

**60<sup>th</sup> CONFERENCE OF  
DIRECTORS GENERAL OF CIVIL AVIATION  
ASIA AND PACIFIC REGIONS**

*Sendai, Japan  
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**AGENDA ITEM 7: AVIATION AND ENVIRONMENT**

**ICAO WORK ON AVIATION AND CLIMATE CHANGE**

(Presented by ICAO Secretariat)

**SUMMARY**

This paper outlines the progress made on ICAO's work relating to international aviation and climate change focusing on the implementation of the long-term global aspirational goal (LTAG) for international aviation.

It highlights the outcomes arising from the Third ICAO Conference on Aviation and Alternative Fuels (CAAF/3), namely the ICAO Global Framework for Sustainable Aviation Fuels (SAF), Lower Carbon Aviation Fuels (LCAF) and other Aviation Cleaner Energies, and the ICAO Roadmap for the implementation of the CAAF/3 outcomes and the LTAG.

This paper also provides an update on the continued implementation of CORSIA, and the recent developments concerning climate financing and aviation taxation, as well as preparations for the 42nd Session of the ICAO Assembly. Action required by the Meeting is at paragraph 3 of this Paper.

## ICAO WORK ON AVIATION AND CLIMATE CHANGE

### 1. INTRODUCTION

1.1 At the 41st Session of the ICAO Assembly in October 2022, Member States adopted Assembly Resolution A41-21 with an agreement on the long-term global aspirational goal (LTAG) for the international aviation sector of net-zero carbon emissions by 2050.

1.2 Recognizing that cleaner energies are expected to have the largest contribution to aviation CO<sub>2</sub> emissions reductions, the Third ICAO Conference on Aviation and Alternative Fuels (CAAF/3) held in Dubai, United Arab Emirates, in November 2023, adopted the ICAO Global Framework for Sustainable Aviation Fuels (SAF), Lower Carbon Aviation Fuels (LCAF) and other Aviation Cleaner Energies to facilitate the global scale up of their development and deployment<sup>1</sup>. Under the ICAO Global Framework, ICAO and its Member States strive to achieve a collective global aspirational Vision to reduce CO<sub>2</sub> emissions in international aviation by 5 per cent by 2030 through the use of SAF, LCAF and other aviation cleaner energies, to support the achievement of the LTAG.

1.3 The adoption of the ICAO Global Framework, only one year following the LTAG, sent a clear signal to the international community on the commitment of the international aviation sector to decarbonize. The ICAO Global Framework provides clarity, consistency and predictability to governments, public and private investors, industry, and fuel producers to support and unlock the aviation sector's energy transition potential.

1.4 The 42nd Session of the ICAO Assembly<sup>2</sup>, scheduled for 23 September to 3 October 2025, is expected to further deliberate on the updated ICAO policies on international aviation and climate change. In preparation for the Assembly, the ICAO Aviation Climate Week<sup>3</sup> was held from 2 to 4 June 2025, at the ICAO Headquarters, Montréal, Canada, to inform participants about the overall progress achieved and discuss the latest developments on all environmental topics. The 2025 ICAO Environmental Report<sup>4</sup> was also launched at the Aviation Climate Week, offering valuable insights into the progress made over the last three years in ICAO's environmental protection efforts.

### 2. DISCUSSION

#### 2.1 ICAO Roadmap for implementation of CAAF/3 outcomes and LTAG

2.1.1 In June 2024, the ICAO Council approved the ICAO Roadmap for the implementation of the CAAF/3 outcomes and the LTAG. ICAO is making progress on the implementation of the ICAO Roadmap, while ensuring balanced progress between the four interdependent Building Blocks of: 1) policy and planning, 2) regulatory framework, 3) implementation support, and 4) financing.

