



**UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE  
(UNFCCC)**

**The Thirty-fifth Session of the UNFCCC Subsidiary Body for  
Scientific and Technological Advice (SBSTA35)  
(28 November to 3 December 2011 – Durban, South Africa)**

**Agenda Item 9 (a)  
Emissions from fuel used for international aviation and maritime transport**

**TOWARDS SUSTAINABLE DEVELOPMENT OF INTERNATIONAL AVIATION**

**(Submission by the International Civil Aviation Organization (ICAO))**

This submission describes the main outcome from the 37th Session of the ICAO Assembly on international aviation and climate change, and further progress being achieved on actions requested by the Assembly in four key areas: 1) States' action plans and assistance to States, 2) sustainable alternative fuels for aviation, 3) market-based measures, and 4) global aspirational goals. ICAO's positions and perspectives to the work related to long-term climate change finance are also presented.

**1. ASSEMBLY RESOLUTION ON INTERNATIONAL  
AVIATION AND CLIMATE CHANGE (A37-19)**

1.1 The climate change Resolution A37-19, adopted by the 37th Session of the ICAO Assembly in October 2011, provides a solid policy framework towards the achievement of the sustainable development for international aviation. The full text of the Resolution is included in Appendix.

1.2 The Resolution makes international aviation the first sector with global aspirational goals of improving annual fuel efficiency by 2 per cent and stabilizing its global CO<sub>2</sub> emissions at the 2020 levels. The Assembly also agreed on the guiding principles for market-based measures and decided to explore a global scheme for international aviation. A global CO<sub>2</sub> certification Standard for aircraft is expected to be developed by 2013. Sustainable alternative fuels for aviation offer one of the most promising opportunities to reduce aviation CO<sub>2</sub> emissions, and it was agreed that the Organization would continue to be at the forefront of international efforts to facilitate the development and deployment of such fuels on a global scale.

1.3 The agreement on the voluntary submission of member States' action plans to ICAO will lead to a dynamic shift in the Organization's policy outlook on the environment from a "Standards and policies setting" phase to a more action-oriented "implementation" mode. The action plans will allow States to identify their basket of measures and assistance needs, and enable ICAO to assess the progress in achieving the global aspirational goals and address the assistance needs of States.

## **2. RECENT PROGRESS AND NEXT STEPS**

2.1 Since the 37th Session of the Assembly, ICAO has made important progress on actions requested by the Assembly, focusing on four key areas: 1) States' action plans and assistance to States, 2) sustainable alternative fuels for aviation, 3) market-based measures, and 4) global aspirational goals, as described below, in order to move international aviation closer to a sustainable future.

### **States' Action Plans**

2.2 ICAO has already adopted guidance material to assist States in the preparation of their action plans on CO<sub>2</sub> emissions reduction activities for international aviation. An interactive web-interface that serves as an electronic template was also developed to facilitate the submission of States' action plans to ICAO by June 2012.

2.3 In addition, ICAO organized 5 regional hands-on training workshops from May to July 2011, and over 200 focal points from States that represent more than 90 per cent of global international aviation traffic were trained. A final workshop will be held from 21 to 23 November 2011 in Montréal, to provide States with another opportunity to obtain training. In addition, States that have made progress in the development and implementation of their plans will showcase their activities and share their experience with other States.

2.4 ICAO will continue to provide its member States with necessary assistance for the preparation, submission and implementation of their action plans. The member States' action plans will enable ICAO to assess the progress in achieving the global aspirational goals of the international aviation sector, as well as identify the implementation barriers and assistance needs of States, towards the provision of technical and financial assistance to States.

### **Sustainable Alternative Fuels for Aviation**

2.5 ICAO held the Workshop on Aviation and Sustainable Alternative Fuels in October 2011([www.icao.int/sustaf](http://www.icao.int/sustaf)), providing a forum for the exchange of information on the state of worldwide activities on sustainable alternative fuels for aviation. On the use of such fuels, aviation is a real and concrete example of how much can be done, within a relatively short timeframe to turn a dream into reality. Today, the use of drop-in biofuels in aviation has become a reality as airlines have started using them in commercial flights. Technological aspects are proven to be viable; however, the use of biofuels is not yet sustainable, as the cost, scalability and distribution of biofuels still need to be further examined.

