



UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE (UNFCCC)

Subsidiary Body for Scientific and Technological Advice
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Agenda item 14 (b): Emissions from fuel used for international aviation and maritime transport

Submission by the International Civil Aviation Organization (ICAO)

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 2050.

1.2 Since the [First ICAO Conference on Aviation and Alternative Fuels \(CAAF/1\)](#) in 2009, the SAF industry has made significant progress across the value chain, from the feedstock to fuel production and use. Such progress, through a number of initiatives and achievements, has been closely monitored and registered by the [ICAO SAF Tracking Tools](#), including more than 120 airports distributing SAF, more than 40 national/regional policies adopted or under development, over 50 billion litres of SAF offtake agreements, and more than 40 SAF feedstocks recognized under CORSIA.

1.3 The [Second ICAO Conference on Aviation Alternative Fuels \(CAAF/2\)](#) in 2017 approved a declaration, including the 2050 ICAO Vision for SAF, as a living inspirational path for a significant proportion of aviation fuels to be substituted with sustainable aviation fuels by 2050, and the need to update the Vision at the third ICAO Conference. While there are increasing initiatives to develop and deploy SAF, current production levels are still low, with their prices being higher than those of conventional fuels. Therefore, a rapid scale-up is vital to narrow the price gap, while being developed in a socially, economically and environmentally sustainable manner.

1.4 At the 41st Session of the ICAO Assembly in 2022, Member States adopted [Assembly Resolution A41-21](#) and the historic agreement on the [long-term aspirational goal \(LTAG\) of net-zero carbon emissions by 2050](#), in support of the Paris Agreement's temperature goal.



1.5 The 41st Session of the ICAO Assembly in 2022 also requested the Council to convene the [Third ICAO Conference on Aviation and Alternative Fuels \(CAAF/3\)](#) in 2023, for reviewing the ICAO Vision for SAF, including LCAF and other cleaner energy sources for aviation, in order to define a global framework in line with the *No Country Left Behind* (NCLB) initiative and taking into account national circumstances and capabilities (refer to Resolution A41-21, paragraph 28. f)).

1.6 Recognizing that cleaner energies are expected to have the largest contribution to aviation CO₂ emissions reductions for Net-Zero 2050, ICAO and its 193 Member States have been taking concrete actions toward aviation's cleaner energy transition. This momentum culminated in November 2023 at the [Third ICAO Conference on Aviation and Alternative Fuels \(CAAF/3\)](#), which took place in Dubai, UAE, with the adoption of an [ICAO Global Framework for Sustainable Aviation Fuels \(SAF\), Lower Carbon Aviation Fuels \(LCAF\) and other Aviation Cleaner Energies](#), to facilitate the global scale up in the development, production and deployment of aviation cleaner energies.



THIRD ICAO CONFERENCE ON AVIATION AND ALTERNATIVE FUELS

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1.7 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.

1.8 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.

1.9 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 the next CAAF/4 no later than 2028, with a view to updating the ambition on the basis of market developments.

1.10 In 2024, ICAO has been focusing on a roadmap of actions for the implementation of the CAAF/3 outcomes, in connection with the LTAG implementation, while taking into account different interests of States, and emphasizing the imperative that *No Country is Left Behind*.

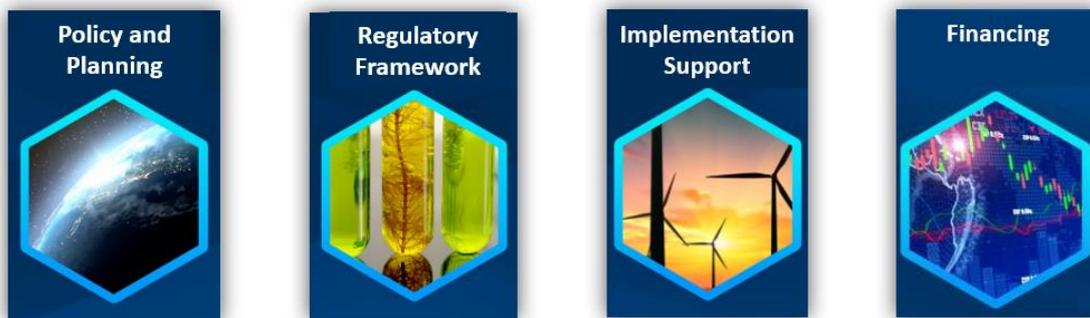
1.11 For example, ICAO continues to make further progress on concrete assistance, capacity building and implementation support to its Member States, including through the [ICAO Assistance, Capacity-building and Training for Sustainable Aviation Fuels \(ACT-SAF\) programme](#) and the [ICAO State Action Plans \(SAPs\) initiative](#), and is currently developing new initiatives, including the [ICAO Finvest Hub](#), to facilitate access to financing and investments towards aviation decarbonization projects.