#### ***Building Block 1 (Policy and Planning) – LTAG Monitoring and Reporting Methodology, State Action Plans (SAPs), LTAG Stocktaking and Tracker Tools***

2.1.2 The Thirteenth Meeting of the Committee on Aviation Environmental Protection (CAEP/13) in February 2025 developed the LTAG monitoring and reporting (LMR) methodology, which combines backward-looking assessments to track actual performance of international aviation, against milestones such as the global aspirational Vision, along with forward-looking assessments to provide updated projections toward 2050. Following the review of the ICAO Council, the LMR methodology will be considered by the 42nd Session of the ICAO Assembly.

<sup>1</sup> <https://www.icao.int/Meetings/CAAF3/Pages/Documentation.aspx>

<sup>2</sup> <https://www.icao.int/Meetings/a42/Pages/default.aspx>

<sup>3</sup> <https://www.icao.int/Meetings/2025AviationClimateWeek/Pages/default.aspx>

<sup>4</sup> <https://www.icao.int/environmental-protection/Pages/envrep2025.aspx>

2.1.3 ICAO continues its collaborative efforts with States to facilitate the development, update and submission of SAPs. As of June 2025, 150 States have submitted their SAPs, representing more than 99 per cent of global air traffic<sup>5</sup>. APAC States have demonstrated strong support for the SAP initiative, with 24 submissions or updates received by ICAO as of June 2025<sup>6</sup>. States who have not submitted or updated their SAPs are encouraged to do so to enable ICAO to compile global progress towards the LTAG. To facilitate the submission or update of the SAPs, States can refer to the fourth edition of the *ICAO Guidance on the Development of State Action Plans on CO<sub>2</sub> Emissions Reduction Activities: Towards LTAG Implementation* (Doc 9988), as well as the updated *Guidance on Policy Measures for SAF Development and Deployment*<sup>7</sup>.

2.1.4 ICAO conducts annual LTAG Stocktaking events, covering all aspects of monitoring progress in aviation CO<sub>2</sub> emissions reduction measures, including the progress on implementation support and financing. The 2025 LTAG Stocktaking was held as part of the recent ICAO Aviation Climate Week.

2.1.5 SAF-related indicators are regularly updated in the ICAO Cleaner Energy Tracker Tools<sup>8</sup>. Over the last three years, the Tracker Tools have registered significant increase in the number of SAF policies adopted or under development, airports distributing SAF, approved SAF conversion processes, feedstocks recognized and batches of SAF certified under CORSIA, SAF volumes under offtake agreements, announced SAF production facilities, and the latest SAF developments.

### ***Building Block 2 (Regulatory Framework) – CORSIA Framework for SAF and LCAF, and Fuel Accounting System***

2.1.6 The ICAO Global Framework clearly recognized that the sustainability criteria, sustainability certification, and the methodology for the assessment of life cycle emissions used for CORSIA eligible fuels should be used as the accepted basis for the eligibility of SAF, LCAF and other aviation cleaner energies used in international aviation. It also requested the acceleration of sustainability certification in line with the CORSIA requirements, as well as the analysis and approval of life cycle values for new fuel sources and pathways.

2.1.7 CAEP has made progress on several amendments to CORSIA regulatory frameworks as reflected in the ICAO Cleaner Energy Tracker Tools. An “ACT-SAF Accelerator” project was also launched by ICAO to accelerate the analysis and approval of life cycle values for new fuel sources and pathways in line with CORSIA requirements, together with regulatory support. As requested by the Global Framework, CAEP will undertake a study of fuel accounting systems for international aviation currently used in the open market, to identify any possible ICAO role and any necessary update of ICAO regulatory frameworks and systems, which should leverage, to the extent possible, existing methodologies and procedures under CORSIA, and this work will also support the LMR.

### ***Building Block 3 (Implementation Support) – ACT-SAF programme***

2.1.8 The achievement of the LTAG requires a robust, targeted and tailored capacity-building and implementation support programme, taking into account different circumstances of States and regions, and in line with the ICAO *No Country Left Behind* Strategic Goal.