2.6 In this regard, the workshop also enhanced dialogue among stakeholders to support actions that secure aviation's access to renewable sources of energy in the context of sustainable development. This workshop formed part of ICAO's preparation for the United Nations Conference on Sustainable Development (UNCSD) to be held in June 2012 in Rio de Janeiro (also known as Rio+20 Conference). Mr. Sha Zukang, UN Under-Secretary-General for Economic and Social Affairs and Secretary-General of Rio+20, delivered the keynote address of the workshop, inviting ICAO to inform Rio+20 intergovernmental process of the progress on this subject.

2.7 The workshop clearly acknowledged that the development and deployment of alternative fuels for aviation contributes to all the three pillars of sustainable development: 1) they can have a positive effect on the environment by reducing net CO<sub>2</sub> emissions and improving local air quality; 2) the creation of an alternative fuels industry provides a new source of employment and further facilitates greener air travel, thereby delivering a positive contribution to society; and 3) alternative fuels can help to stabilize fuel price volatility, while providing a source of economic development in non-traditionally fuel producing regions of the world. ICAO will continue to be at the

forefront of international efforts to facilitate the development and deployment of such fuels on a global scale.

### **Market-based Measures (MBMs)**

2.8 The 37th Session of the ICAO Assembly agreed on the development of a framework for market-based measures (MBMs), including the elaboration of the guiding principles adopted by the Assembly, and decided to explore a global MBM scheme for international aviation. It also requested the Council to review the *de minimis* provision to MBMs. The Secretariat is coordinating the first phase of technical studies, focusing on the economic impacts of introducing the *de minimis* provision to MBMs. The study is expected to be completed by the end of 2011, and will serve as information for further discussion by the Council.

2.9 In November 2011, the Council adopted the Declaration, with support of a majority of the Council member States, urging the EU and its member States to refrain from the inclusion of international aviation operations to/from non-EU member States in the EU emissions trading system. In addition, the Council re-affirmed by consensus the important role of ICAO in addressing aviation emissions and agreed on the acceleration of its work on MBMs to reach the best global solutions.

### **Global Aspirational Goals**

2.10 The 37th Session of the ICAO Assembly agreed to review the medium-term global aspirational goal adopted by the Assembly, and to explore a long-term global aspirational goal for international aviation. ICAO will compile and analyze information related to the feasibility of the medium-term goal, including relevant information to be included in States' action plans. The ongoing work of the Committee on Aviation Environmental Protection (CAEP) on the environmental trends assessment and the analysis on the implications of limiting the increase in global average temperature to less than 2°C above pre-industrial levels for aviation, will also serve as information for consideration of the long-term goal by the Council.

## **3. LONG-TERM CLIMATE CHANGE FINANCE**

3.1 The Cancun Agreements recognized that developed countries are committed to a goal of mobilizing USD 100 billion per year by 2020 to address the needs of developing countries, and agreed that funds may come from a wide variety of sources, including alternative sources. The Cancun Conference took note of the report of the High-level Advisory Group on Climate Change Financing (AGF), and decided to establish the Green Climate Fund which has been designed by the Transitional Committee (TC). One of the options presented in the AGF report relates to potential generation of revenue through the application of market-based measures to international aviation.

3.2 ICAO provided its submission to the TC, describing the possible political, legal and practical implications of the AGF report on ICAO's existing policies and practices, including Resolution A37-19<sup>1</sup>. It should be noted that the global aspirational goals for the international aviation sector, adopted by the 37th Session of the ICAO Assembly, will require adequate financial resources within the sector itself, enabling it to effectively respond to the global climate change challenge. The ICAO Assembly agreed on the guiding principles for the design and implementation of market-based measures, and decided to explore a global scheme for international aviation.

