

**55th CONFERENCE OF
DIRECTORS GENERAL OF CIVIL AVIATION
ASIA AND PACIFIC REGIONS**

*Denarau Island, Nadi, Fiji
22 — 26 October 2018*

AGENDA ITEM 7: AVIATION AND ENVIRONMENT

**RECENT DEVELOPMENTS IN ICAO IN THE AREA OF
AVIATION AND ENVIRONMENT**

Presented by the International Civil Aviation Organization

SUMMARY

Considerable progress has been made on the advancement of ICAO's strategic objective of Environmental Protection, with the support of 192 Member States and other stakeholders, in pursuing the three ICAO Environmental Goals of limiting or reducing the impacts of aircraft noise, aircraft engine emissions that affect local air quality (LAQ), and aviation emissions that affect the global climate, through the development of globally-harmonized ICAO policies, SARPs, tools and guidance. This Discussion Paper presents the latest developments on various topics with a focus on climate change and capacity-building activities related to State Action Plans to reduce aviation CO₂ emissions and the Carbon Offsetting and Reduction Scheme for International Aviation (CORSA).

RECENT DEVELOPMENTS IN ICAO IN THE AREA OF AVIATION AND ENVIRONMENT

1. INTRODUCTION

1.1 Improving the environmental performance of international civil aviation is a challenge that ICAO takes very seriously and considerable progress has been made, with support of 192 Member States and other stakeholders. This has involved the development of globally-harmonized ICAO policies, SARPs, tools and guidance material in pursuing the three ICAO Environmental Goals of limiting or reducing the impacts of aircraft noise, aircraft engine emissions that affect local air quality (LAQ), and aviation emissions that affect the global climate.

1.2 This Discussion Paper presents the latest developments on various topics with a focus on climate change and capacity-building activities related to State Action Plans to reduce aviation CO₂ emissions and the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA).

1.3 In 2010, the 37th Session of the ICAO Assembly adopted Resolution A37-19 establishing global aspirational goals of two per cent annual fuel efficiency improvement and carbon-neutral growth by 2020 for international civil aviation. The following two Assemblies, through Resolutions A38-18 and A39-2, reiterated these aspirational goals and established a Basket of Measures that ICAO Member States can choose from to mitigate their international aviation CO₂ emissions. The Basket of Measures is comprised of four elements: technology and standards, operational improvements, sustainable aviation fuels and market-based measures.

1.4 In this regard, ICAO has made continuous progress to support the implementation of all elements of the Basket of Measures. In March 2017, the ICAO Council adopted a new CO₂ emissions Standard for aeroplanes, as contained in the First Edition of Annex 16, Volume III. At the same time, the Council also adopted the first non-volatile particulate matter Standard for aircraft engines, which will apply to turbofan and turbojet engines manufactured from 1 January 2020. Moreover, the Aviation System Block Upgrades (ASBU) framework supports States in implementing operational improvements, including the implementation of fuel-efficient aircraft technologies and air traffic management modernization, leading to fuel efficiency gains and CO₂ emissions reductions. In October 2017, the 2050 ICAO Vision for Sustainable Aviation Fuels was adopted at the second ICAO Conference on Aviation and Alternative Fuels, and calls on States, industry and other stakeholders, for a significant proportion of conventional aviation fuels to be substituted with sustainable aviation fuels by 2050. Following the adoption of Assembly Resolution A39-3 on a Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA), in June 2018 the ICAO Council adopted the First Edition of Annex 16, Volume IV – CORSIA.

1.5 With a view to supporting Member States to implement the broad range of CO₂ emissions mitigation measures selected from the ICAO Basket of Measures, since 2010, ICAO has implemented a comprehensive capacity-building and assistance strategy. The States' Action Plans on CO₂ Emissions Reduction from International Aviation has been a key element of this strategy. Most recently, following the adoption of the First Edition of Annex 16, Volume IV, in June 2018 ICAO launched the Assistance, Capacity building and Training for CORSIA (ACT-CORSIA) programme, to support ICAO Member States in their preparatory activities to be ready to implement CORSIA by 1 January 2019. ACT-CORSIA will be a critical component of the Organization's efforts to assist Member States in CORSIA implementation, and more generally, as the newest part of the broader assistance and capacity building strategy.

