ICAO ENVIRONMENT

UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE (UNFCCC)

The Forty-ninth Session of the UNFCCC Subsidiary Body for Scientific and Technological Advice (SBSTA49)

2 to 8 December 2018 – Katowice, Poland

Agenda item 10. Methodological issues under the Convention: emissions from fuel used for international aviation and maritime transport

Submission by the International Civil Aviation Organization (ICAO)

Executive Summary

ICAO continues to make significant progress on the development and implementation of a basket of measures to achieve the ICAO global aspirational goals of 2 per cent annual fuel efficiency improvement and carbon neutral growth from 2020 onwards. The ICAO basket of measures includes aircraft technology, operational improvements, sustainable aviation fuels and the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA).

In 2017, ICAO adopted the first ever global certification CO_2 Standard for aeroplanes. Operational improvements also bear a significant CO_2 emissions reduction potential, including through the ICAO's Aviation System Block Upgrades strategy.

Regarding sustainable aviation fuels, the ICAO Conference on Aviation and Alternative Fuels held in Mexico in October 2017 adopted a Declaration on a 2050 ICAO Vision for Sustainable Fuels, to further the work by ICAO, Member States and other stakeholders on this subject. As part of the Declaration, the Conference endorsed the 2050 ICAO Vision for Sustainable Aviation Fuels as a living inspirational path and calls on States, industry and other stakeholders, for a significant proportion of aviation fuels to be substituted with sustainable aviation fuels by 2050. The ICAO Council endorsed the Declaration during its March 2018 Council Session.

Bearing in mind the implementation of CORSIA, starting from 1 January 2019, the ICAO Standards and Recommended Practices for a robust Monitoring, Reporting and Verification system of CO_2 emissions from international aviation were adopted by the ICAO Council in June 2018. ICAO continues its work on all CORSIA Implementation Elements including the determination of eligible emissions units that aeroplane operators can purchase in order to meet their offsetting requirements under CORSIA. To ensure the successful implementation of CORSIA, ICAO also launched the ACT-CORSIA (Assistance, Capacity building and Training) programme, including buddy partnerships, through which donor States provide assistance to recipient States to build their national capacities to implement CORSIA. The CORSIA buddy partnerships are established across ICAO regions, involving 15 donor States and almost 90 recipient States to ensure that all Member States are ready to implement CORSIA on 1 January 2019.

With the increasing engagement of Member States and in close cooperation with the aviation industry and other international organizations, ICAO will continue to lead in the efforts to reduce CO_2 emissions from international aviation.

1. INTRODUCTION

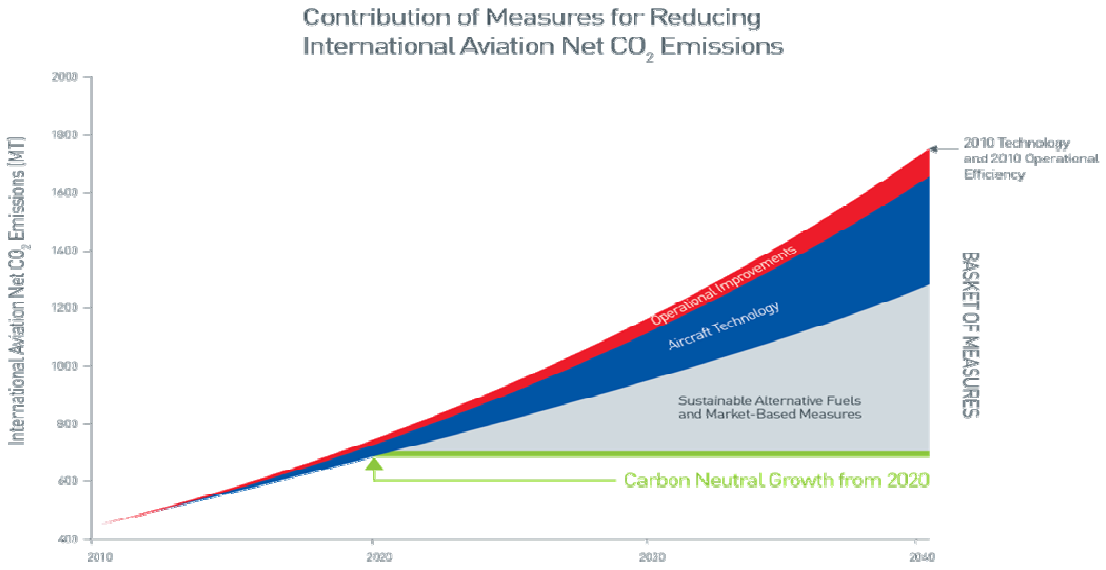
1.1 The ICAO work in addressing greenhouse gas emissions from international aviation is underpinned by two Resolutions that were adopted during the 39th Session of the ICAO Assembly in October 2016:

- Assembly Resolution A39-2, "*Consolidated statement of continuing ICAO policies and practices related to environmental protection – Climate change*"; and

- Assembly Resolution A39-3, "*Consolidated statement of continuing ICAO policies and practices related to environmental protection – Global Market-based Measure (MBM) scheme*" (Appendix A).

