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International Civil Aviation Organization

Whereas, according to the ICAO CNS/ATM systems concept, use of satellite technology will assist in overcoming inherent limitations in the existing air navigation systems and satisfy, on a global basis, international civil aviation requirements in the foreseeable future; and

Noting the result of collaboration of Contracting States in using space technology for air navigation on a broad international basis, and the need for such collaboration to continue in the future;

The Assembly:

1. *Resolves* that ICAO continue to be responsible for:
 - a) stating the position of international civil aviation on all related outer space matters; and
 - b) monitoring and coordinating the work performed by States on regional and global planning on these matters in order that the introduction of the future ICAO CNS/ATM systems takes place in an orderly and efficient manner globally and in a balanced way taking due account of safety as well as economic considerations;
2. *Requests* the Council to continue its work to determine the operational, technical, financial, managerial and legal institutional requirements for global satellite systems for civil aviation purposes, taking due account of the provisions of Resolution A27-10, Appendix J, regarding the coordination of aeronautical systems and subsystems;
3. *Urges* that Contracting States continue keeping the Organization informed regarding the programmes and the progress achieved in the exploration and use of outer space that are of interest to international civil aviation;
4. *Requests* the Secretary General to ensure that the international civil aviation positions and requirements are made known to all organizations dealing with relevant space activities and to continue to arrange for the Organization to be represented at appropriate conferences and meetings connected with or affecting the particular interests of international civil aviation in this field;
5. *Declares* that Resolution A22-20 is superseded by this resolution.

A38-17: Consolidated statement of continuing ICAO policies and practices related to environmental protection — General provisions, noise and local air quality

Whereas in Resolution A37-18 the Assembly resolved to continue to adopt at each ordinary Session a consolidated statement of continuing ICAO policies and practices related to environmental protection;

Whereas Resolution A37-18 consists of an introductory text and a number of Appendices concerning specific but interrelated subjects;

Considering the need to reflect developments that have taken place since the 37th Session of the Assembly in the field of aircraft noise and engine emissions; and

Considering the need to define a specific ICAO policy to address aviation's impact on global climate (A38-18: *Consolidated statement of continuing ICAO policies and practices related to environmental protection — Climate change*), the increasing concern on aviation and climate change and as part of ICAO's policies and practices related to environmental protection;

The Assembly:

1. *Resolves* that the Appendices attached to this Resolution and listed below, together with A38-18: *Consolidated statement of continuing ICAO policies and practices related to environmental protection — Climate change*, constitute the consolidated statement of continuing ICAO policies and practices related to environmental protection, as these policies exist at the close of the 38th Session of the Assembly:

Appendix A — General

Appendix B — Development of Standards, Recommended Practices and Procedures and/or guidance material relating to the quality of the environment

Appendix C — Policies and programmes based on a “balanced approach” to aircraft noise management

Appendix D — Phase-out of subsonic jet aircraft which exceed the noise levels in Volume I of Annex 16

Appendix E — Local noise-related operating restrictions at airports

Appendix F — Land-use planning and management

Appendix G — Supersonic aircraft — The problem of sonic boom

Appendix H — Aviation impact on local air quality

2. *Requests* the Council to submit the ICAO policies and practices related to environmental protection for review at each ordinary session of the Assembly; and

3. *Declares* that this resolution, together with A38-18: *Consolidated statement of continuing ICAO policies and practices related to environmental protection — Climate change*, supersede Resolutions A37-18 and A37-19.

APPENDIX A

General

Whereas the preamble to the *Convention on International Civil Aviation* states that “the future development of international civil aviation can greatly help to create and preserve friendship and understanding among the nations and peoples of the world . . .” and Article 44 of that Convention states that ICAO should “develop the principles and techniques of international air navigation and . . . foster the planning and development of international air transport so as to . . . meet the needs of the peoples of the world for safe, regular, efficient and economical air transport”;

Whereas many of the adverse environmental effects of civil aviation activity can be reduced by the application of comprehensive measures embracing technological improvements, more efficient air traffic management and operational procedures and the appropriate use of airport planning, land-use planning and management and market-based measures;

Whereas all ICAO Member States agreed to continue to pursue all aviation matters related to the environment and also maintain the initiative in developing policy guidance on these matters, and not leave such initiatives to other organizations;