2. STATES ACTION PLANS ON CO₂ EMISSIONS REDUCTION ACTIVITIES FROM INTERNATIONAL AVIATION

2.1 States Action Plans on CO₂ Emissions Reduction are a strategic tool for States to develop a medium- to long-term plan to address CO₂ emissions from international aviation, and involving all national aviation stakeholders. Assembly Resolution A39-2 calls for ICAO Member States to voluntarily develop and submit their action plan to ICAO no later than 30 June 2018 and to update the document every 3 years thereafter.

2.2 By 15 August 2018, 109 Member States, representing 91.8 per cent of international aviation Revenue Tonne Kilometres (RTK)¹ had voluntarily submitted action plans to ICAO. This demonstrates the high level of interest and engagement of ICAO Member States in mitigating CO₂ emissions from international aviation. Amongst the States accredited to the Asia-Pacific region of ICAO, the following have submitted an action plan to ICAO: Australia, China, Fiji, India, Indonesia, Japan, Malaysia, Nepal, New Zealand, Pakistan, Philippines, Republic of Korea, Singapore, Sri Lanka, Thailand, and Vietnam.

2.3 With respect to the ICAO State Action Plan Buddy Programme, Assembly Resolution A39-2 further encouraged States that have already submitted action plans to share information contained in the action plans and build partnerships with other Member States in order to support those States that have not prepared action plans. In this respect, ICAO has been working with Member States to facilitate and support the establishment of these partnerships. To date, six partnerships have been established under the ICAO State Action Plan Programme².

2.4 ICAO-European Union (EU) capacity-building and assistance project

2.4.1 Under the framework of the ICAO-European Union (EU) capacity-building and assistance project on environmental protection, ICAO has supported 14 selected States in the African and Caribbean regions for the preparation of their action plans and the establishment of data collection and monitoring systems for their CO₂ emissions from aviation. Also, as part of the same project, ICAO is currently supporting the implementation of the mitigation measures included in these States' action plans.

2.4.2 ICAO has published the results of feasibility studies on the use of sustainable aviation fuels and on the use of renewable energy to power airport operations. These studies highlight new opportunities for ICAO Member States to implement low emissions aviation measures as part of their Action Plans for the achievement of a more environmentally sustainable air transport sector³.

2.4.3 With the financial assistance of the EU and in cooperation with the United Nations Institute for Training and Research (UNITAR), ICAO has also developed dedicated training material, consisting of an e-learning course and e-books on States' Action Plans and mitigation measures. This e-learning course provides step-by-step guidance on the development and implementation of Action Plans and it is freely accessible through the UNITAR website⁴ to all States' Action Plan Focal Points.

2.4.4 Two solar-at-gate pilot projects, consisting of the installation of a solar power generation facility and gate electrification equipment, are being implemented in Cameroon and Kenya, as part of their mitigation measures to reduce CO₂ emissions from international aviation. The construction phase of these projects began in June 2018, with a scheduled completion date in December 2018.

2.4.5 Following the signature of a Declaration of Intent by ICAO and the EU during the 39th Session of the ICAO Assembly, ICAO is considering the best way of cooperating with the EU and endeavours to extend the benefits of the project in a second phase from 2019.

1 Based on RTK for 2015.

2 <https://www.icao.int/environmental-protection/Pages/ActionPlan-Questions.aspx>

3 https://www.icao.int/environmental-protection/Pages/ICAO_EU.aspx

4 <https://www.unclearn.org/news/new-e-tutorial-co2-emission-reduction-aviation-sector>

2.5 ICAO-UNDP/GEF capacity-building project

2.5.1 The ICAO – United Nations Development Programme (UNDP) – Global Environment Facility (GEF) capacity-building project is reaching its last phase, supporting the implementation of solar-at-gate pilot projects at two international airports in Jamaica. Building upon the strong interest expressed by small island developing States (SIDS) in the Asia and Pacific Region, options will be explored to pursue further cooperation with the UNDP and the GEF to scale-up the “solar-at-gate” approach in SIDS, as a key component of their international aviation CO₂ emissions reduction activities, together with the development of State Action Plans and preparatory activities for CORSIA.

2.5.2 In this regard, ICAO organized two *Capacity Building Seminars on Low Emissions Aviation Measures* for the ICAO-UNDP/GEF project beneficiary States and SIDS in the Caribbean and Asia Pacific regions, in Jamaica from 24 to 27 April 2018 and in Fiji, from 23 to 24 May 2018, respectively. These seminars provided States with the guidance required to implement aviation environmental protection activities, by sharing information on the lessons learned, best practices and deliverables of the project.