1.2 These two Resolutions describe what needs to be accomplished during the current triennium (2017 to 2019) through the development and implementation of the **ICAO basket of measures in order to achieve ICAO's global aspirational goals for international aviation of improving fuel efficiency by 2 per cent per year and keeping its CO_2 emissions from 2020 at the same level (carbon neutral growth from 2020)**.

1.3 The basket of measures includes aircraft technology, operational improvements, sustainable aviation fuels and the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA). ICAO has made significant progress in each element of the basket, which is described in the following sections.



2. AIRCRAFT TECHNOLOGY

2.1 In 2017, the new **CO_2 emissions Standard** was adopted by the ICAO Council as a **new Volume III to Annex 16** to the Convention on International Civil Aviation. This new Standard is the first global Standard for CO_2 emissions of any sector. It will apply to new aeroplane type designs from 2020, and to aeroplane type designs that are already in-production in 2023. This means that if an in-production aeroplane design is changed at a time beyond 2023, the aeroplane would have to comply with the new CO_2 emissions Standard. In 2028, there is a production cut-off, meaning that in-production aeroplanes that do not meet the standard from 2028 can no longer be produced, unless the designs are modified to meet with the Standard.

2.2 In addition, the likelihood of an electric aircraft entering service has increased over the past 10 years, including all-electric, hybrid-electric, partially turboelectric, and turboelectric aircraft. Research is on-going into this area and ICAO will continue to monitor technologies and develop the relevant Standards and Recommend Practices for these new aircraft as necessary.

3. OPERATIONAL IMPROVEMENTS

3.1 Recognizing that many of the operational improvements defined in the **ICAO Global Air Navigation Plan** offer the potential to deliver fuel and CO_2 emissions reduction, an analysis of environmental benefits from the implementation of such measures has been conducted. Activities in this triennium include the estimation of CO_2 reduction benefits from the implementation of **Aviation System Block Upgrades (ASBUs) Strategy** – Block 1, which follows a previous environmental assessment of Block 0 modules. The outcome of the ASBU Block 1 analysis is expected to further inform the global aviation community on the potential environmental benefits to be accrued from the implementation of Block 1 modules.

4. SUSTAINABLE AVIATION FUELS

4.1 Following the recognition by the 39th Assembly of the continuing ICAO support to States and other stakeholders in their efforts to develop and deploy sustainable aviation fuels, the second ICAO conference on this subject was held, in Mexico City, Mexico in October 2017. The conference adopted Recommendations and subsequently a Declaration was approved for further work by ICAO, Member States and other stakeholders. As a part of the Declaration, the conference endorsed the "**2050 ICAO Vision for Sustainable Aviation Fuels**" as a living inspirational path and calls on States, industry and other stakeholders, for a significant proportion of aviation fuels to be substituted with sustainable aviation fuels by 2050. The ICAO Council endorsed the Declaration during its March 2018 Council session.

4.2 The conference noted that the 2050 ICAO Vision should be periodically reviewed through a stocktaking process to continuously assess progress on the development and deployment of sustainable aviation fuels, including through the organization of regular workshops and seminars. The stocktaking process will lead to the convening of the next ICAO conference no later than 2025, with a view to updating the 2050 ICAO Vision to include a quantified goal by 2050.

4.3 ICAO also keeps track of flights using sustainable aviation fuels and provides various information on recent developments, under the **ICAO Global Framework on Aviation Alternative Fuels (GFAAF)**: https://www.icao.int/environmental-protection/GFAAF/Pages/default.aspx. Based on publically-available information from airports and airlines involved in on-going fuel purchase agreements, to date, more than 100,000 commercial flights have used a blend of alternative fuels.

5. CORSIA IMPLEMENTATION

5.1 To ensure the timely implementation of CORSIA, which starts on 1 January 2019, ICAO and its Member States have been prioritizing efforts in undertaking preparatory activities. In June 2018, the Council adopted the new **Annex 16 – Environmental Protection, Volume IV – Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA)** that contains ICAO Standards and Recommended Practices (SARPs) for CORSIA implementation.

5.2 Following a notification sent to States, in the form of a State letter, the Annex 16, Volume IV became effective as of 22 October 2018. States have been requested to notify the

Organization, before 1 December 2018, of any differences that will exist on 1 January 2019, and thereafter of any further differences that may arise.

5.3 The new **ICAO Environmental Technical Manual (ETM), Volume IV – Procedures for Demonstrating Compliance with the CORSIA (Doc 9501)**, was published in July 2018. The ETM promotes uniformity of implementation of the technical procedures of Annex 16, Volume IV by, among others, providing guidance to States, aeroplane operators and other relevant parties regarding the intended meaning of the Annex 16, Volume IV.

