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DIRECTORS GENERAL OF CIVIL AVIATION
ASIA AND PACIFIC REGIONS**

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AGENDA ITEM 7: AVIATION AND ENVIRONMENT

ICAO AND CLIMATE CHANGE

(Presented by the Secretariat)

SUMMARY

This paper provides an update on: the recent ICAO progress and actions in addressing climate change, including on the implementation of the ICAO Long-Term Global Aspirational Goal (LTAG) for international aviation; the adoption of the ICAO Global Framework for Sustainable Aviation Fuels (SAF), Lower Carbon Aviation Fuels (LCAF) and other Aviation Cleaner Energies, progress on ICAO Assistance, Capacity building and Training for Sustainable Aviation Fuels (ACT-SAF); the ICAO State Action Plans (SAP) initiative; developments on the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA); and recent ICAO events related to Environment.

ICAO AND CLIMATE CHANGE

1. INTRODUCTION

1.1 Under the leadership of the International Civil Aviation Organization (ICAO), the international aviation sector has committed to addressing its impact on the global climate in the recent years and is now fully implementing its clean energy transition en route to Net-Zero carbon emissions by 2050. At the 41st Session of the ICAO Assembly in 2022, Member States adopted Assembly Resolution A41-21¹ and the historic agreement on the long-term aspirational goal (LTAG) of net-zero carbon emissions by 2050², in support of the Paris Agreement's temperature goal.

1.2 In addition, recognizing the role of cleaner energies in achieving the LTAG, ICAO and its Member States have been taking concrete actions toward aviation's cleaner energy transition, and the Third ICAO Conference on Aviation and Alternative Fuels (CAAF/3)³, which took place in November 2023 in Dubai, United Arab Emirates (UAE), adopted an ICAO Global Framework for Sustainable Aviation Fuels (SAF), Lower Carbon Aviation Fuels (LCAF) and other Aviation Cleaner Energies⁴, to facilitate the global scale up in the development, production and deployment of aviation cleaner energies.

2. DISCUSSION

2.1 Role of cleaner energies in achieving the LTAG

2.1.1 Through the ICAO Global Framework, ICAO and its Member States strive to achieve a collective global aspirational Vision to reduce international aviation CO₂ emissions by 5 per cent by 2030, through the use of SAF, LCAF and other aviation cleaner energies, compared to zero cleaner energy use. The Vision and the ICAO Global Framework implementation will be monitored and periodically reviewed, aspiring to have cleaner energy production sites in all regions, before the convening of next CAAF/4 no later than 2028, with a view to updating the ambition on the basis of market developments.

2.1.2 The adoption of this robust Framework, only one year following the LTAG agreement, sends a clear signal to the international community regarding the continued leadership role and determination of ICAO and its Member States in addressing emissions from international aviation. It also provides clarity, consistency and predictability to governments, public and private investors, industry and fuel producers, on policies, regulations, implementation needs, and investments required to support and unlock the full potential of the aviation sector's energy transition globally.

2.1.3 In June 2024, ICAO Council has approved a roadmap for the implementation of the CAAF/3 outcomes, including its planned actions, roles and responsibilities, timeframe, and required resources, in connection with the LTAG implementation, while taking into account different interests of States, and emphasizing the imperative that *No Country is Left Behind*.

2.2 ICAO ACT-SAF programme and financing aviation cleaner energy

2.2.1 Launched in June 2022, just prior to the 41st Session of the Assembly, the ICAO Assistance, Capacity building and Training for Sustainable Aviation Fuels (ACT-SAF) programme⁵ provides tailored support for States in various stages of SAF development and deployment, facilitates partnerships and cooperation under ICAO coordination, and serves as a platform to facilitate knowledge sharing and recognition of all SAF initiatives around the world. The ACT-SAF was also recognized by

¹ https://www.icao.int/environmental-protection/Documents/Assembly/Resolution_A41-21_Climate_change.pdf