Whereas other international organizations are emphasizing the importance of environmental policies affecting air transport;

Whereas the sustainable growth of aviation is important for future economic growth and development, trade and commerce, cultural exchange and understanding among peoples and nations; therefore prompt action must be taken to ensure that it is compatible with the quality of the environment and develops in ways that alleviate adverse impacts;

Whereas reliable and best available information on the environmental effects of aviation is essential for the development of policy by ICAO and its Member States;

Whereas as far as there are recognized interdependencies of the environmental effects from aviation, such as noise and engine emissions, they need to be considered when defining source control and operational mitigation policies;

Whereas airspace management and design can play a role in addressing the impacts of aviation greenhouse gas emissions on the global climate, and the related economic and institutional issues need to be addressed by States, either individually or collectively on a regional basis;

Whereas cooperation with other international organizations is important to progress the understanding of aviation's impacts on the environment and in order to develop the appropriate policies to address these impacts; and

Recognizing the importance of research and development in fuel efficiency and alternative fuels for aviation that will enable international air transport operations with a lower environmental impact;

The Assembly:

1. *Declares* that ICAO, as the lead United Nations (UN) Agency in matters involving international civil aviation, is conscious of and will continue to address the adverse environmental impacts that may be related to civil aviation activity and acknowledges its responsibility and that of its Member States to achieve maximum compatibility between the safe and orderly development of civil aviation and the quality of the environment. In carrying out its responsibilities, ICAO and its Member States will strive to:
 - a) limit or reduce the number of people affected by significant aircraft noise;
 - b) limit or reduce the impact of aviation emissions on local air quality; and
 - c) limit or reduce the impact of aviation greenhouse gas emissions on the global climate;
2. *Emphasizes* the importance of ICAO continuing to demonstrate its leadership role on all international civil aviation matters related to the environment and *requests* the Council to maintain the initiative in developing policy guidance on these matters, which recognizes the seriousness of the challenges which the sector faces;
3. *Requests* the Council to assess regularly the present and future impact of aircraft noise and aircraft engine emissions and to continue to develop tools for this purpose;
4. *Requests* the Council to maintain and update knowledge of the interdependencies and trade-offs related to measures to mitigate the impact of aviation on the environment so as to optimize decision-making;
5. *Requests* the Council to establish a set of aviation environmental indicators which States could use to evaluate the performance of aviation operations and the effectiveness of standards, policies and measures to mitigate aviation's impacts on the environment;
6. *Requests* the Council to disseminate information on the present and future impact and trends of aircraft noise and aircraft engine emissions, on the work of CAEP, and on ICAO policy and guidance material in the environmental field, in an appropriate manner, such as through regular reporting and workshops, including through the coordination with the ICAO Regional Offices;

7. *Invites* States to continue their active support for ICAO's environment-related activities, and urges Member States to support activities not foreseen in the budget by providing a reasonable level of voluntary contributions;
8. *Invites* States and international organizations to provide the necessary scientific information and data to enable ICAO to substantiate its work in this field;
9. *Encourages* the Council to continue to cooperate closely with international organizations and other UN bodies on the understanding of aviation impacts on the environment and on the establishment of policies to address such impacts; and
10. *Urges* States to refrain from environmental measures that would adversely affect the orderly and sustainable development of international civil aviation.

APPENDIX B

Development of Standards, Recommended Practices and Procedures and/or guidance material relating to the quality of the environment

Whereas the problem of aircraft noise in the vicinity of many of the world's airports, which continues to arouse public concern and limit airport infrastructure development, requires appropriate action;

Whereas the scientific community is improving the understanding of uncertainties associated with the environmental impact of aircraft emissions at both the local and global levels, this impact remains a cause of concern and requires appropriate action;

Recognizing that there are interdependencies related to technology, design and operations of aircraft when addressing concerns related to noise, local air quality, and climate change;

Whereas the Council has established a Committee on Aviation Environmental Protection (CAEP) for the purpose of assisting in the further development of Standards, Recommended Practices and Procedures and/or guidance material on aircraft noise and engine emissions;

Whereas the Council has adopted Annex 16, Volume I — *Aircraft Noise*, which comprises noise certification Standards for subsonic aircraft (except short take-off and landing/vertical take-off and landing aeroplanes) and has notified Member States of this action;