5.4 In addition to the adoption of CORSIA-related SARPs and the ETM, ICAO has been making progress on various **CORSIA Implementation Elements**. Specifically:

a) The **ICAO CORSIA CO_2 Estimation and Reporting Tool (CERT)** simplifies the estimation and reporting of CO_2 emissions from international flights for aeroplane operators with low levels of activity, and helps these operators fulfil their monitoring and reporting requirements under CORSIA. In June 2018, the ICAO Council approved the 2018 version of the tool and its technical methodologies. The tool has been made available on the ICAO CORSIA public website. ICAO is currently working on the development of the 2019 version of the CERT, which will provide necessary output data to be incorporated into the operator's annual Emissions Report from 2019;

b) The **CORSIA Central Registry (CCR)** is an information management system that will assist Member States and ICAO to fulfil the reporting and analytical requirements contained in Annex 16, Volume IV. Specifically, the CCR will help States to upload and submit CORSIA-related information, and will enable ICAO to store the submitted information, calculate specific parameters and provide relevant data back to States. In June 2018, the ICAO Council approved the functional requirements of the CCR. On the basis of these requirements, the Secretariat has initiated the procurement process for the selection of a vendor who will develop the CCR. The procurement process is expected to be finalized by the end of 2018, and the development and testing of the CCR will take place until the end of 2019, prior to the operationalization of the CCR in early 2020;

c) Regarding the work on **CORSIA Eligible Fuels**, ICAO is making progress to develop technical recommendations related to sustainable aviation fuels, including the development of default life-cycle emissions values and methodologies, sustainability criteria, and requirements for sustainability certification schemes, for consideration by the 11th meeting of the ICAO Committee on Aviation Environmental Protection (CAEP) in February 2019, prior to consideration of the CAEP recommendations by the Council; and

d) In relation to **CORSIA Eligible Emissions Units**, the ICAO Council, in November 2018, considered the results of the CAEP work on the informal testing of emissions unit programmes against the emissions units criteria. The Council agreed to establish a Technical Advisory Body (TAB) to provide technical advice on the eligibility of emissions units for CORSIA, and on the basic terms of reference (TORs) for the TAB. A State letter will invite nomination of TAB members from ICAO Member States, for consideration by the Council in March 2018 to finalize the composition of the TAB and to launch its work. The Council also requested CAEP to provide further advice for the TAB regarding additional rules of procedure, which would complement the basic TORs, for consideration by the Council in March 2018.

5.5 In addition to finalization of Annex 16, Volume IV and ETM, Volume IV for CORSIA in June 2018, the ICAO Council also endorsed the **ACT-CORSIA (Assistance, Capacity-building and Training for the CORSIA) Programme**, emphasizing the importance of a coordinated approach under ICAO to harmonize and bring together all relevant actions and promote coherence to capacity building efforts. The Council also requested that any bilateral or multilateral partnerships among States should be coordinated with ICAO, so that the global progress of such coordinated efforts would be monitored.

5.6 As part of the ACT-CORSIA programme, the Council encouraged the establishment of **CORSIA Buddy Partnerships** among States. Through such partnerships, a donor State is to provide assistance to a recipient State to build its national capacity to implement CORSIA. Typically, the assistance is in the form of a donor State offering expert(s) on CORSIA to provide individual training to and undertake the necessary follow-up with, the CORSIA focal points of the recipient States, in close coordination with the ICAO Secretariat. The training is focussed on the preparation and implementation of the recipient State's CORSIA Monitoring, Reporting and Verification (MRV) system, and the establishment of a national regulatory framework.

5.7 CORSIA Buddy Partnerships across various regions are being established, involving around **15 donor States and almost 90 recipient States** (see Appendix B for the CORSIA Buddy Partnerships, as of November 2018). A regular update on the on-site training activities by donor State experts at the recipient States has been provided on the ICAO CORSIA website, enabling full transparency of the assistance progress under the ICAO umbrella.

5.8 Recognizing the importance of continuing to support States for CORSIA implementation, the ICAO Secretariat plans to organize a series of regional seminars from March to April in 2019. In addition, the ICAO Secretariat is also exploring a cooperative partnership with the International Accreditation Forum (IAF) for the development and delivery of training to national accreditation bodies and verification bodies related to CORSIA verification requirements, with a view to facilitating the availability of accredited verification bodies by the time the operators' Emissions Reports need to be verified in early 2020.