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

³ <https://www.icao.int/Meetings/CAAF3/Pages/default.aspx>

⁴ https://www.icao.int/Meetings/CAAF3/Documents/ICAO_Global_Framework_on_Aviation_Cleaner_Energies_24Nov2023.pdf

⁵ <https://www.icao.int/environmental-protection/Pages/act-saf.aspx>

CAAF/3 as one of important Building Blocks for the implementation of the ICAO Global Framework. As of September 2024, 94 States and 95 Organizations are participating in the ACT-SAF programme and are recognized on the ICAO website. Nineteen States out of 39 States in the APAC Region have currently joined ACT-SAF⁶.

2.2.2 The activities envisaged under the ACT-SAF include training programmes, feasibility studies in the regions, support for SAF certification and policy development, and promoting and facilitating partnerships, knowledge sharing and technical cooperation amongst States and stakeholders.

2.2.3 For example, a set of training sessions have been organized as the ICAO ACT-SAF Series⁷, where ICAO and ACT-SAF supporting partners deliver presentations on various SAF-related topics, such as the fuel sustainability, certification, production technology, policies, logistics, market, and feasibility assessment. Currently, 13 sessions have been completed, with over 100 participants per session benefiting from immediate interactions with speakers and Q&A segments. The ACT-SAF Series material is also available on ICAO TV, YouTube, and the ACT-SAF website.

2.2.4 Monitoring progress and facilitating information exchange is also a key feature of the ACT-SAF programme, including through the ICAO Tracker Tools⁸, which showcase the latest developments, such as the airports distributing SAF, SAF policies adopted or under development, SAF offtake agreements, SAF conversion processes, SAF feedstocks recognized under CORSIA, as well as the latest news on scaling-up of SAF around the globe.

2.2.5 In addition, ICAO has been supporting the SAF feasibility studies for States to realize their potentials in the SAF development and deployment. Each feasibility study identifies priority SAF pathways for the State according to its circumstances, an assessment of implementation support and financing needs, and recommendations of action plans and the way forward. In 2024, ICAO has been significantly scaling up the deployment of SAF feasibility studies in States across all regions, and this momentum is expected to continue in the coming years, aiming to foster the public and private actors of the SAF value-chain in each support-receiving State, laying the ground for investments and the emergence of concrete new SAF production projects.

2.2.6 ICAO also developed in 2023 a template for SAF feasibility studies, in consultation with ACT SAF partners, to facilitate harmonization in the preparation of standardized SAF feasibility studies. The template, along with its accompanying guide, aims for the coherence and comparability between studies, and facilitates its outreach and access to investment and financing.

2.2.7 In July 2024, the template for SAF business implementation studies was also published, complementing a similar template for SAF feasibility studies published last year. It provides follow-up support for States, setting out requirements and expectations of outcomes from techno-economic assessments based on shortlisted feedstock/pathways, financial, operational and risk assessments, and developing business implementation recommendations. The ACT-SAF feasibility and business implementation studies will be expected to follow the approach taken in these templates, allowing partners world-wide to undertake such studies while ensuring the consistency of results.

2.2.8 Access to financial resources is particularly crucial for the deployment of SAF and other cleaner energies for aviation, as the scaling-up of fuels in support of the LTAG would require cumulative investments of around USD 3,200 billion by 2050 (according to the ICAO LTAG Report⁹). Recognizing the importance of financing in aviation decarbonization projects, ICAO continues to actively engage financial institutions such as development banks and private equity entities, by communicating on the LTAG and the crucial role of SAF and other cleaner energies and the associated investment needs for aviation.

6 Australia, Bangladesh, Bhutan, Brunei Darussalam, Fiji, India, Indonesia, Japan, Malaysia, Mongolia, Papua New Guinea, Philippines, Republic of Korea, Singapore, Solomon Islands, Sri Lanka, Thailand, Vanuatu, Viet Nam.