2.1.9 The ICAO Assistance, Capacity-building and Training for SAF (ACT-SAF) programme<sup>9</sup> was launched in 2022 to provide tailored support for States in various stages of SAF

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<sup>5</sup> [https://www.icao.int/environmental-protection/pages/climatechange\\_actionplan.aspx](https://www.icao.int/environmental-protection/pages/climatechange_actionplan.aspx)

<sup>6</sup> SAP Submissions from Asia-Pacific region: Australia, Brunei Darussalam, Cambodia, China, Fiji, India, Indonesia, Japan, Kiribati, Lao People's Democratic Republic, Malaysia, Nepal, New Zealand, Pakistan, Papua New Guinea, Philippines, Republic of Korea, Singapore, Solomon Islands, Sri Lanka, Thailand, Tonga, Vanuatu, and Viet Nam.

<sup>7</sup> [https://www.icao.int/environmental-protection/Pages/saf\\_guidance\\_potential\\_policies.aspx](https://www.icao.int/environmental-protection/Pages/saf_guidance_potential_policies.aspx)

<sup>8</sup> <https://www.icao.int/environmental-protection/pages/SAF.aspx>

<sup>9</sup> <https://www.icao.int/environmental-protection/Pages/act-saf.aspx>

development and deployment, facilitate partnerships and cooperation on SAF initiatives under ICAO's coordination, and to facilitate knowledge sharing and recognition of initiatives worldwide. ICAO continues to provide strong support to Asia-Pacific States through the ACT-SAF programme, with participation from over 20 States<sup>10</sup> in the region, reflecting the growing momentum behind the initiative.

2.1.10 To support States in their conceptual knowledge of SAF, the ACT-SAF Knowledge Hub was introduced on the ACT-SAF website, providing a compendium of information and materials including the updated information on ACT-SAF partners, ACT-SAF training sessions (available on the ICAO TV<sup>11</sup>), SAF feasibility and business implementation studies, SAF events as well as technical references and reports. In Asia-Pacific, ICAO is finalizing the SAF feasibility study for India, funded by the European Union. ICAO also continues to deliver SAF training programmes, with an upcoming session planned in Viet Nam, supported by Austria.

#### ***Building Block 4 (Financing) – Advocacy & Outreach and ICAO Finvest Hub***

2.1.11 Access to financial resources is crucial for the deployment of SAF, LCAF and other aviation cleaner energies. According to the ICAO LTAG Report<sup>12</sup>, scaling-up of fuels in support of the LTAG will require cumulative investments of around USD 3.2 trillion by 2050 from fuel producers alone. ICAO is enhancing outreach with Member States, the international finance community and stakeholders to identify and promote financing and funding opportunities for aviation decarbonization projects, particularly in developing States and in States having particular needs.

2.1.12 In response to the ICAO Assembly's request and the Global Framework, ICAO has been preparing for the launch of the Finvest Hub, a platform designed to facilitate access to climate finance and to connect States and project developers with funding opportunities. Furthermore, ICAO and the International Renewable Energy Agency (IRENA) signed a Memorandum of Cooperation in 2024 to explore partnership arrangements to identify financial resources for scaling up SAF, LCAF and other aviation cleaner energy. ICAO looks to explore partnerships of this nature with other suitable players from governments, financial institutions, and the private sector.

2.1.13 The ICAO Council is also considering a report regarding the establishment of a climate finance initiative or funding mechanism under ICAO, and the report of the ICAO Council on this matter is expected at the 42nd Session of the ICAO Assembly.

## **2.2 Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA)**

2.2.1 The 39th ICAO Assembly in 2016 agreed on CORSIA as the first global market-based measure (MBM) adopted by any industry sector to address CO<sub>2</sub> emissions from international activity. It was designed to complement the basket of mitigation measures, comprising aircraft technologies, operational improvements, and aviation cleaner energies.