6. STATE ACTION PLANS AND ASSISTANCE

6.1 The **State action plans** are a strategic tool, which allow States to lay down a long-term vision for the evolution of international civil aviation CO_2 emissions, in full coordination with their international aviation stakeholders. This cooperation process facilitates the identification of CO_2 mitigation activities and the assistance needed to implement such measures. The compilation of information contained in State action plans facilitates the assessment of progress toward the achievement of the ICAO global aspirational goals, and the areas of implementation support needed by States. As of 8 November 2018, **111 Member States** (representing 92.3 per cent of the global international aviation traffic in Revenue Tonne Kilometres (RTK)) have voluntarily submitted their action plans to ICAO.

6.2 A strategy for capacity building on State action plans was originally put in place in the 2010 Assembly, and since then ICAO has regularly organized seminars in all ICAO regions to provide States with an overview of ICAO's environment-related activities and to provide additional support to States in developing and enhancing their action plans. Guidance documentation, software tools, an online template, and practical hands-on assistance to support the development and enhancement of the various elements of the action plans were provided to the national action plan focal points.

6.3 ICAO's activities on technical assistance in the area of environmental protection gained even greater significance with the launch of **two ICAO capacity-building and assistance**

projects, in partnership with the European Union (EU), and with the United Nations Development Programme (UNDP) and the Global Environment Facility (GEF), respectively. Both projects have successfully delivered on a series of outcomes, leading, amongst others, to the submission of quantified State Action Plans by the 14 States selected under the ICAO-EU project and to the development of key guidance material under the ICAO-UNDP-GEF projects. Specifically:

- Under the ICAO-EU project, a tool titled Aviation Environmental System (AES) was developed to assist the efforts of Member States to collect environmental data and monitor their CO_2 emissions from the aviation sector at the national level. The beneficiary States under the ICAO-EU project have all been equipped with the AES, which allows them to collect and analyse environmental data regarding their aviation activities and to automatically generate CO_2 emissions reports on a monthly and annual basis;

- Under the ICAO-EU project, two solar-at-gate pilot projects, consisting of a solar photovoltaic system and gate electrification equipment, are being implemented in Cameroon and Kenya, as part of the mitigation measures to reduce CO_2 emissions from international aviation. The inauguration ceremonies of the solar projects will be held on 12 December 2018 in Mombasa, Kenya, and in January 2019, in Douala, Cameroon; and

- The ICAO-UNDP-GEF capacity-building project has reached its last phase, with the final seminars to disseminate guidance materials developed under the project, which took place from 23 to 26 April 2018 in Jamaica and from 23 to 14 May 2018 in Fiji. These Seminars aimed to stimulate the future development and subsequent implementation of low emissions aviation initiatives in Small Island Developing States (SIDS) in the Caribbean, and in the Asia and Pacific Regions, respectively. The project also supported the implementation of two solar-at-gate pilot projects at two airports in Jamaica.

7. UNFCCC – CLIMATE FINANCE

7.1 While the Paris Agreement and associated COP21 decision did not include reference to international aviation, one of the key elements in the Agreement is that developed country Parties should continue to take the lead in mobilizing climate finance from a wide variety of sources, instruments and channels, with a concrete roadmap to achieve the goal of jointly providing USD 100 billion annually by 2020 for mitigation and adaptation through 2025, while the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement shall set a new financial goal prior to 2025 from a floor of USD 100 billion per year (Paris Agreement, Article 9, paragraph 3, and associated COP21 Decision, paragraphs 53 and 114).

7.2 It should be highlighted that in 2010, ICAO Member States adopted global aspirational goals for the international aviation sector of improving the sector's fuel efficiency by 2 per cent per year and keeping its global CO_2 emissions from 2020 at the same level (carbon neutral growth from 2020), and these aspirational goals were affirmed by the 38th (2013) and 39th (2016) Sessions of the ICAO Assembly.

7.3 The achievement of the ICAO global aspirational goals requires adequate financial resources within the sector itself, enabling it to effectively respond to the global climate change challenge. It is of utmost importance that the adopted global MBM scheme for international aviation – CORSIA be treated as one element of the basket of mitigation measures to achieve the ICAO global aspirational goals, and not in isolation. The growing commitment of ICAO partners to support

ICAO's capacity building and assistance efforts also demonstrates how critical these activities are to the achievement of ICAO's global aspirational goals.

7.4 In this regard, the 39th Assembly urged 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*" (Assembly Resolution A39-2, paragraph 16).