7 <https://www.icao.int/environmental-protection/Pages/ACT-SAF-Series.aspx>

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

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

2.2.9 ICAO is currently working on the establishment and operationalization of the ICAO Finvest Hub, a financial platform to facilitate enhanced access to public and private investment, as well as funding from financial institutions, for projects contributing to the decarbonization of international aviation. In addition, ICAO is also undertaking a study to consider the establishment of a climate finance initiative or funding mechanism under ICAO, while addressing the possible financial, institutional and legal challenges. The results of this study are to be presented at the next ICAO Assembly in 2025.

2.3 ICAO State Action Plans Initiative

2.3.1 The ICAO State Action Plans (SAPs) initiative¹⁰ also plays an important role in the development and deployment of cleaner energies and other decarbonization measures for international aviation. Within the State Action Plan, policies, actions, and roadmaps to reduce CO₂ emissions from international aviation should be considered and selected, as well as the identification of necessary resources, capacity building and other implementation support measures, including the facilitation of access to financing and funding, in line with the State's needs.

2.3.2 According to Assembly Resolution A41-21, States are invited to develop, update and submit their voluntary SAPs as soon as possible preferably by the end of June 2024. States are encouraged to provide information relating to relevant innovations in aircraft technologies, operational improvements and cleaner energies, and to outline respective policies, actions and roadmaps, including long-term projections with the provision of quantified data, all supported by ICAO guidance and tools.

2.3.3 The update of ICAO Doc 9988, *Guidance on the Development of States' Action Plans on CO₂ Emissions Reduction Activities*, has been completed with the support of experts in the consultation group. This update reflects the 2022 ICAO Assembly's agreement on the LTAG and underscores the importance of SAPs in contributing to the international aviation sector's collective goal and monitoring global progress. It details the benefits of SAF, LCAF and other clean energy options, as guided by the ICAO Global Framework adopted by CAAF/3. The update also revises the SAP template, enabling States to report quantified data in a harmonized manner, and includes information on assistance needs, ICAO's latest capacity-building programs, possible financial instruments, and examples of eligibility criteria for financing decarbonization projects. Additionally, it incorporates lessons from the past decade, updated information resources, and best practices for CO₂ mitigation.

2.3.4 As of September 2024, 148 States representing over 98% of global international aviation traffic (in Revenue Tonne Kilometres (RTK)) have voluntarily submitted their SAPs to ICAO. The previous 2020/2022 triennium received the highest number of updated SAPs from 56 States, signaling that States are actively updating their plans and sharing information of their planned actions to reduce aviation CO₂ emissions. Twenty-four States out of 39 States in the APAC Region submitted SAPs, among which 10 States submitted fully quantified SAPs. All States in the APAC region, especially those that have not yet submitted their SAPs or have only submitted once, are encouraged to submit or update their action plans to ICAO as soon as possible.

2.4 Carbon offsetting and reduction scheme for international aviation (CORSIA)

2.4.1 The Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) complements other aviation in-sector CO₂ reduction measures (technological innovations, operational improvements, and sustainable aviation fuels) to assist ICAO Member States in collectively achieving ICAO's medium-term goal aspirational goal of carbon neutral growth for international aviation from 2020 onwards.

2.4.2 CORSIA was agreed at the 39th Session of the ICAO Assembly in 2016, as the first ever global market-based measure for any industry sector, reflecting many years of intensive efforts and negotiations by Member States in cooperation with the aviation industry and other stakeholders. Since its agreement, timely implementation of CORSIA has been a top priority for ICAO. Despite the challenges of the COVID-19 pandemic on international aviation, joint efforts of Member States have

10 https://www.icao.int/environmental-protection/Pages/ClimateChange_ActionPlan.aspx

made it possible for the implementation of CORSIA according to its established schedule.

