves* that adjustments to MBM requirements for aircraft operators could be on the basis of fast growth, early action to improve fuel efficiency, and provisions for new entrants;

24. *Further resolves* that, to the extent that the implementation of an MBM generates revenues, it should be used in consistency with guiding principle n) in the Annex;

25. *Recognizes* that in the short term voluntary carbon offsetting schemes constitute a practical way to offset CO₂ emissions, and *invites* States to encourage their operators wishing to take early actions to use carbon offsetting, particularly through the use of credits generated from internationally recognized schemes such as the CDM;

26. *Requests* the Council to collect information on the volume of carbon offsets purchased in relation to air transport, including through States' action plans submitted to ICAO, and to continue to develop and disseminate best practices and tools, such as the ICAO Carbon Emissions Calculator, that will help harmonize the implementation of carbon offset programmes;

27. *Requests* the Council to maintain and enhance 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, fuel consumption and CO₂ emissions;

28. *Requests* the Council to request States to continue to support the efforts of ICAO on enhancing the reliability of measuring/estimating global GHG emissions from international aviation;

29. *Requests* the Council to regularly report CO₂ 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;

30. While recognizing that no effort should be spared to obtain means to support the reduction and stabilization of CO₂ emissions from all sources, *urges* that ICAO and its member States express a clear concern, through the UNFCCC process, on the use of international aviation as a potential source for the mobilization of revenue for climate finance to the other sectors, in order to ensure that international aviation would not be targeted as a source of such revenue in a disproportionate manner;

31. *Requests* the Council to:

- a) continue to play a pivotal role in providing assistance to its member States through the dissemination of the latest information on best practices and the provision of

guidance and other technical assistance to enhance capacity building and technology transfer, including through the ICAO Technical Cooperation Programme;

- b) consolidate and build on the partnership with other international organizations to meet the assistance needs of ICAO's member States, including through their action plans, which will bring about reductions in international aviation emissions;
- c) initiate work immediately and as a priority in order to develop a process and mechanisms to facilitate the provision of technical and financial assistance, as well as facilitate access to existing and new financial resources, technology transfer and capacity building, to developing countries and report on results achieved as well as further recommendations, preliminarily by the end of 2015 and at the 39th Session of the Assembly; and
- d) continue to initiate specific measures to assist developing States as well as to facilitate access to financial resources, technology transfer and capacity building;

32. *Requests States to:*

- a) promote scientific research aimed at continuing to address the uncertainties identified in the IPCC special report on Aviation and the Global Atmosphere and in the Fourth Assessment report;
- b) ensure that future international assessments of climate change undertaken by IPCC and other relevant United Nations bodies include updated information, if any, on aircraft-induced effects on the atmosphere;
- c) consider policies to encourage the introduction of more fuel efficient aircraft in the market;
- d) accelerate investments on research and development to bring to market even more efficient technology by 2020;
- e) accelerate the development and implementation of fuel efficient routings and procedures to reduce aviation emissions;
- f) accelerate efforts to achieve environmental benefits through the application of technologies that improve the efficiency of air navigation and work with ICAO to bring these benefits to all regions and States, taking into account the Aviation System Block Upgrades (ASBUs) strategy;
- g) reduce legal, security, economic and other institutional barriers to enable implementation of the new ATM operating concepts for the environmentally efficient use of airspace;
- h) set a coordinated approach in their national administrations in order to develop policy actions to accelerate the appropriate development, deployment and use of sustainable alternative fuels for aviation, in accordance with their national circumstances;