— — — — — — — —

APPENDIX A

ICAO Assembly Resolution A39-3: Consolidated statement of continuing ICAO policies and practices related to environmental protection – Global Market-based Measure (MBM) scheme

Whereas Assembly Resolution A38-18 decided to develop a global market-based measure (GMBM) scheme for international aviation, for decision by the 39th Session of the Assembly;

Recalling that Assembly Resolution A38-18 requested the Council, with the support of Member States, to finalize the work on the technical aspects, environmental and economic impacts and modalities of the possible options for a GMBM 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;

Also recalling that Assembly Resolution A38-18 requested the Council, with the support of Member States, to identify the major issues and problems, including for Member States, and make a recommendation on a GMBM scheme that appropriately addresses them and key design elements, including a means to take into account special circumstances and respective capabilities, 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;

Recognizing that ICAO is the appropriate forum to address emissions from international aviation, and the significant amount of work undertaken by the Council, its Environment Advisory Group (EAG) and its Committee on Aviation Environmental Protection (CAEP) to develop a recommendation for a GMBM scheme and its design elements and implementation mechanisms, including the analyses of various approaches for distribution of obligations;

Further recalling that Assembly Resolution A38-18 requested the Council, with the support of Member States, to organize seminars, workshops on a GMBM scheme for international aviation participated by officials and experts of Member States as well as relevant organizations;

Recognizing the convening of two rounds of Global Aviation Dialogues (GLADs) seminars held in 2015 and 2016 for all regions;

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;

Recognizing that MBMs should not be duplicative and international aviation CO_2 emissions should be accounted for only once;

Emphasizing that the decision by the 38th Session of the Assembly to develop a global MBM scheme for international aviation reflects the strong support of Member States for a global solution for the international aviation industry, as opposed to a possible patchwork of State and regional MBMs;

Reaffirming the concern with the use of international civil aviation as a potential source for the mobilization of revenue for climate finance to the other sectors, and that MBMs should ensure the fair treatment of the international aviation sector in relation to other sectors;

Recalling the UNFCCC and the Paris Agreement and *acknowledging* its principle of common but differentiated responsibilities and respective capabilities, in light of different national circumstances;

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

Welcoming the adoption of the Paris Agreement under the UNFCCC and *recognizing* that the work related to a global MBM scheme for international aviation and its implementation will contribute to the achievement of the goals set out in the Paris Agreement;

Whereas the UNFCCC and the Paris Agreement provide for mechanisms, such as the Clean Development Mechanism (CDM) and a new market mechanism under the Paris Agreement, to contribute to the mitigation of GHG emissions to support sustainable development, which benefit developing States in particular;

Welcoming the cooperation between the United Nations Framework Convention on Climate Change (UNFCCC) and ICAO on the development of CDM methodologies for aviation;

Recognizing that this Resolution does not set a precedent for or prejudge the outcome of negotiations under the UNFCCC, the Paris Agreement, or other international agreements, nor represent the position of the Parties to the UNFCCC, the Paris Agreement, or other international agreements;

The Assembly:

1. *Resolves* that this Resolution, together with Resolution A39-1: *Consolidated statement of continuing ICAO policies and practices related to environmental protection - General provisions, noise and local air quality* and Resolution A39-2: *Consolidated statement of continuing ICAO policies and practices related to environmental protection – Climate change*, supersede Resolutions A38-17 and A38-18 and constitute the consolidated statement of continuing ICAO policies and practices related to environmental protection;

2. *Acknowledges* the progress achieved on all elements of the basket of measures available to address CO_2 emissions from international aviation, including aircraft technologies, operational improvements, sustainable alternative fuels and a GMBM scheme and any other measures, and *affirms* the preference for the use of aircraft technologies, operational improvements and sustainable alternative fuels that provide the environmental benefits within the aviation sector;

3. *Also acknowledges* that, despite this progress, the environmental benefits from aircraft technologies, operational improvements and sustainable alternative fuels may not deliver sufficient CO_2 emissions reductions to address the growth of international air traffic, in time to achieve the global aspirational goal of keeping the global net CO_2 emissions from international aviation from 2020 at the same level;

4. *Emphasizes* the role of a GMBM scheme to complement a broader package of measures to achieve the global aspirational goal, without imposing inappropriate economic burden on international aviation;

5. *Decides* to implement a GMBM scheme in the form of the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) to address any annual increase in total CO_2 emissions from international civil aviation (i.e. civil aviation flights that depart in one country and arrive in a different country) above the 2020 levels, taking into account special circumstances and respective capabilities;

6. *Requests* the Council to continue to ensure all efforts to make further progress on aircraft technologies, operational improvements and sustainable alternative fuels be taken by Member States and reflected in their action plans to address CO_2 emissions from international aviation, and to monitor and report the progress on implementation of action plans, and that a methodology should be

developed to ensure that an aircraft operator's offsetting requirements under the scheme in a given year can be reduced through the use of sustainable alternative fuels, so that all elements of the basket of measures are reflected;

7. *Request* the Council to continuously monitor the implementation of all elements of the basket of measures, and consider the necessary policies and actions to ensure that progress is achieved in all of the elements in a balanced way with an increasing percentage of emissions reductions accruing from non-MBM measures over time;

8. *Acknowledges* special circumstances and respective capabilities of States, in particular developing States, in terms of vulnerability to the impacts of climate change, economic development levels, and contributions to international aviation emissions, among other things, while minimizing market distortion;