2.5.3 Among the objectives of the ICAO-UNDP/GEF project is the identification and facilitation of the implementation of measures to reduce international aviation emissions. In this regard, the four guidance documents on renewable energy for aviation, financing for aviation emissions reductions, the regulatory and organizational framework and sustainable aviation fuels have been published on the ICAO public website⁵.

2.5.4 As part of the project, ICAO developed a Marginal Abatement Cost (MAC) curve tool to assess the costs and benefits associated with the implementation of aviation low emissions measures in developing States and SIDS. This tool will be made available to State Action Plan Focal Points soon. In addition, an integrated Environmental Technical Platform⁶ has been developed which will allow for the sharing of knowledge and resources, as well as outreach initiatives, to ICAO Member States.

3. CARBON OFFSETTING AND REDUCTION SCHEME FOR INTERNATIONAL AVIATION (CORSIA)

3.1 By adopting Assembly Resolution A39-3, ICAO Member States decided to implement CORSIA, which is the first global market-based measure for any industrial sector. CORSIA aims to address the increase in total CO₂ emissions from international civil aviation above the 2020 levels. The average level of CO₂ emissions from international aviation covered by CORSIA between 2019 and 2020 represents the baseline for carbon neutral growth from 2020, against which emissions in future years will be compared. In order to calculate the CORSIA baseline accurately, all operators conducting international flights are required to undertake the monitoring, reporting and verification (MRV) of CO₂ emissions starting on 1 January 2019.

3.2 CORSIA offsetting will be implemented in 3-year phases starting in 2021. Participation in the pilot phase (2021-2023) and the first phase (2024-2026) is voluntary, while from 2027 onwards participation is based on the 2018 RTK level of each State⁷. As of 29 June 2018, 73 States, representing 75.96 per cent of international aviation activity in terms of RTK, had announced their intention to participate in CORSIA offsetting requirements from the start of its pilot phase, including the following APAC States: Australia, Indonesia, Japan, Malaysia, Marshall Islands, New Zealand, Papua New Guinea, Republic of Korea, Singapore, and Thailand.

⁵ https://www.icao.int/environmental-protection/Pages/ICAO_UNDP_Guidancedocs.aspx

⁶ <https://www.icao.int/environmental-protection/knowledge-sharing/Pages/default.aspx>

⁷ Least Developed Countries, Landlocked Developing Countries, and Small Island Developing States are exempt from participation. However, they can voluntarily participate if they so wish.

3.3 Adoption of the First Edition of Annex 16, Volume IV

3.3.1 On 5 December 2017, the Secretariat issued State letter AN 1/17.14 – 17/129 requesting States and international organizations to comment on the proposed First Edition of Annex 16 – *Environmental Protection, Volume IV – Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA)* and the related ICAO CORSIA Implementation Elements. This new Volume contained Standards and Recommended Practices (SARPs) for the implementation of CORSIA.

3.3.2 Comments received from States and international organizations were considered by the Council at its 214th Session (June 2018), leading to the adoption of the First Edition of Annex 16, Volume IV. On 20 July 2018, the Secretariat issued State letter (AN1/17.14 – 18/78) through which the adopted First Edition of Annex 16, Volume IV was shared with Member States⁸.

3.3.3 The First Edition of the ICAO *Environmental Technical Manual (ETM), Volume IV – Procedures for Demonstrating Compliance with the CORSIA* (Doc 9501), was also 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, verification bodies and other interested parties regarding the intended meaning of the Standards in the First Edition of Annex 16, Volume IV.

3.4 Progress of the work on the ICAO CORSIA Implementation Elements

3.4.1 In addition to the SARPs and the ETM, the Council is working on the development of five ICAO CORSIA Implementation Elements⁹ that are reflected in 14 ICAO documents. These ICAO documents are directly referenced in the First Edition of Annex 16, Volume IV, are essential for the implementation of the CORSIA, and are published following their approved by the ICAO Council.

3.4.2 At its 214th Session, the Council approved the 2018 version of the ICAO CORSIA CO₂ Estimation and Reporting Tool (CERT), which is now available on the ICAO CORSIA website¹⁰. The ICAO CORSIA CERT will allow aeroplane operators to estimate their annual CO₂ emissions from international flights, and to assess whether MRV requirements are applicable to them, and if so, whether they are eligible to use CERT for simplified MRV procedures for the years 2019 and 2020.