3.3 It is of utmost importance that the design and implementation of market-based measures for international aviation be treated as an element of ICAO's comprehensive mitigation

---

<sup>1</sup> [http://unfccc.int/cooperation\\_and\\_support/financial\\_mechanism/green\\_climate\\_fund/items/5868.php](http://unfccc.int/cooperation_and_support/financial_mechanism/green_climate_fund/items/5868.php)

strategy to achieve the global aspirational goals, as part of global solutions for the sustainable development of international aviation, and not in isolation.

3.4 In addition, discussions on climate change need to strike a good balance among the three pillars of social, economic and environmental sustainability which, once applied to the international aviation sector, will allow this sector to grow in an environmentally sustainable manner and at the same time, will continue to ensure freedom to travel, access to mobility, facilitate poverty eradication and the exchange of cultural and educational experiences.

#### 4. CONCLUSIONS

4.1 ICAO has been working actively towards developing global solutions to address GHG emissions from international aviation. The ICAO Assembly Resolution A37-19 is a clear demonstration of the willingness of ICAO and its member States to take concrete steps towards the sustainable development of international aviation.

4.2 ICAO sincerely expects the Durban Conference to deliver an agreement that acknowledges ICAO's achievements as the specialized agency for international aviation in the area of climate change, and encourages its member States to work further through ICAO.

— — — — —

## APPENDIX

### ICAO Assembly Resolution A37-19

#### *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 CO<sub>2</sub> 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 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;

*Noting* that, consistent with Assembly Resolution A36-22, the High-level Meeting on International Aviation and Climate Change in October 2009 (HLM-ENV/09) endorsed the Programme of Action on International Aviation and Climate Change which included global aspirational goals in the form of fuel efficiency, a basket of measures and the means to measure progress;

*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;

*Noting* that the HLM-ENV/09 declared that ICAO would establish a process to develop a framework for market based measures in international aviation, taking into account the conclusions of the HLM-ENV/9 and outcome of the UNFCCC COP 15 and bearing in mind relevant ICAO Assembly resolutions and the appendices with a view to complete this process expeditiously;

*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);

*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;

*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), and International Coordinating Council of Aerospace Industries Associations (ICCAIA) on behalf of the international air transport industry to continuously improve CO<sub>2</sub> efficiency by an average of 1.5 per cent per annum from 2009 until 2020, to achieve carbon neutral growth from 2020 and reducing its carbon emissions by 50 per cent by 2050 compared to 2005 levels;

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

*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 A37-18: Consolidated statement of continuing ICAO policies and practices related to environmental protection - General provisions, noise and local air quality, supersede Resolution A36-22 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. *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;

5. *Agrees* that the goals mentioned in paragraph 4 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;

6. *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:

- a) the special circumstances and respective capabilities of developing countries;

- b) that the different circumstances, respective capabilities and contribution of States to the concentration of aviation GHG emissions in the atmosphere will determine how each State may contribute to achieving the global aspirational goals;
- c) that some States may take more ambitious actions prior to 2020, which may offset an increase in emissions from the growth of air transport in developing States;
- d) the maturity of aviation markets;
- e) the sustainable growth of the international aviation industry; and
- f) 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;

7. *Agrees* to review, at its 38th Session, the goal mentioned in paragraph 6 above in light of progress towards the goal, new studies regarding the feasibility of achieving the goal, and relevant information from States;

8. *Requests* the Council 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 38th 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.

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

10. *Invites* those States that choose to prepare their action plans to submit them to ICAO as soon as possible preferably by the end of June 2012 in order that ICAO can 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, and information on any specific assistance needs;

11. *Requests* the Council to facilitate the dissemination of economic and technical studies and best practices related to aspirational goals and to provide guidance and other technical assistance for the preparation of States' action plans prior to the end of June 2012, in order for States to conduct their necessary studies and to voluntarily submit their action plans to ICAO;

12. *Resolves* that a *de minimis* threshold of international aviation activity of 1 per cent of total revenue ton kilometres should apply to the submission of States' action plans as follows:

- a) States below the threshold are not expected to submit action plans towards achieving the global goals; and
- b) States below the threshold but that otherwise have agreed to voluntarily contribute to achieving the global goals are expected to submit action plans;

13. *Requests* 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, for consideration by the 38th Session of the ICAO Assembly;