9. *Decides* the use of a phased implementation for the CORSIA to accommodate the special circumstances and respective capabilities of States, in particular developing States, while minimizing market distortion, as follows:

a) Pilot phase applies from 2021 through 2023 to States that have volunteered to participate in the scheme. States participating in this phase may determine the basis of their aircraft operator's offsetting requirements from paragraph 11 e) i) below;

b) First phase applies from 2024 through 2026 to States that voluntarily participate in the pilot phase, as well as any other States that volunteer to participate in this phase, with the calculation of offsetting requirements in paragraph 11 a) below;

c) All States are strongly encouraged to voluntarily participate in the pilot phase and the first phase, noting that developed States, which have already volunteered, are taking the lead, and that several other States have also volunteered;

d) The Secretariat will make public on the ICAO website updated information on the States that volunteered to participate in the pilot phase and first phase;

e) Second phase applies from 2027 through 2035 to all States that have an individual share of international aviation activities in RTKs in year 2018 above 0.5 per cent of total RTKs or whose cumulative share in the list of States from the highest to the lowest amount of RTKs reaches 90 per cent of total RTKs, except Least Developed Countries (LDCs), Small Island Developing States (SIDS) and Landlocked Developing Countries (LLDCs) unless they volunteer to participate in this phase;

f) States that are exempted or have not yet participated are strongly encouraged to voluntarily participate in the scheme as early as possible, in particular those States that are members of a regional economic integration organization. States who decide to voluntarily participate in the scheme, or decide to discontinue the voluntary participation from the scheme, may only do so from 1 January in any given year and they shall notify ICAO of their decision by no later than 30 June of the preceding year;

g) Starting in 2022, the Council will conduct a review of the implementation of the CORSIA every three years, including its impact on the growth of international aviation, which serves as an important basis for the Council to consider whether it is necessary to make adjustments to the next phase or compliance cycle and, as appropriate, to recommend such adjustments to the Assembly for its decision;

10. *Decides* that the CORSIA shall apply to all aircraft operators on the same routes between States with a view to minimizing market distortion, as follows:

a) all international flights on the routes between States, both of which are included in the CORSIA by paragraph 9 above, are covered by the offsetting requirements of the CORSIA;

b) all international flights on the routes between a State that is included in the CORSIA and another State that is not included in the CORSIA by paragraph 9 above are exempted from the offsetting requirements of the CORSIA, while retaining simplified reporting requirements; and

c) all international flights on the routes between States, both of which are not included in the CORSIA by paragraph 9 above, are exempted from the offsetting requirements of the CORSIA, while retaining simplified reporting requirements;

11. *Decides* that the amount of CO_2 emissions required to be offset by an aircraft operator in a given year from 2021 is calculated every year as follows:

a) an aircraft operator's offset requirement = [% Sectoral × (an aircraft operator's emissions covered by CORSIA in a given year × the sector's growth factor in the given year)] + [% Individual × (an aircraft operator's emissions covered by CORSIA in a given year × that aircraft operator's growth factor in the given year);

b) where the sector's growth factor = (total emissions covered by CORSIA in the given year – average of total emissions covered by CORSIA between 2019 and 2020) / total emissions covered by CORSIA in the given year;

c) where the aircraft operator's growth factor = (the aircraft operator's total emissions covered by CORSIA in the given year – average of the aircraft operator's emissions covered by CORSIA between 2019 and 2020) / the aircraft operator's total emissions covered by CORSIA in the given year;

d) where the % Sectoral = (100% – % Individual) and;

e) where the % Sectoral and % Individual will be applied as follows:

i) from 2021 through 2023, 100% sectoral and 0% individual, though each participating State may choose during this pilot phase whether to apply this to:

a) an aircraft operator's emissions covered by CORSIA in a given year, as stated above, or

b) an aircraft operator's emissions covered by CORSIA in 2020;

ii) from 2024 through 2026, 100 % sectoral and 0% individual;

iii) from 2027 through 2029, 100 % sectoral and 0% individual;

iv) from 2030 through 2032, at least 20% individual, with the Council recommending to the Assembly in 2028 whether and to what extent to adjust the individual percentage;

v) from 2033 through 2035, at least 70% individual, with the Council recommending to the Assembly in 2028 whether and to what extent to adjust the individual percentage;

f) the aircraft operator's emissions and the total emissions covered by CORSIA in the given year do not include emissions exempted from the scheme in that year;

g) the scope of emissions in paragraphs 11 b) and 11 c) above will be recalculated at the start of each year to take into account routes to and from all States that will be added due to their voluntary participation or the start of a new phase or compliance cycle;

12. *Decides* that a new entrant[1] is exempted from the application of the CORSIA for three years or until the year in which its annual emissions exceed 0.1 per cent of total emissions in 2020, whichever occurs earlier. From the subsequent year, the new entrant is included in the scheme and treated in the same way as the other aircraft operators.