2.4.3 Since the 58th DGCA of APAC last year, work in ICAO continued in order to update the various CORSIA Implementation Elements, including their application in CORSIA's first phase (2024-2026). In this regard, some recent milestones are particularly significant:

- The number of ICAO Member States that voluntarily participate in the offsetting requirements of CORSIA since the start of the scheme's pilot phase has increased from 88 States for 2021, 107 States for 2022, 115 States for 2023, 126 States for 2024, and 128 States for 2025, including 25 of the 39 APAC States. A sample letter to notify ICAO the CORSIA voluntary participation by Member States is available on the ICAO website¹¹.
- In March 2023, the ICAO Council adopted amendments to the Standards and Recommended Practices (SARPs) for CORSIA implementation reflected in Annex 16, Volume IV to the Convention on International Civil Aviation, reflecting technical recommendations from the ICAO Committee on Aviation Environmental Protection (CAEP), as well as the amendments to the CORSIA design elements adopted by the 2022 ICAO Assembly. The resulting second edition of Annex 16, Volume IV is applicable from 1 January 2024, coinciding with the start of CORSIA's first phase (2024-2026). The second edition of Annex 16, Volume IV is publicly available on the ICAO website¹²;
- Regarding CORSIA Eligible Emissions Units¹³, in addition to two eligible emissions unit programmes approved by the ICAO Council to supply eligible emissions units for the CORSIA first phase, the Technical Advisory Body (TAB) has finalized its 2024 assessment of 11 applications and procedural changes submitted by 8 conditional programmes, which will be considered by the Council in October/November 2024, and it is expected that more programmes become eligible to supply units to the CORSIA first phase.
- Regarding CORSIA Eligible Fuels¹⁴, the ICAO Council approved the CORSIA sustainability criteria applicable to these fuels during the first phase. The ICAO Council also expanded the approval of two Sustainable Certification Schemes (SCSs) beyond CORSIA's pilot phase. In March 2024, the ICAO Council also approved amendments to three ICAO documents related to CORSIA eligible fuels. Consideration of further CAEP recommendations is expected by the Council in October 2024, to respond to the CAAF/3 request for the analysis and approval of life cycle values for new fuel sources and pathways, and new SCSs, in support of the global development and deployment of aviation cleaner energies in all regions.
- The CORSIA Central Registry (CCR) is the platform through which States meet the CORSIA requirements by reporting to ICAO necessary information such as: annual CO₂ emissions from international flights; and emissions reductions claims from the use of CORSIA Eligible Fuels. Data reported through the CCR so far show that close to 100% of the total CO₂ emissions have been reported by States every year since 2019. ICAO continued to support CCR users with training and publications, made available on the CCR Materials¹⁵ website.
- The ICAO Council is currently undertaking the 2025 CORSIA periodic review, with the technical support of CAEP. As part of its work, CAEP will update previous CORSIA analyses on matters such as: updated estimation of offsetting requirements throughout CORSIA implementation; review of relevant technical inputs in relation to emissions reductions from CORSIA Eligible Fuels; and cost implications and other considerations in relation to addressing offsetting requirements through the cancellation of CORSIA Eligible Emissions Units vis-à-vis the use of CORSIA Eligible Fuels

11 https://www.icao.int/environmental-protection/Documents/Sample_letter_CORSIA_participation.docx?_gl=1%2a11v9pbs%2a_ga%2aNTc2NzczNDk4LjE3MTMzNjI3Njg.%2a_ga_992N3YDLBQ%2aMTcxMzM2Mjc2OC4xLjEuMTcxMzM2Mjc5Mi4wLjAuMA

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

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

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

15 <https://www.icao.int/environmental-protection/CORSIA/Pages/ccr-materials.aspx>

during CORSIA's first phase (2024-2026).

2.4.4 Since 2018, as part of the ICAO's *No Country Left Behind* initiative, ICAO ACT-CORSIA (Assistance, Capacity-building and Training for CORSIA) programme has been supporting all Member States with the implementation of CORSIA. The Assembly emphasized the importance of a coordinated approach under the ACT-CORSIA to harmonize and bring together all relevant actions and promote coherence to capacity building efforts.