Whereas the Council has adopted Annex 16, Volume II — *Aircraft Engine Emissions*, which comprises emissions certification Standards for new aircraft engines and has notified Member States of this action;

Whereas the Council has initiated work on the development of certification requirements for non-volatile particulate matter (PM) emissions;

Welcoming the agreement by CAEP of certification requirements for a global CO₂ Standard for aircraft;

Whereas ICAO policy guidance on measures to address environmental concerns related to aircraft noise and engine emissions has been developed, amended and published; and

Whereas the Council has adopted medium- and long-term technology goals for reduction of noise and oxides of nitrogen (NO_x), and technology and operational goals for aircraft fuel burn reduction;

The Assembly:

1. *Welcomes* the continuing benefits of the more stringent aircraft noise Standard in Annex 16, Volume I, Chapter 4 that took effect on 1 January 2006;
2. *Welcomes* the consideration by the Council in June 2013 of the new, more stringent Standard for noise to be implemented on or after 31 December 2017 and on or after 31 December 2020 for aircraft less than 55 tonnes;
3. *Welcomes* the consideration by the Council in June 2013 of the new Standard for noise to be implemented for Tilt-rotor aircraft on or after 1 January 2018;
4. *Welcomes* the plan approved by the Council in June 2013 for the further development and finalization of an aircraft CO₂ Standard by 2016;
5. *Requests* the Council, with the assistance and cooperation of other bodies of the Organization and of other international organizations, to continue with vigour the work related to the development of Standards, Recommended Practices and Procedures and/or guidance material dealing with the impact of aviation on the environment;
6. *Welcomes* the adoption by the Council in June 2013 of the medium- and long-term technology goals for reducing aircraft noise and technology and operational goals for aircraft fuel burn reduction;
7. *Requests* the Council to ensure that its Committee on Aviation Environmental Protection (CAEP) pursues its work programme in the noise and emissions fields expeditiously in order that appropriate solutions can be developed as quickly as possible, and that the necessary resources are made available to do so;
8. *Urges* Member States from regions of the world that are currently under-represented in CAEP to participate in the Committee's work;
9. *Requests* the Council to provide States and International Organizations information on available measures to reduce the impact of aviation operations on the environment so that action can be taken using the appropriate measures;
10. *Urges* Member States to follow, where appropriate, the ICAO provisions developed pursuant to Resolving Clause 5 of this Appendix; and
11. *Requests* the Council to continue the work on developing and employing scenarios for assessing the future environmental impact of aviation emissions and to cooperate with other international organizations in this area.

APPENDIX C**Policies and programmes based on a “balanced approach”
to aircraft noise management**

Whereas a goal of ICAO is to promote the highest practicable degree of consistency in international civil aviation, including environmental regulations;

Whereas the uncoordinated development of national and regional policies and programmes for the alleviation of aircraft noise could hinder the role of civil aviation in economic development;

Whereas the severity of the aircraft noise problem at many airports has given rise to measures which limit aircraft operations and has provoked vigorous opposition to the expansion of existing airports or construction of new airports;

Whereas ICAO has accepted full responsibility for pursuing a course aimed at achieving maximum compatibility between the safe, economically effective and orderly development of civil aviation and the quality of the environment, and is actively pursuing the concept of a “balanced approach” for the reduction of aircraft noise and guidance on how States might apply such an approach;

Whereas the balanced approach to noise management developed by ICAO consists of identifying the noise problem at an airport and then analysing the various measures available to reduce noise through the exploration of four principal elements, namely reduction at source, land-use planning and management, noise abatement operational procedures and operating restrictions, with the goal of addressing the noise problem in the most cost-effective manner;

Whereas the assessment of present and future impact of aviation noise is an essential tool for the development of policy by ICAO and its Member States;

Whereas the process for implementation and decisions between elements of the balanced approach is for Member States and it is ultimately the responsibility of individual States to develop appropriate solutions to the noise problems at their airports, with due regard to ICAO rules and policies;

Whereas the ICAO guidance developed to assist States in implementing the balanced approach [*Guidance on the Balanced Approach to Aircraft Noise Management* (Doc 9829)] has been subsequently updated;

Recognizing that solutions to noise problems need to be tailored to the specific characteristics of the airport concerned, which calls for an airport-by-airport approach, and that similar solutions could be applied if similar noise problems are identified at airports;