1.12 In addition, the continued and robust implementation of the [Carbon Offsetting and Reduction Scheme for International Aviation \(CORSA\)](#) is on-track. Since January 2024, 126 States are voluntarily participating in the scheme, with almost 100% coverage of annual CO₂ emissions being reported from States to the CORSA Central Registry, through the implementation of CORSA Monitoring, Reporting and Verification (MRV) system, while ensuring that the eligible fuels and carbon credits meet the ICAO sustainability and integrity criteria.

2. ROLE OF CLEANER ENERGIES IN ACHIEVING NET ZERO

2.1 The global scale-up in the development and deployment of Sustainable Aviation Fuels (SAF), Lower Carbon Aviation Fuels (LCAF) and other aviation cleaner energies are crucial in enabling the international aviation sector to achieve its long-term global aspirational goal (LTAG) of net-zero carbon emissions by 2050, as they are expected to have the largest contribution to aviation CO₂ emissions reductions, up to 55% by 2050, according the [ICAO LTAG Report](#). This significant potential is counter-balanced by the challenges to scale-up the development, production and deployment of these fuels. Indeed, achieving net-zero 2050 will require substantial financing, and unprecedented assistance, capacity building and global cooperation in all regions.

3. ICAO GLOBAL FRAMEWORK – CAAF/3 OUTCOMES



3.1 On 24 November 2023, the CAAF/3 adopted by acclamation the [ICAO Global Framework on SAF, LCAF and other Aviation Cleaner Energies](#) (refers to **Appendix** to this ICAO submission)¹. Discussion was supported by the consideration of four Building Blocks: 1) policy and planning, 2) regulatory framework, 3) implementation support, and 4) financing, to structure the elements of the CAAF/3 outcomes on the ICAO Global Framework². Some key features of the framework include the following:

Building Block 1 – Policy and Planning (paragraphs 1 to 11 of the global framework):

- “ICAO and its Member States will work together to strive to achieve a **Vision of implementing the elements of this global framework in order to globally scale-up the development and deployment for SAF, LCAF and other aviation cleaner energies**, as such fuels are expected to have the largest contribution to aviation CO₂ emissions reductions in the ‘basket of measures’ to achieve the LTAG. To support the achievement of the LTAG, ICAO and its Member States strive to achieve a **collective global aspirational Vision to reduce CO₂ emissions in international aviation by 5 per cent by 2030 through the use of SAF, LCAF and other aviation cleaner energies** (compared to zero cleaner energy use). In pursuing this Vision, **each State’s special circumstances and respective capabilities** will inform the ability of each State to contribute to the Vision within its own national timeframe, without attributing specific obligations or commitments in the form of emissions reduction goals to individual States” (paragraph 1 of the Framework);
- The Vision and global framework will be **continually monitored and periodically reviewed** on the progress of emissions reductions and means of implementation support, aspiring to have

¹ China, Iraq, Russian Federation and Saudi Arabia expressed their reservations to certain aspects of the global framework. The United States expressed its view that the global framework was not legally binding in nature.

² [ICAO video on CAAF/3 outcomes](#)

production sites in all regions before the convening of **CAAF/4 no later than 2028**, with a view to updating the ambition on the basis of market developments;

- Achieving the Vision will rely on **means of implementation including financing, technology transfer and capacity building**, and the Vision should follow other points, e.g., contributing to a level playing field among all States and avoiding market distortion;
- Development and implementation of **aviation cleaner energy policies and [State Action Plans](#)** in accordance with their special circumstances and respective capabilities, as well as related actions by aviation and fuel stakeholders, in support of the Vision;

Building Block 2 – Regulatory Framework (paragraphs 12 to 16 of the global framework):

- [CORSA sustainability criteria, sustainability certification, and the methodology for the assessment of life cycle emissions](#) **should be the accepted basis** for the eligibility of SAF, LCAF and other aviation cleaner energies used in international aviation;
- Acceleration for the development and approval of **new Sustainability Certification Schemes** for aviation cleaner energies, analysis and approval of **life cycle values for new fuel sources and pathways**, and certification of **additional fuel production pathways**, without excluding any particular fuel source, pathway, feedstock or technology;
- **Accounting methodologies and reporting frameworks** on the use of aviation cleaner energies and their environmental benefits for international aviation should take into account various **parameters**, including the avoidance of double-counting, and leveraging on the CORSIA Monitoring, Reporting and Verification (MRV) system;
- ICAO will undertake **a study of fuel accounting systems to determine any possible role of ICAO** to facilitate access to environmental benefits of cleaner energies for international aviation, with a view to fostering the global production, in particular in developing countries;