14. *Urges* States to respect the guiding principles listed in the Annex, when designing new and implementing existing MBMs for international aviation, and to engage in constructive bilateral and/or multilateral consultations and negotiations with other States to reach an agreement;

15. *Resolves* on a *de minimis* threshold of international aviation activity, consistent with the guiding principles in the Annex, of 1 per cent of total revenue ton kilometres to MBMs as follows:

- a) commercial aircraft operators of States below the threshold should qualify for exemption for application of MBMs that are established on national, regional and global levels; and
- b) States and regions implementing MBMs may wish to also consider an exemption for other small aircraft operators;

16. *Requests* the Council to review the *de minimis* threshold to MBMs in paragraph 15, taking into account specific circumstances of States and potential impacts on the aviation industry and markets, and with regard to the guiding principles listed in the Annex, by the end of 2011;

17. *Urges* States to review existing and planned MBMs for international aviation to ensure their consistency with the guiding principles listed in the Annex and the provisions in paragraphs 15 and 16 above;

18. *Requests* the Council, with the support of member States and international organizations, to continue to explore the feasibility of a global MBM scheme by undertaking further studies on the technical aspects, environmental benefits, economic impacts and the modalities of such a scheme, taking into account the outcome of the negotiations under the UNFCCC and other international developments, as appropriate, and report the progress for consideration by the 38th Session of the ICAO Assembly;

19. *Recognizes* that in the short term voluntary carbon offsetting schemes constitute a practical way to offset CO<sub>2</sub> 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;

20. *Requests* the Council to collect information on the volume of carbon offsets purchased in relation to air transport, 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;

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

22. *Requests* the Council to:

- a) study, identify and develop processes 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 its progress, including processes and mechanisms developed, results achieved as well as further recommendations, preliminarily by the end of 2012 and at the 38th Session of the Assembly; and
- b) initiate specific measures to assist developing States as well as to facilitate access to financial resources, technology transfer and capacity building;

23. *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) accelerate investments on research and development to bring to market even more efficient technology by 2020;
- d) accelerate the development and implementation of fuel efficient routings and procedures to reduce aviation emissions;
- e) accelerate efforts to achieve environmental benefits through the application of satellite-based technologies that improve the efficiency of air navigation and work with ICAO to bring these benefits to all regions and States;
- f) reduce legal, security, economic and other institutional barriers to enable implementation of the new ATM operating concepts for the environmentally efficient use of airspace;
- g) develop policy actions to accelerate the appropriate development, deployment and use of sustainable alternative fuels for aviation;
- h) work together through ICAO and other relevant international bodies, to exchange information and best practices; and
- i) consider measures to support sustainable aviation alternative fuels research and development, investments in new feedstock cultivations and production facilities, as well as incentives to stimulate commercialisation and use of sustainable alternative fuels for aviation to accelerate the reduction of aviation CO<sub>2</sub> emissions;

24. *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 aviation, and conduct further studies with respect to mitigating the impact of 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 CO<sub>2</sub> Standard for aircraft aiming for 2013;
- f) further elaborate on relevant fuel efficiency metrics, including for international business aviation, and develop medium and long term technological and operational goals for aircraft fuel burn;
- g) encourage member States and invite industry to actively participate in further work on sustainable alternative fuels for aviation;
- h) 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;
- i) continue to develop the necessary tools to assess the benefits associated with ATM improvements, and intensify its efforts on the development of new guidance on operational measures to reduce international aviation emissions;
- j) 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;
- k) identify appropriate standard methodologies and a mechanism to measure/estimate, monitor and verify global GHG emissions from international aviation, and States support the work of ICAO on measuring progress through the reporting of annual data on traffic and fuel consumption;
- l) request States to continue to support the efforts of ICAO on enhancing the reliability of measuring/estimating global GHG emissions from international aviation;
- m) undertake a study on the possible application of CDM of the Kyoto Protocol to international aviation;
- 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 CO<sub>2</sub> 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 CO<sub>2</sub> 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; and
- o) where emissions reductions are achieved through MBMs, they should be identified in States' emissions reporting.

— END —