Recognizing that measures to address noise may have significant cost implications for operators and other stakeholders, particularly those from developing countries;

Recognizing that States have relevant legal obligations, existing agreements, current laws and established policies which may influence their implementation of the ICAO “balanced approach”;

Recognizing that some States may also have wider policies on noise management; and

Considering that the improvements in the noise climate achieved at many airports through the replacement of Chapter 2 compliant aircraft (aircraft which comply with the noise certification standards in Volume I, Chapter 2 of Annex 16 but which exceed the noise levels in Volume I, Chapter 3 of Annex 16) by quieter aircraft should be safeguarded by taking account of the sustainability of future growth and should not be eroded by incompatible urban encroachment around airports;

The Assembly:

1. *Calls upon* all ICAO Member States and international organizations to recognize the leading role of ICAO in dealing with the problems of aircraft noise;

2. *Urges* States to:

a) adopt a balanced approach to noise management, taking full account of ICAO guidance (Doc 9829), relevant legal obligations, existing agreements, current laws and established policies, when addressing noise problems at their international airports;

b) institute or oversee a transparent process when considering measures to alleviate noise, including:

1) assessment of the noise problem at the airport concerned based on objective, measurable criteria and other relevant factors;

- 2) evaluation of the likely costs and benefits of the various measures available and, based on that evaluation, selection of measures with the goal to achieve maximum environmental benefit most cost-effectively; and
 - 3) provision for dissemination of the evaluation results, for consultation with stakeholders and for dispute resolution;
3. *Encourages States to:*
 - a) promote and support studies, research and technology programmes aimed at reducing noise at source or by other means taking into account interdependencies with other environmental concerns;
 - b) apply land-use planning and management policies to limit the encroachment of incompatible development into noise-sensitive areas and mitigation measures for areas affected by noise, consistent with Appendix F to this Resolution;
 - c) apply noise abatement operational procedures, to the extent possible without affecting safety and considering interdependencies with other environmental concerns; and
 - d) not apply operating restrictions as a first resort but only after consideration of the benefits to be gained from other elements of the balanced approach and in a manner which is consistent with Appendix E to this Resolution and taking into account the possible impact of such restrictions at other airports;
4. *Requests States to:*
 - a) work closely together to ensure the harmonization of programmes, plans and policies to the extent possible;
 - b) ensure that the application of any measures to alleviate noise are consistent with the non-discrimination principle in Article 15 of the Chicago Convention; and
 - c) take into consideration the particular economic conditions of developing countries;
5. *Invites States to keep the Council informed of their policies and programmes to alleviate the problem of aircraft noise in international civil aviation;*
6. *Requests the Council to:*
 - a) assess continuously the evolution of the impact of aircraft noise;
 - b) ensure that the guidance on the balanced approach in Doc 9829 is current and responsive to the requirements of States; and
 - c) promote the use of the balanced approach, for example through workshops; and
7. *Calls upon States to provide appropriate support for this work on ICAO guidance and any additional work on methodologies, and for the assessment of the impact or effectiveness of measures under the balanced approach as necessary.*

APPENDIX D**Phase-out of subsonic jet aircraft which exceed the noise levels in Volume I of Annex 16**

Whereas certification standards for subsonic jet aircraft noise levels are specified in Volume I of Annex 16;

Whereas for the purpose of this Appendix, a phase-out is defined as withdrawal of a noise-based category of aircraft from international operations at all airports in one or more States;

Whereas the Committee on Aviation Environmental Protection has concluded that a general phase-out of Chapter 3 aircraft operations by all the countries which imposed a phase-out on operations of Chapter 2 aircraft is not supported on cost-benefit grounds and had undertaken the work that led to the recommendation of a new noise certification standard in Volume I, of Annex 16 on the understanding that a new phase-out should not be considered;

Whereas some States have implemented or initiated phase-outs of aircraft which exceed the noise levels in Volume I, Chapter 3 of Annex 16, or are considering so doing;

Recognizing that the noise standards in Annex 16 are not intended to introduce operating restrictions on aircraft;

Recognizing that operating restrictions on existing aircraft may increase the costs of airlines and could impose a heavy economic burden, particularly on aircraft operators which may not have the financial resources to re-equip their fleets, such as those from developing countries; and

Considering that resolution of problems due to aircraft noise must be based on the mutual recognition of the difficulties encountered by States and a balance among their different concerns;