2.4.5 The Buddy Partnerships¹⁶ among States are the cornerstone of the ACT-CORSIA programme, currently involving 136 States (17 supporting States and 119 requesting States), including 26 of the 39 APAC States. Through such partnerships, supporting States offer experts on CORSIA to provide individual training and necessary follow-up with the CORSIA focal points of the requesting States, in close coordination with the ICAO Secretariat. The training provided during the last five and a half years through this programme has contributed to the high level of CORSIA implementation, as demonstrated by data such as the steady increase in the number of CORSIA volunteer States and the high coverage of CO2 emissions data submitted by States through the CCR.

2.5 2024 ICAO Environment Events

2.5.1 In April 2024, to facilitate the clean energy transition at the airport level, the ICAO Green Airports Seminar¹⁷ was held in Athens, Greece, covering a broad spectrum of environmental airport operations, and providing a unique opportunity to a diverse range of stakeholders to discuss their initiatives towards the implementation of the LTAG and the ICAO Global Framework for SAF, LCAF and other Aviation Cleaner Energies. All Sessions considered the opportunities and challenges of financing green projects and innovations, recognizing the importance of connecting and facilitating project developers' access to public funding and private investments. The recording of the event is available on the ICAO TV¹⁸.

2.5.2 From August to October 2024, ICAO has also been organizing the 2024 Regional Seminars on Environment¹⁹ in five venues, with the objectives of raising awareness and exchanging views on the implementation of the LTAG and the ICAO Global Framework in all regions, including recent developments on the State Action Plans, CORSIA implementation, ACT-SAF programme, and financing for aviation cleaner energies, as well as the means for monitoring the global progress. The Regional Seminar for the APAC Region was held in Bangkok, Thailand, from 7 to 8 August²⁰.

2.5.3 ICAO organizes two other events throughout 2024, including the ICAO Symposium on Non-CO2 Aviation Emissions²¹, held at ICAO Headquarters from 16 to 18 September 2024, and the 2024 ICAO LTAG Stocktaking event²², which will also be held at ICAO Headquarters, from 7 to 10 October 2024. The 2024 ICAO LTAG Stocktaking event will build upon the continued success of the annual ICAO Stocktaking events since 2019 and provides a response to the Assembly's request to monitor the progress towards the achievement of the LTAG, as well as the CAAF/3 request to monitor the implementation of the ICAO Global Framework.

3. ACTION BY THE CONFERENCE

3.1 The Conference is invited to:

- a) encourage States to support the implementation of the LTAG and ICAO Global Framework for Sustainable Aviation Fuels (SAF), Lower Carbon Aviation Fuels

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

17 <https://www.icao.int/Meetings/greenairports2024/Pages/default.aspx>

18 <https://www.icao.tv/icao-seminar-on-green-airports>

19 <https://www.icao.int/Meetings/RS2024/Pages/default.aspx>

20 <https://www.icao.int/APAC/Meetings/Pages/2024-ICAO-APAC-ENV-Seminar.aspx>

21 <https://www.icao.int/Meetings/SymposiumNonCO2AviationEmissions2024/Pages/default.aspx>

22 <https://www.icao.int/meetings/LTAGStocktaking2024/Pages/default.aspx>

(LCAF) and other Aviation Cleaner Energies;

- b) encourage States to support and further engage in the ICAO ACT-SAF programme to promote the development and deployment of SAF within and outside the APAC region, through close coordination with ICAO;
- c) encourage States to submit updated and quantified State Action Plans to ICAO, encompassing innovations in 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 the updated ICAO guidance and tools;
- d) encourage additional States to notify the ICAO Secretariat of their decision to voluntarily participate in CORSIA;
- e) request States to renew their support to the implementation of CORSIA, including through their active participation in the ICAO ACT-CORSIA programme; and
- f) invite States to participate in the upcoming ICAO events on environment.

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