13. *Decides* that, notwithstanding with the provisions above, the CORSIA does not apply to low levels of international aviation activity with a view to avoiding administrative burden: aircraft operators emitting less than 10,000 metric tonnes of CO_2 emissions from international aviation per year; aircraft with less than 5,700 kg of Maximum Take Off Mass (MTOM); or humanitarian, medical and firefighting operations;

14. *Decides* that the emissions that are not covered by the scheme, as the results of phased implementation and exemptions, are not assigned as offsetting requirements of any aircraft operators included in the scheme;

15. *Notes* the work of the Council, with the technical contribution of CAEP, on: a) the monitoring, reporting and verification (MRV) system; b) recommended criteria for emissions units to be purchased by aircraft operators that take into account developments in the UNFCCC process; c) and registries under the CORSIA, and *requests* the Council, with the technical contribution of CAEP, to complete its work as soon as possible including the provision of capacity building and assistance, so as to enable the full implementation of the CORSIA from 2020;

16. *Decides* a three year compliance cycle, starting with the first cycle from 2021 to 2023, for aircraft operators to reconcile their offsetting requirements under the scheme, while they report the required data to the authority designated by the aircraft operator's State of registry every year;

17. *Decides* on the need to provide for safeguards in the CORSIA to ensure the sustainable development of the international aviation sector and against inappropriate economic burden on international aviation, and *requests* the Council to decide the basis and criteria for triggering such action and identify possible means to address these issues*;*

18. *Decides* that a periodic review of the CORSIA is undertaken by the Council, for consideration by the Assembly, every three years from 2022 for the purpose referred to in paragraph 9 g) above and to contribute to the sustainable development of the international aviation sector and the effectiveness of the scheme. This will involve, inter alia:

a) assessment of: progress towards achieving the ICAO's global aspirational goal; the scheme's market and cost impact on States and aircraft operators and on international aviation; and the functioning of the scheme's design elements;

b) consideration of the scheme's improvements that would support the purpose of the Paris Agreement, in particular its long-term temperature goals; and update the scheme's design elements to improve implementation, increase effectiveness, and minimize market distortion,

[1] A new entrant is defined as any aircraft operator that commences an aviation activity falling within the scope of the scheme on or after its entry into force and whose activity is not in whole or in part a continuation of an aviation activity previously performed by another aircraft operator.

taking into account the consequential impact of changing the scheme's design elements, e.g., to MRV requirements; and

c) a special review by the end of 2032 on termination of the scheme, its extension or any other improvements of the scheme beyond 2035, including consideration of the contribution made by aircraft technologies, operational improvements and sustainable alternative fuels towards achieving the ICAO's environmental objectives;

19. *Determines* that the CORSIA or any other scheme decided by the Assembly is to be the market-based measure applying to CO_2 emissions from international aviation;

20. *Requests* the following actions be taken, with a view to establishing necessary mechanisms for implementation of the CORSIA from 2020:

Regarding the implementation of the MRV system,

a) the Council to develop, with the technical contribution of CAEP, the SARPs and related guidance material for the implementation of the MRV system under the CORSIA, including simplified MRV procedures, for adoption by the Council by 2018;

b) all Member States whose aircraft operator undertakes international flights to develop the necessary arrangements, in accordance with the MRV SARPs, for implementation from 1 January 2019;

Regarding the Emissions Unit Criteria (EUC),

c) the Council to develop, with the technical contribution of CAEP, the SARPs and related guidance material for Emissions Unit Criteria (EUC) to support the purchase of appropriate emissions units by aircraft operators under the scheme, taking into account relevant developments in the UNFCCC and Article 6 of the Paris Agreement, for adoption by the Council as soon as possible but not later than 2018;

d) the Council to establish, with the technical contribution of CAEP, a standing technical advisory body on the Emissions Unit Criteria (EUC) to make recommendations to the Council on the eligible emissions units for use by the CORSIA;

e) the Council, with the technical contribution of CAEP, to periodically review the EUC SARPs and related guidance material, as appropriate, to promote compatibility with future relevant decisions under the Paris Agreement;

Regarding the establishment of Registries,

f) the Council to develop, with the technical contribution of CAEP, policies and related guidance material to support the establishment of registries under the scheme, for adoption by the Council by 2018;

g) the Council to establish a consolidated central registry under the auspices of ICAO, for operationalization no later than 1 January 2021;

h) Member States to develop necessary arrangements for the establishment of their own registries or group registries established by groups of States, or to arrange for participation in other registries, in accordance with the ICAO guidance;

Regarding the governance of the CORSIA,

i) the Council to oversee the functioning of the CORSIA, with support provided by the standing technical advisory body and CAEP as needed;

Regarding the regulatory framework,

j) Member States to take necessary action to ensure that the necessary national policies and regulatory framework be established for the compliance and enforcement of the scheme by 2020.