The Assembly:

1. *Urges* States not to introduce any phase-outs of aircraft which exceed the noise levels in Volume I, Chapter 3 of Annex 16 before considering:

- a) whether the normal attrition of existing fleets of such aircraft will provide the necessary protection of noise climates around their airports;
- b) whether the necessary protection can be achieved by regulations preventing their operators from adding such aircraft to their fleets through either purchase, or lease/charter/interchange, or alternatively by incentives to accelerate fleet modernization;
- c) whether the necessary protection can be achieved through restrictions limited to airports and runways the use of which has been identified and declared by them as generating noise problems and limited to time periods when greater noise disturbance is caused; and
- d) the implications of any restrictions for other States concerned, consulting these States and giving them reasonable notice of intention;

2. *Urges* States which, despite the considerations in Resolving Clause 1 above, decide to phase out aircraft which comply with the noise certification standards in Volume I, Chapter 2 of Annex 16 but which exceed the noise levels in Volume I, Chapter 3 of Annex 16:

- a) to frame any restrictions so that Chapter 2 compliant aircraft of an individual operator which are presently operating to their territories may be withdrawn from these operations gradually over a period of not less than 7 years;

- b) not to restrict before the end of the above period the operations of any aircraft less than 25 years after the date of issue of its first individual certificate of airworthiness;
 - c) not to restrict before the end of the period the operations of any presently existing wide-body aircraft or of any fitted with engines that have a by-pass ratio higher than 2 to 1; and
 - d) to inform ICAO, as well as the other States concerned, of all restrictions imposed;
3. *Strongly encourages* States to continue to cooperate bilaterally, regionally and inter-regionally with a view to:
- a) alleviating the noise burden on communities around airports without imposing severe economic hardship on aircraft operators; and
 - b) taking into account the problems of operators of developing countries with regard to Chapter 2 aircraft presently on their register, where they cannot be replaced before the end of the phase-out period, provided that there is proof of a purchase order or leasing contract placed for a replacement Chapter 3 compliant aircraft and the first date of delivery of the aircraft has been accepted;
4. *Urges* States not to introduce measures to phase out aircraft which comply, through original certification or recertification, with the noise certification standards in Volume I, Chapters 3, 4 or any more recent Chapter of Annex 16;
5. *Urges* States not to impose any operating restrictions on Chapter 3 compliant aircraft, except as part of the balanced approach to noise management developed by ICAO and in accordance with Appendices C and E to this Resolution; and
6. *Urges* States to assist aircraft operators in their efforts to accelerate fleet modernization and thereby prevent obstacles and permit all States to have access to lease or purchase aircraft compliant with Chapter 3, including the provision of multilateral technical assistance where appropriate.

APPENDIX E

Local noise-related operating restrictions at airports

Whereas certification standards for subsonic jet aircraft noise are specified in Volume I of Annex 16;

Whereas for the purposes of this Appendix an operating restriction is defined as any noise-related action that limits or reduces an aircraft's access to an airport;

Whereas Appendix C to this Resolution calls for States to adopt a balanced approach to noise management when addressing noise problems at their international airports;

Whereas further reductions in noise at source are expected as a result of the adoption of new noise certification standards in Volume I of Annex 16 and through the assimilation of noise reduction technology in the fleet;

Whereas at many airports, land-use planning and management and noise abatement operational procedures are already being used and other noise mitigation measures are in place, although urban encroachment continues in certain cases;

Whereas implementation of the phase-out of aircraft which comply with the noise certification standards in Volume I, Chapter 2 of Annex 16 but which exceed the noise levels in Volume I, Chapter 3 of Annex 16 (as provided for in Appendix D to this Resolution) has been completed in some States and, assuming continued growth in aviation activity, without further action the number of people exposed to aircraft noise at some airports in those States may increase;

Whereas there are significant regional differences in the extent to which aircraft noise is expected to be a problem over the next two decades and some States have consequently been considering placing operating restrictions on certain aircraft which comply with the noise certification standards in Volume I, Chapter 3 of Annex 16;

Whereas if operating restrictions on Chapter 3 aircraft are introduced at certain airports, this should be based on the balanced approach and relevant ICAO guidance (Doc 9829) and should be tailored to the specific requirements of the airport concerned;

Whereas these restrictions could have a significant economic impact on fleet investments of aircraft operators from States other than those in which the restrictions are imposed;