2.2.2 The CORSIA implementation framework<sup>13</sup> consists of three components: Standards and Recommended Practices (SARPs) in *Annex 16 — Environmental Protection, Volume IV*; guidance in *Doc 9501 — Environmental Technical Manual, Volume IV*; and five CORSIA Implementation Elements: voluntary participation in CORSIA; CORSIA CO<sub>2</sub> Estimation and Reporting Tool (CERT); CORSIA Eligible Fuels (CEFs); CORSIA Eligible Emissions Units (CEUs); and CORSIA Central Registry (CCR). The key updates across the components of the CORSIA implementation framework are as follows:

<sup>10</sup> Asia-Pacific States in ACT-SAF: Afghanistan, Australia, Bangladesh, Bhutan, Brunei Darussalam, Fiji, India, Indonesia, Japan, Republic of Korea, Lao People's Democratic Republic, Malaysia, Mongolia, Papua New Guinea, Philippines, Singapore, Solomon Islands, Sri Lanka, Thailand, Vanuatu, and Viet Nam.

<sup>11</sup> <https://www.icao.tv/act-saf-series>

<sup>12</sup> <https://www.icao.int/environmental-protection/LTAG/Pages/LTAGreport.aspx>

<sup>13</sup> <https://www.icao.int/environmental-protection/CORSIA/Pages/default.aspx>

- **Annex 16, Volume IV:** The second edition of Annex 16, Volume IV became applicable on 1 January 2024. It reflects the adjustments to the CORSIA design elements in Resolution A41-22 and technical recommendations from CAEP. The ICAO Council is considering minor amendments to clarify matters related to the Monitoring, Reporting and Verification (MRV) of CO<sub>2</sub>, which is expected to be applicable from 1 January 2027.
- **Doc 9501, Volume IV:** The fourth edition of Doc 9501 is scheduled to be published in the last quarter of 2025 to provide further guidance related to CORSIA Eligible Fuels.
- **Voluntary participation in CORSIA:** The ICAO document CORSIA States for Chapter 3 State Pairs is updated annually to reflect the list of States that define State pairs subject to offsetting requirements in CORSIA in a given year from 2021. The number of volunteer States has steadily increased from an initial 88 States (2021) to 129 States (2025). In Asia-Pacific, 25 States<sup>14</sup> have already volunteered to participate in CORSIA. The strong CORSIA participation is a clear signal of ICAO Member States' determination to contribute to the global efforts to achieve carbon neutral growth for international aviation working under the auspices of ICAO.
- **Monitoring, Reporting and Verification (MRV) of CO<sub>2</sub> emissions:** based on the data reported by their operators, States are required to submit annual CO<sub>2</sub> emissions data to ICAO through the CORSIA Central Registry (CCR). To date, States have submitted CO<sub>2</sub> emissions data through the CCR for the three years of CORSIA's pilot phase (i.e. 2021, 2022 and 2023). The total 2023 CO<sub>2</sub> emissions were 530 M-tonnes, with CCR data representing an emissions coverage of 99.0%, reflecting the commitment of States and aeroplane operators to the successful implementation of CORSIA. The deadline for the submission of the 2024 CO<sub>2</sub> emissions data is on 31 July 2025.
- **CORSIA Annual Sector's Growth Factor and Offsetting Requirements:** based on the information reported by States, complemented by data gap-filling procedure, ICAO publishes the CORSIA Annual Sector's Growth Factor (SGF). The trend in the reported annual CO<sub>2</sub> emissions shows that SGF may have a positive value from 2024 emissions onwards, which may in turn to the generation of offsetting requirements for aeroplane operators. This places an even stronger emphasis on the importance of the continuous and robust implementation of CORSIA's MRV system, as ICAO's calculation of the annual SGF values relies on the consistent reporting of annual CO<sub>2</sub> emissions.
- **CORSIA Eligible Emissions Units (CEUs):** the eligibility of emissions units used by an aeroplane operator to meet its CORSIA offsetting requirements is determined in the ICAO document *CORSIA Eligible Emissions Units*<sup>15</sup>, which is regularly updated and approved by the ICAO Council. The UNFCCC COP29 meeting in November 2024 finalized the rules under Article 6 of the Paris Agreement, which is important for CORSIA as the governments hosting activities that generate CEUs, as approved by the ICAO Council, now have the necessary guidelines for authorizing those units to be used under CORSIA. ICAO encourages governments hosting activities that generate CEUs to issue the Letters of Authorization, which may facilitate the access and availability of CEUs to airplane operators.
- **CORSIA Eligible Fuels (CEFs):** aeroplane operators can reduce their CORSIA offsetting requirements in a given year by claiming emissions reductions from CEFs.