Building Block 3 – Implementation Support (paragraphs 17 to 23 of the global framework):

- Delivery of **a robust, targeted and tailored capacity-building and implementation support** for the global scale-up in production of SAF, LCAF and other aviation cleaner energies, taking into account various stages of readiness in different States and regions, and **building upon the success of ICAO [ACT-CORSIA](#) and [ACT-SAF](#) programmes**, with the contributions of resources by States and the industry;
- Implementation support should facilitate **partnerships, alliances and cooperation** between States and all relevant stakeholders, including regional collaborations, as well as the **exchange of information, sharing of best practices** under the ICAO's platform;
- Support for **feasibility studies, pilot projects, and proof of concept plans**, which may facilitate access to investment, including training on financial aspects of project development, financial planning and investment promotion, as well as support for [State Action Plans](#) and **roadmaps** which may also facilitate access to investment;
- **Support access to technology** related to aviation cleaner energy development and deployment, in particular to developing countries and States with particular needs, such as comprehensive technical skills, manufacturing, processing and equipment;

Building Block 4 – Financing (paragraphs 24 to 42 of the global framework):

- Recognition of the Assembly Resolutions in particular A41-21, paragraphs 18 a) and b), and the **primary objective for ICAO and its Member States on financing** is to support developing countries and States with particular needs, to improve access to low-cost financing and funding, and further **de-risking of projects to develop and deploy SAF, LCAF and other aviation cleaner energies**;
- ICAO, States and the industry should **advocate and outreach for greater investment in SAF, LCAF and other aviation cleaner energy projects**, by increasing understanding amongst the international finance community, regarding the collective commitment of States and the industry, environmental and other benefits of aviation cleaner energies, and opportunities for potential investments;
- Welcoming the establishment of the [ICAO Finvest Hub](#), initiative, which delivers on A41-21, paragraph 18 a) to facilitate enhanced access to public and private investment capacities and funding from financial institutions, as well as encourage new and additional funding for this purpose, **ICAO should urgently put in place the necessary structure and capability, toward its operationalization**, while identifying how it complements broader aviation decarbonization capacity building and implementation efforts, including the [ACT-SAF](#) programme;
- Private capital alone will not be enough to fully scale-up the development and deployment of SAF, LCAF and other aviation cleaner energies, and public investment will be also required to support aviation cleaner energy projects. Underscoring the importance of A41-21, paragraph 18 b), **ICAO should expedite its work to further consider the establishment of a climate finance initiative or funding mechanism under ICAO**, while addressing the possible financial, institutional and legal challenges, recognizing the recent decision of the ICAO Council to undertake a study in this regard; and
- ICAO and its Member States should actively identify, analyse gaps and **monitor developments in the UN and across the international financing community**, to pursue opportunities to increase the allocation or earmarking of public and private capital devoted to aviation decarbonization projects, particularly on aviation cleaner energies.

4. ICAO ACT-SAF AND FINANCING AVIATION CLEANER ENERGY

4.1 Launched in June 2022, just prior to the 41st Session of the Assembly, the [ICAO Assistance, Capacity-building and Training for Sustainable Aviation Fuels \(ACT-SAF\) programme](#) 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 is also recognized by CAAF/3 as one of important Building Blocks for the implementation of the ICAO Global Framework. As of May 2024, 90 States and 63 Organizations are participating in the ACT-SAF programme, and are recognized on the ICAO website.