Recognizing that these restrictions go beyond the policy established in Appendix D to this Resolution and other relevant policy guidance developed by ICAO;

Recognizing that ICAO places no obligation on States to impose operating restrictions on Chapter 3 aircraft;

Recognizing that the noise standards in Annex 16 were not intended to introduce operating restrictions on aircraft and, specifically, that the standard contained in Annex 16, Volume I, Chapter 4 and any further stringency levels adopted by the Council are based on the understanding that it is for certification purposes only; and

Recognizing in particular that States have legal obligations, laws, existing arrangements and established policies which may govern the management of noise problems at their airports and could affect the implementation of this Appendix;

The Assembly:

1. *Urges* States to ensure, wherever possible, that any operating restrictions be adopted only where such action is supported by a prior assessment of anticipated benefits and of possible adverse impacts;
2. *Urges* States not to introduce any operating restrictions at any airport on aircraft which comply with Volume I, Chapter 3 of Annex 16 before:
 - a) completing the phase-out of aircraft which exceed the noise levels in Volume I, Chapter 3 of Annex 16, at the airport concerned; and
 - b) fully assessing available measures to address the noise problem at the airport concerned in accordance with the balanced approach described in Appendix C;
3. *Urges* States which, despite the considerations in Resolving Clause 2 above, permit the introduction of restrictions at an airport on the operations of aircraft which comply, either through original certification or recertification, with Volume I, Chapter 3 of Annex 16:
 - a) to base such restrictions on the noise performance of the aircraft, as determined by the certification procedure conducted consistent with Annex 16, Volume I;
 - b) to tailor such restrictions to the noise problem of the airport concerned in accordance with the balanced approach;
 - c) to limit such restrictions to those of a partial nature wherever possible, rather than the complete withdrawal of operations at an airport;
 - d) to take into account possible consequences for air transport services for which there are no suitable alternatives (for example, long-haul services);

- e) to consider the special circumstances of operators from developing countries, in order to avoid undue hardship for such operators, by granting exemptions;
 - f) to introduce such restrictions gradually over time, where possible, in order to take into account the economic impact on operators of the affected aircraft;
 - g) to give operators a reasonable period of advance notice;
 - h) to take account of the economic and environmental impact on civil aviation; and
 - i) to inform ICAO, as well as the other States concerned, of all such restrictions imposed; and
4. *Further urges* States not to permit the introduction of any operating restrictions aimed at the withdrawal of aircraft that comply, through either original certification or recertification, with the noise standards in Volume I, Chapter 4 of Annex 16 and any further stringency levels adopted by the Council.

APPENDIX F

Land-use planning and management

Whereas land-use planning and management is one of the four principal elements of the balanced approach to noise management;

Whereas the number of people affected by aircraft noise is dependent on the way in which the use of land surrounding an airport is planned and managed, and in particular the extent to which residential development and other noise sensitive activities are controlled;

Whereas activity may increase significantly at most airports and there is a risk that future growth may be constrained by inappropriate land use near airports;

Whereas the phase-out of subsonic jet aircraft which comply with the noise certification standards in Volume I, Chapter 2 of Annex 16 but which exceed the noise levels in Volume I, Chapter 3 of Annex 16 has succeeded at many airports in reducing the size of the noise contours depicting the areas where people are exposed to unacceptable noise levels as well as in reducing the total number of people exposed to noise;

Considering it essential that these improvements should be preserved to the greatest extent practicable for the benefit of local communities;

Recognizing that the standard contained in Annex 16, Volume I, Chapter 4 has increased the opportunities for operators to replace aircraft in their fleets by quieter aircraft;

Recognizing that while land-use management includes planning activities that may primarily be the responsibility of local authorities, it nevertheless affects airport capacity, which in turn has implications for civil aviation; and

Whereas guidance material on appropriate land-use planning and noise mitigation measures is included in the *Airport Planning Manual* (Doc 9184), Part 2 — *Land Use and Environmental Control*, which needs to be revised to include relevant provisions to account for emissions-related effects;

The Assembly:

1. *Urges* States that have phased out operations of Chapter 2 aircraft at their airports as provided for in Appendix D to this Resolution, whilst preserving the benefits for local communities to the greatest extent practicable, to avoid inappropriate land use or encroachment whenever possible in areas where reductions in noise levels have been achieved;
2. *Urges* States to ensure that the potential reductions in noise levels to be gained from the introduction of quieter aircraft, particularly those complying with the Chapter 4 standard, are also not avoidably compromised by inappropriate land use or encroachment;
3. *Urges* States, where the opportunity still exists to minimize aircraft noise problems through preventive measures, to:
 - a) locate new airports at an appropriate place, such as away from noise-sensitive areas;
 - b) take the appropriate measures so that land-use planning is taken fully into account at the initial stage of any new airport or of development at an existing airport;
 - c) define zones around airports associated with different noise levels taking into account population levels and growth as well as forecasts of traffic growth and establish criteria for the appropriate use of such land, taking account of ICAO guidance;
 - d) enact legislation, establish guidance or other appropriate means to achieve compliance with those criteria for land use; and
 - e) ensure that reader-friendly information on aircraft operations and their environmental effects is available to communities near airports; and
4. *Requests* the Council to:
 - a) ensure that the guidance on land use in Doc 9184 is current and responsive to the requirements of States; and
 - b) consider what steps might be taken to promote land-use management, particularly in those parts of the world where the opportunity may exist to avoid aircraft noise problems in the future.

APPENDIX G**Supersonic aircraft — The problem of sonic boom**

Whereas since the introduction of supersonic aircraft in commercial service action has been taken to avoid creating unacceptable situations for the public due to sonic boom, such as interference with sleep and injurious effects to persons and property on land and at sea caused by the magnification of the sonic boom; and

Whereas the States involved in the manufacture of such supersonic aircraft, as well as other States, continue to carry out research into the physical, physiological and sociological effects of sonic boom;

The Assembly:

1. *Reaffirms* the importance it attaches to ensuring that no unacceptable situation for the public is created by sonic boom from supersonic aircraft in commercial service;

2. *Instructs* the Council, in the light of the available information and availing itself of the appropriate machinery, to review the Annexes and other relevant documents, so as to ensure that they take due account of the problems which the operation of supersonic aircraft may create for the public and, in particular, as regards sonic boom, to take action to achieve international agreement on measurement of the sonic boom, the definition in quantitative or qualitative terms of the expression “unacceptable situations for the public” and the establishment of the corresponding limits; and
3. *Invites* the States involved in the manufacture of supersonic aircraft to furnish ICAO in due course with proposals on the manner in which any specifications established by ICAO could be met.

APPENDIX H

Aviation impact on local air quality

Whereas there are growing concerns about the impact of aviation on the atmosphere with respect to local air quality and the associated human health and welfare impacts;

Whereas the evidence of this impact from emissions of NO_x and particulate matter (PM) from aircraft engines on local surface and regional air quality is now more compelling;

Recognizing that the scientific community is improving the understanding of uncertainties associated with the impact from emissions of NO_x and PM from aircraft engines on the global climate;

Recognizing that there are interdependencies related to design and operations of aircraft when addressing concerns related to noise, local air quality, and climate change;

Recognizing that ICAO has established technical Standards and fostered the development of operational procedures that have reduced significantly local air quality pollution from aircraft;

Whereas many pollutants such as soot and unburned hydrocarbons from aircraft engines affecting local and regional air quality, have declined dramatically over the last few decades;

Whereas progress in operational procedures such as continuous descent operations has resulted in further reduction of emissions from aircraft;

Whereas an assessment of trends in aviation emissions of NO_x, PM, and other gaseous emissions shows increasing global emissions values;

Whereas the impacts of aviation emissions of NO_x, PM, and other gaseous emissions need to be further assessed and understood;

Recognizing the robust progress made in understanding impacts of non-volatile components of PM emissions while the scientific and technical work continues on better assessment of volatile components of PM emissions;

Whereas the impacts of aviation emissions on local and regional air quality is part of the total emissions in the affected area and should be considered in the broader context of all sources that contribute to the air quality concerns;

Whereas the actual local air quality and health impacts of aviation emissions depend on a series of factors among which are the contribution to the total concentrations and the number of people exposed in the area being considered;

Whereas Article 15 of the *Convention on International Civil Aviation* contains provisions regarding airport and similar charges, including the principle of non-discrimination, and ICAO has developed policy guidance for Member States regarding charges (*ICAO's Policies on Charges for Airports and Air Navigation Services*, Doc 9082) including specific guidance on noise-related charges and emissions-related charges for local air quality;