- i) consider measures to support research and development as well as processing technology and feedstock production in order to decrease costs and support scale-up of sustainable production pathways up to commercial scale, taking into account the sustainable development of States;
 - j) recognize existing approaches to assess the sustainability of all alternative fuels in general, including those for use in aviation which should:
 - 1) achieve net GHG emissions reduction on a life cycle basis;
 - 2) respect the areas of high importance for biodiversity, conservation and benefits for people from ecosystems, in accordance with international and national regulations;
 - 3) contribute to local social and economic development, and competition with food and water should be avoided;
 - k) adopt measures to ensure the sustainability of alternative fuels for aviation, building on existing approaches or combination of approaches, and monitor, at a national level, the sustainability of the production of alternative fuels for aviation;
 - l) work together through ICAO and other relevant international bodies, to exchange information and best practices, including on the sustainability of alternative fuels for aviation;
33. *Requests* the Council to:
- a) continue to develop and keep up-to-date the guidance for member States on the application of policies and measures aimed at reducing or limiting the environmental impact of emissions from international aviation, and conduct further studies with respect to mitigating the impact of international aviation on climate change;
 - b) encourage States to cooperate in the development of predictive analytical models for the assessment of aviation impacts;
 - c) continue evaluating the costs and benefits of the various measures, including existing measures, with the goal of addressing aircraft engine emissions in the most cost-effective manner, taking into account the interests of all parties concerned, including potential impacts on developing world;
 - d) provide the necessary guidance and direction to ICAO's Regional Offices to assist member States with studies, evaluations and development of procedures, in collaboration with other States in the region, to limit or reduce GHG emissions on a global basis and work together collaboratively to optimize the environmental benefits that can be achieved through their various programmes;
 - e) develop a global CO₂ Standard for aircraft_aiming to finalize analyses by late 2015 and adoption by the Council in 2016;

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- f) further elaborate on relevant fuel efficiency metrics, including for international business aviation, and develop and update medium and long term technological and operational goals for aircraft fuel burn;
 - g) maintain and update guidance on ATM improvements and other operational measures to reduce international aviation emissions;
 - h) implement an emphasis on increasing fuel efficiency in all aspects of the ICAO's Global Air Navigation Plan, and encourage States and stakeholders to develop air traffic management that optimize environmental benefits and to promote and share best practices applied at airports in reducing the adverse effects of GHG emissions of civil aviation;
 - i) continue to develop and update the necessary tools and guidance to assess the benefits associated with ATM improvements, and assess the environmental benefits associated with the implementation of the Aviation System Block Upgrades (ASBUs) strategy;
 - j) encourage member States and invite industry, financial institutions and other international organizations to actively participate in exchange of information and best practices and in further work under ICAO on sustainable alternative fuels for aviation;
 - k) continue to maintain the ICAO Global Framework for Aviation Alternative Fuels (GFAAF);
 - l) collect information on progress of alternative fuels in aviation, including through States' action plans, to give a global view of the future use of alternative jet fuels and to account for changes in life cycle GHG emissions in order to assess progress toward achieving global aspirational goals;
 - m) work with financial institutions to facilitate access to financing infrastructure development projects dedicated to sustainable aviation alternative fuels and incentives to overcome initial market hurdles;
 - n) monitor and disseminate relevant information on the potential impacts of climate change on international aviation operations and related infrastructure, in cooperation with other relevant international organizations and the industry; and
 - o) continue to cooperate with the Climate Neutral UN initiative, remain at the forefront of developing methods and tools for quantifying aviation's GHG emissions with respect to the initiative, and further develop and implement the strategy for reducing GHG emissions and enhancing in-house sustainability management practices of the Organization.

Annex

The guiding principles for the design and implementation of market-based measures (MBMs) for international aviation:

- a) MBMs should support sustainable development of the international aviation sector;
- b) MBMs should support the mitigation of GHG emissions from international aviation;
- c) MBMs should contribute towards achieving global aspirational goals;
- d) MBMs should be transparent and administratively simple;
- e) MBMs should be cost-effective;
- f) MBMs should not be duplicative and international aviation CO₂ emissions should be accounted for only once;
- g) MBMs should minimize carbon leakage and market distortions;
- h) MBMs should ensure the fair treatment of the international aviation sector in relation to other sectors;
- i) MBMs should recognize past and future achievements and investments in aviation fuel efficiency and in other measures to reduce aviation emissions;
- j) MBMs should not impose inappropriate economic burden on international aviation;
- k) MBMs should facilitate appropriate access to all carbon markets;
- l) MBMs should be assessed in relation to various measures on the basis of performance measured in terms of CO₂ emissions reductions or avoidance, where appropriate;
- m) MBMs should include *de minimis* provisions;
- n) where revenues are generated from MBMs, it is strongly recommended that they should be applied in the first instance to mitigating the environmental impact of aircraft engine emissions, including mitigation and adaptation, as well as assistance to and support for developing States;
- o) where emissions reductions are achieved through MBMs, they should be identified in States' emissions reporting; and
- p) MBMs should take into account the principle of common but differentiated responsibilities and respective capabilities, the special circumstances and respective capabilities, and the principle of non-discrimination and equal and fair opportunities.