3.4.3 During the same Session, the Council also approved the functional requirements of the ICAO CORSIA Central Registry (CCR), which will manage information from States required for the implementation of CORSIA. On the basis of the approved CCR functional requirements, the Secretariat will undertake a procurement process to select a vendor by the end of 2018.

3.4.4 Work on other ICAO CORSIA Implementation Elements, namely on CORSIA eligible emissions units and CORSIA eligible fuels, continues under the ICAO Committee on Aviation Environmental Protection (CAEP). Recommendations from the CAEP will be considered and, as appropriate, approved by the Council.

3.5 ACT-CORSIA

3.5.1 At its 214th Session, the Council recognized that several ICAO States need targeted assistance in order to prepare for the implementation of the CORSIA SARPs from 1 January 2019. In this regard, it endorsed the ICAO ACT-CORSIA (Assistance, Capacity-building and Training for the CORSIA) Programme. ACT-CORSIA is designed to harmonize and bring together all relevant actions promoting coherence to capacity building efforts, and in particular:

⁸ <https://www.icao.int/corsia>

⁹ The five CORSIA Implementation Elements are: CORSIA States for Chapter 3 State Pairs, ICAO CORSIA CO₂ Estimation and Reporting Tool, CORSIA Eligible Fuels, CORSIA Eligible Emissions Units, and CORSIA Central Registry.

¹⁰ <https://www.icao.int/environmental-protection/CORSIA/Pages/CERT.aspx>

- CORSIA buddy partnerships, through which States can help other States that may not have the capacity or technical means to fully implement CORSIA;
- training of national aviation experts on the MRV provisions of CORSIA and the relevant tools for its implementation, including model regulations to help them prepare national legislation for the implementation of CORSIA;
- answers to Frequently Asked Questions (including on Annex 16, Volume IV); and
- training videos, online tutorials, brochures and leaflets to allow interested experts to get a full picture of the various aspects of CORSIA.

3.5.2 Key components of this programme are the CORSIA Buddy Partnerships, through which a donor State provides assistance to a recipient State to build its national capacity to implement CORSIA. Typically the assistance is in the form of a donor State making an expert on CORSIA available to work together with the CORSIA Focal Point (CFP) of the recipient States for the purpose of training local authority representatives on the CORSIA SARPs. In the APAC region, four partnerships have already been established involving four donor States and 19 recipient States¹¹.

3.5.3 In this initial phase of the CORSIA Buddy Partnerships, the focus of the training is on the preparation and implementation of the recipient States' CORSIA MRV system, and in particular, the development and approval of Emissions Monitoring Plans and the establishment of a national regulatory framework.

3.5.4 To ensure the consistency of assistance provided and relevant materials used through the CORSIA Buddy Partnerships, the training activities will be coordinated by ICAO, while flexibility is allowed to tailor the support to the needs of the recipient States. In June 2018, the ICAO Council emphasized the importance of a coordinated approach, and 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.

3.5.5 With a view to providing tailored assistance to States across all regions, the Secretariat continues to map the assistance needs of all States in all ICAO regions. In this regard, it is imperative that States nominate focal points for CORSIA as soon as possible, as per State letter ENV 6/6-18/1, in order to facilitate communication between the Secretariat and the nominated focal points. To date, 143 Member States have nominated CORSIA Focal Points, including 32 APAC States.

3.5.6 The ICAO Secretariat is also exploring a cooperative partnership with the International Accreditation Forum (IAF) for the training of national accreditation bodies and possible verification bodies related to CORSIA verification requirements, with a view to facilitate the availability of accredited verification bodies by the time the operators' Emissions Reports need to be verified in early 2020.

4. ACTION BY THE CONFERENCE

4.1 The Conference is invited to:

- a) encourage States to cooperate with ICAO and among States themselves to further the development of their State Action Plan on CO₂ emissions reduction from international aviation;

¹¹ <https://www.icao.int/environmental-protection/CORSIA/Pages/CORSIA-Buddy-Partnerships.aspx>

- b) note the urgency for ensuring that all States with operators undertaking international flights are ready to engage in MRV activities for the implement of CORSIA as of 1 January 2019;
- c) encourage States to establish further CORSIA Buddy Partnerships and cooperate in undertaking preparatory work for implementation of CORSIA MRV activities in APAC region, while emphasizing the importance of coordinated approach under ICAO for CORSIA capacity-building and assistance activities;
- d) encourage States to consider the participation in the voluntary phase of CORSIA from 2021 in relation to offsetting requirements.

— END —