Whereas the ICAO Council had adopted on 9 December 1996 a policy statement of an interim nature on emissions-related charges and taxes in the form of a resolution wherein the Council strongly recommends that any such levies be in the form of charges rather than taxes, and that the funds collected should be applied in the first instance to mitigating the environmental impact of aircraft engine emissions;

Whereas such charges should be based on the costs of mitigating the environmental impact of aircraft engine emissions to the extent that such costs can be properly identified and directly attributed to air transport;

Whereas the ICAO Council has adopted policy and guidance material related to the use of emissions-related charges to address the impact of aircraft engine emissions at or around airports;

Noting that the ICAO Council has published information on environmental management systems (EMS) that are in use by aviation stakeholders; and

Noting that the ICAO Council has developed an Airport Air Quality Guidance Manual which has been subsequently updated;

The Assembly:

1. *Requests* the Council to monitor and develop its knowledge of, in cooperation with other relevant international organizations such as WHO, the effects of aviation emissions of PM, NO_x and other gases on human welfare and health, and to disseminate information in this regard;
2. *Requests* the Council to continue its work to develop technologically feasible, environmentally beneficial and economically reasonable standards to further reduce the impact of local air pollution from aircraft;
3. *Requests* the Council to continue to develop certification requirements for non-volatile PM emissions while continuing to monitor progress in scientific and technical understanding of volatile and non-volatile components of PM emissions;
4. *Encourages* action by Member States to aid the development of certification requirements for non-volatile PM emissions;
5. *Requests* the Council to ensure that the interdependencies between measures to reduce aircraft noise and engine emissions that affect local air quality as well as global climate are given due consideration;
6. *Requests* the Council to continue its work to develop long-term technology and operational goals with respect to aviation environmental issues, including NO_x emissions from aircraft;
7. *Requests* the Council to continue to foster operational and air traffic improvements that reduce the impact of local air pollution from aircraft;
8. *Encourages* action by Member States, and other parties involved, to limit or reduce international aviation emissions affecting local air quality through voluntary measures and to keep ICAO informed;
9. *Welcomes* the development and promotion of guidance material on issues related to the assessment of airport-related air quality;
10. *Requests* the Council to work with States and stakeholders in promoting and sharing best practices applied at airports in reducing the adverse effects of aviation emissions on local air quality;
11. *Welcomes* the development of the guidance on emissions charges related to local air quality and requests the Council to keep up-to-date such guidance and urges Member States to share information on the implementation of such charges; and

12. Urges Member States to ensure the highest practical level of consistency and take due account of ICAO policies and guidance on emissions charges related to local air quality.

A38-18: 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 Montréal 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 A38-17: *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:
 - i. achieve net GHG emissions reduction on a life cycle basis;
 - ii. respect the areas of high importance for biodiversity, conservation and benefits for people from ecosystems, in accordance with international and national regulations; and

- iii. 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; and
 - 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;
 - 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.

A38-14: Consolidated statement of continuing ICAO policies in the air transport field

A36-14: Use of cross-polar routes

A36-21: Preventing the introduction of invasive alien species

Whereas the global community has increasingly recognized the threat to biological diversity posed by invasive alien species;

Whereas international transportation, including civil air transportation, represents a potential pathway for the introduction of invasive alien species; and

Whereas the Convention on Biological Diversity, the Global Invasive Species Programme and other intergovernmental and non-governmental international organizations are currently working on means to effectively assess and manage alien species that threaten ecosystems, habitats and native species;

The Assembly:

1. *Urges* all Contracting States to support one another's efforts to reduce the risk of introducing, through civil air transportation, potentially invasive alien species to areas outside their natural range;
2. *Requests* the ICAO Council to continue working with the appropriate organizations in this regard; and
3. *Declares* that this resolution supersedes Resolution A35-19.

A27-12: Role of ICAO in the suppression of illicit transport of narcotic drugs by air

Whereas drug abuse and illicit trafficking in narcotic drugs and psychotropic substances continue to create serious international problems demanding urgent and constant attention;

Whereas the United Nations General Assembly called upon the specialized agencies to participate actively in the implementation of the UN General Assembly Resolutions 39/143, 40/121 and 41/127, "International campaign against traffic in drugs";