21. *Decides* that emissions units generated from mechanisms established under the UNFCCC and the Paris Agreement are eligible for use in CORSIA, provided that they align with decisions by the Council, with the technical contribution of CAEP, including on avoiding double counting and on eligible vintage and timeframe;

22. *Decides* that ICAO and Member States take all necessary actions in providing the capacity building and assistance and building partnerships for implementation of the CORSIA from 2020, including:

Regarding the implementation of the MRV system,

a) the Council to take necessary action to expand the provision of capacity building and assistance for the preparation and implementation on Member States' action plans, in order to accommodate capacity building and assistance for implementation of the MRV system by Member States from 1 January 2019, including organization of seminars and training in all regions from 2017, and facilitation of financial support where needed, in particular for those States that volunteer to participate in the pilot phase and require support to do so;

b) Member States to build partnerships among themselves to cooperate on the implementation of the MRV system;

Regarding the establishment of Registries,

c) the Council to take necessary action to expand the provision of capacity building and assistance for the preparation and implementation on Member States' action plans, in order to accommodate capacity building and assistance for establishment of registries by States, including organization of seminars and training in all regions from 2017, and facilitation of financial support where needed, in particular for those States that volunteer to participate in the pilot phase and require support to do so;

d) Member States to build partnerships among themselves to cooperate on the establishment of their own registries or group registries established by groups of States, and possible pilot implementation;

23. *Decides* that the CORSIA will use emissions units that meet the Emissions Unit Criteria (EUC) in paragraph 20 above;

24. *Requests* the Council to promote the use of emissions units generated that benefit developing States, and *encourages* States to develop domestic aviation-related projects;

25. *Requests* the Council to explore further development of aviation-related methodologies for use in offsetting programmes, including mechanisms or other programmes under the UNFCCC, and *encourages* States to use such methodologies in taking actions to reduce aviation CO_2 emissions, which could further enable the use of credits generated from the implementation of such programmes by the CORSIA, without double-counting of emissions reduction;

APPENDIX B

CORSIA Buddy Partnerships under the ICAO ACT-CORSIA Programme


Carbon Offsetting and Reduction Scheme for International Aviation
ACT-CORSIA Buddy Partnerships
On-site Training Activities
CORSIA
Algeria
Iraq
Jordan
Morocco
Saudi Arabia
Tunisia
6 - 8 Dec.
Trained by Canada, France, Spain
Hosted by ACAO
CANADA (Donor)
UNITED STATES (Donor)
MEXICO (Donor)
Cuba
1 - 2 Oct.
Bolivia
Uruguay
8 - 9 Oct.
FRANCE (Donor)
GERMANY (Donor)
SPAIN (Donor)
ITALY (Donor)
Tajikistan
18 - 19 Dec.
Trinidad & Tobago
21 - 22 Jan. 2019
Vietnam
20- 21 Sept.
Pakistan
24- 25 Sept.
Lao People`s D.R.
27 - 28 Sept.
Mongolia
1- 2 Oct.
Philippines
22- 23 Nov.
R. of KOREA (Donor)
JAPAN (Donor)
Myanmar
11- 12 Oct.
Cambodia
30 Nov.
Afghanistan
Bangladesh
Bhutan
17 - 18 Dec.
Belize
Costa Rica
El Salvador
Honduras
Nicaragua
Guatemala
25 - 26 Oct.
Trained by USA, Mexico, Spain
Hosted by COCESNA
Ecuador
27 - 28 Nov.
Paraguay
Cabo Verde
26 - 27 Nov.
Trained by Brazil, Italy
Sao Tome and Principe
29 - 30 Nov.
Trained by Brazil, Italy
Mozambique
20 - 21 Nov.
Trained by Brazil, Italy
BRAZIL (Donor)
Gambia
Ghana
Sudan
6 - 7 Nov.
NIGERIA (Donor)
KENYA (Donor)
SOUTH AFRICA (Donor)
Botswana
Namibia
Zimbabwe
26 - 28 Sept.
Zambia
2 - 4 Oct.
Malawi
6 Nov.
AUSTRALIA (Donor)
Nauru
10 -12 Sept.
Indonesia
Week of 24 Sept.
Brunei Darussalam
10 - 11 Oct.
Sri Lanka
18 -19 Oct.
NEW ZEALAND (Donor)
Vanuatu
24 - 25 Sept.
Solomon Islands
26 - 27 Sept.
Fiji
1 - 2 Oct.
Samoa
4 - 5 Oct.
Uganda
Week of 17 Dec.
South Soudan
Mid Jan. 2019
Cameroon
Chad
Gabon
30 Oct. - 1 Nov.
Burkina Faso
Côte d'Ivoire
Niger
Mali
Senegal
Togo
5 - 7 Nov.
Comoros
Madagascar
Mauritius
19 - 20 Nov.
States Trained (as of 30 November 2018)
© ICAO 2018