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<sup>14</sup> CORSIA voluntary States from the Asia-Pacific region: Afghanistan, Australia, Cambodia, Cook Islands, Indonesia, Japan, Kiribati, Malaysia, Maldives, Marshall Islands, Federated States of Micronesia, Nauru, New Zealand, Palau, Papua New Guinea, Philippines, Republic of Korea, Samoa, Singapore, Solomon Islands, Thailand, Timor-Leste, Tonga, Tuvalu, and Vanuatu.

<sup>15</sup> <https://www.icao.int/environmental-protection/CORSIA/Pages/CORSIA-Emissions-Units.aspx>

The five ICAO documents related to CEFs are regularly updated and approved by the ICAO Council and are available on the ICAO website<sup>16</sup>.

- **ICAO Assistance, Capacity-building and Assistance for CORSIA (ACT-CORSIA) programme** has been successful in delivering training and assistance on CORSIA implementation with participation by more than 130 States, including over 30 States in Asia-Pacific<sup>17</sup>. Under the ACT-CORSIA Buddy Partnerships, experts from supporting States work together with the CORSIA focal points of support-requesting States, including on the preparation and implementation of the support-requesting States' CORSIA MRV systems. ICAO also continues to develop and update outreach materials which are available on the ICAO CORSIA website<sup>18</sup>.

2.2.3 Work on the **2025 CORSIA periodic review** is ongoing with technical analyses provided by CAEP to the ICAO Council, building upon the 2022 CORSIA review process, with a focus on the assessment of supply, demand, price and cost impact of the CORSIA offsetting requirements. The Council considered the latest iteration of CAEP's technical inputs in June 2025 and will be providing a report to the 42nd ICAO Assembly.

## 2.3 UNFCCC – Climate Finance

2.3.1 The UNFCCC COP29 meeting adopted the new Collective Quantified Goal on Climate Finance (NCQG), an agreement that aims to triple finance to developing countries, with developed countries taking the lead, from the previous goal of USD 100 billion per year, to at least USD 300 billion per year by 2035, and also to secure the efforts of all actors to work together to scale up finance to developing countries, from public and private sources, to the amount of USD 1.3 trillion per year by 2035.

2.3.2 ICAO has been closely following international discussions and negotiations pertaining to climate finance. This includes proposals under consideration by other UN bodies and organizations, such as the UN Committee of Experts on International Cooperation on Tax Matters, the International Monetary Fund (IMF), and the Global Solidarity Levies Task Force, identifying the aviation and maritime sectors as potential sources for levies and taxes to mobilize climate financing in other sectors.

2.3.3 It is important to highlight ICAO Assembly Resolution A41-21, paragraph 16, which states “while recognizing that no effort should be spared to obtain means to support the reduction and stabilization of CO<sub>2</sub> 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”.

2.3.4 The achievement of the LTAG and the ICAO Global Framework require adequate financial resources within the international aviation sector, for it to effectively respond to the global climate change challenge. The growing commitment of Member States and stakeholders to support the ICAO ACT-SAF programme, the State Action Plan initiative, as well as the launch of the ICAO Finvest Hub, also demonstrates the importance of financial resources for aviation decarbonization projects.

2.3.5 Introducing new taxes and levies on international aviation would not only result in a disproportionate financial burden on the sector but also lead to a patchwork of regulations with adverse implications for its sustainable development. It is important to recall that Assembly Resolution A41-22, paragraph 18) has determined that “CORSIA is the only global market-based measure applying to CO<sub>2</sub>

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<sup>16</sup> <https://www.icao.int/environmental-protection/CORSIA/Pages/CORSIA-Eligible-Fuels.aspx>

<sup>17</sup> ACT-CORSIA participating States from the Asia-Pacific region: Australia (supporting), Bangladesh, Bhutan, Brunei Darussalam, Cambodia, Cook Islands, Fiji, Indonesia (supporting), Japan (supporting), Kiribati, Lao People's Democratic Republic, Malaysia, Marshall Islands, Mongolia, Myanmar, Nauru, Nepal, Pakistan, Palau, Papua New Guinea, Philippines, Republic of Korea (supporting), Samoa, Singapore (supporting), Solomon Islands, Sri Lanka, Thailand, Timor-Leste, Tonga, Tuvalu, Vanuatu, and Viet Nam.

<sup>18</sup> <https://www.icao.int/environmental-protection/CORSIA/Pages/default.aspx>



emissions from international aviation so as to avoid a possible patchwork of duplicative State or regional MBMs, thus ensuring that international aviation CO<sub>2</sub> emissions should be accounted for only once”.

2.3.6 Furthermore, these new taxes and levies on international aviation will drive-up air travel costs, which could have a particularly concerning impact on Small Island Developing States and developing States that depend heavily on tourism and air transport for trade. This shift could undermine the economic viability of airlines and tourism-related businesses, ultimately hindering socio-economic development.

2.3.7 A detailed account of ICAO’s extensive deliberations over market-based measures for international aviation, and the journey leading to the CORSIA agreement, is available on the ICAO CORSIA website<sup>19</sup>, providing context for the issues outlined above. ICAO has also issued a State Letter (Reference ENV 1/1 – 25/39) on 9 April 2025 regarding the results of the UNFCCC COP29 meeting and this topic of climate finance

## 2.4 Looking Forward – 42nd Session of the ICAO Assembly

2.4.1 The 42nd Session of the ICAO Assembly (23 September to 3 October 2025), will review ICAO’s work programme in various fields, including on environmental protection. In June 2025, the ICAO Council is reviewing the Secretariat’s submissions to the ICAO Assembly, which includes the proposed updates to the ICAO Assembly Resolutions (i.e. A41-20, A41-21 and A41-22) by reflecting policies aimed at accelerating aviation decarbonization such as the implementation of LTAG, transition to aviation cleaner energies, and the continued and robust CORSIA implementation.

2.4.2 ICAO Member States are encouraged to review information from the Aviation Climate Week (available on the ICAO TV) as well as the 2025 ICAO Environment Report to stay informed about the latest developments in aviation decarbonization, in preparation for the Assembly.

## 3. ACTION BY THE CONFERENCE

3.1 The Conference is invited to:

- a) encourage States to support and contribute to the implementation of the LTAG and ICAO Global Framework for SAF, LCAF and other Aviation Cleaner Energies;
- b) encourage States to continue to support and participate in the ICAO ACT-SAF programme to promote the scaling-up of SAF within and outside the Asia-Pacific region, through close coordination with ICAO;
- c) encourage States to submit and update quantified State Action Plans to ICAO, encompassing innovations in aviation technologies and cleaner energies, outlining respective policies, actions and roadmaps, including long-term projections, and ensuring the use of the best available data as supported by ICAO guidance and tools;
- d) encourage additional States to notify the ICAO Secretariat of their decision to voluntarily participate in CORSIA; request States to renew their support to the implementation of CORSIA, including through their active participation in the ICAO ACT-CORSIA programme; and

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<sup>19</sup> <https://www.icao.int/environmental-protection/CORSIA/Pages/CORSIA-background-information.aspx>

- e) request States to express a clear concern regarding proposals to use international aviation as a potential source for levies and taxes to mobilize resources to other sectors, including through national coordinated efforts, to other relevant UN bodies, international organizations and other forums.

— END —