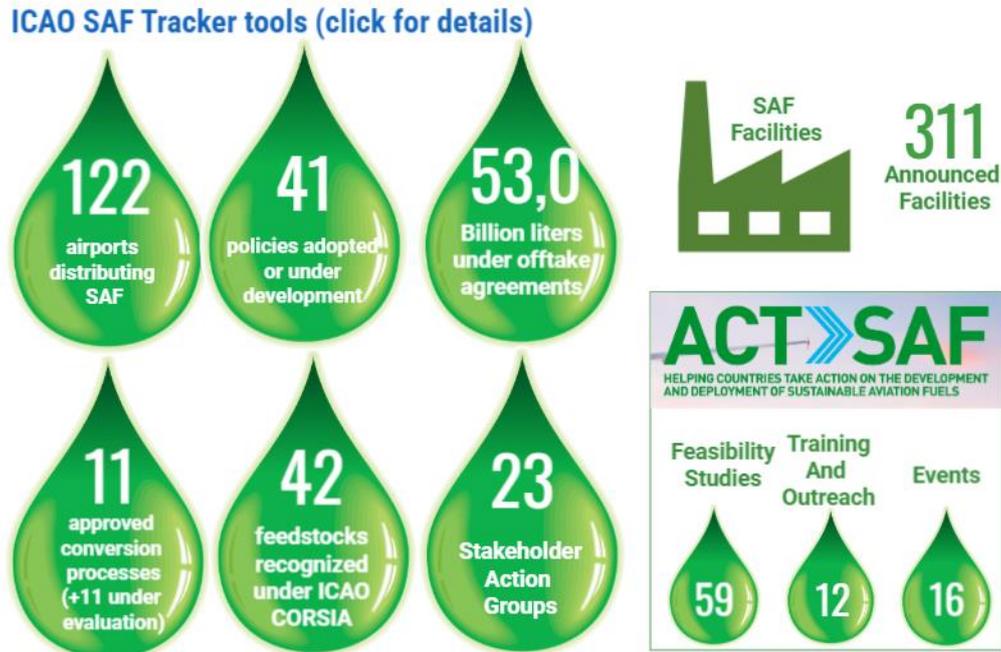
153 States and Organizations joined the ICAO ACT-SAF Programme (as of May 2024).

4.2 The activities envisaged under the ACT-SAF include training programmes, feasibility studies, support for SAF certification and policy development, and the establishment of partnerships amongst States and other stakeholders.

4.3 For example, a set of training sessions have been organized as the [ICAO ACT-SAF Series](#), 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. So far, 11 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 available on [ICAO TV](#), [YouTube](#), and [ACT-SAF](#) website.



4.4 Monitoring progress and facilitating information exchange is also a key feature of the ACT-SAF programme, which is achieved through the [ICAO SAF Tracker Tools](#). This platform is regularly updated to 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 [CORSA](#), as well as the latest news on scaling-up of SAF around the globe.



4.5 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.

4.6 Building on the successful ICAO partnership with the EU in Phase I of the [ICAO Capacity Building for CO₂ Mitigation from International Aviation assistance project](#), which delivered four SAF feasibility studies in Burkina Faso, Dominican Republic, Kenya and Trinidad and Tobago, Phase II successfully concluded in October 2023 with the delivery of three additional SAF feasibility studies in Côte d’Ivoire, Rwanda and Zimbabwe.



4.7 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 beneficiary State, laying the ground for investments and the emergence of concrete new SAF production projects.

4.8 ICAO also developed 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. On this note, ICAO is currently developing another SAF business implementation template to support States in facilitating investment flows to drive commencement of SAF projects.

4.9 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 Report). Recognizing the importance of financing in aviation decarbonization projects, ICAO continues to actively engage financial institutions such as development banks and private equity entities through regional meetings and bilateral exchanges, as well as the high-level exchange of views under the ICAO Council, by communicating on the LTAG and the crucial role of SAF and other cleaner energies and the associated investment needs for aviation.

4.10 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.

5. ICAO STATE ACTION PLANS INITIATIVE

5.1 The [ICAO State Action Plans \(SAPs\) initiative](#) 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.

5.2 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. All the latest information related to State Action Plans and ICAO capacity-building activities are updated on the website.

5.3 As of May 2024, 147 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, signalling that States are actively updating their plans and sharing information of their planned actions to reduce aviation CO₂ emissions. The list of States participating in the initiative is continuing to grow, as three additional States have submitted their State Action Plans for the first time since the beginning of 2024.



147 Member States submitted their Action Plans (as of May 2024).

5.4 ICAO is also progressing on the update of *Guidance on the Development of States' Action Plan on CO₂ Emissions Reduction Activities* (Doc 9988) in order to provide up-to-date guidance and support for States to incorporate their initiatives in the development and update of their SAPs, and contribute to the achievement of collective ICAO global aspirational goals. With this updated guidance, States will have better support to demonstrate decarbonisation pathways through innovations in a robust, quantitative, and forward-looking manner, which will facilitate the monitoring of progress for the implementation of the LTAG and the Global Framework. The updated ICAO guidance is expected to be available by mid-2024, to encourage the submission of new and updated SAP.

6. 2024 ICAO ENVIRONMENT EVENTS

6.1 To facilitate the clean energy transition at the airport level, the [ICAO Green Airports Seminar](#) was organized in Athens, Greece, from 18 to 19 April 2024, 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 opportunity and challenge of financing green projects and innovations, recognizing the importance of connecting and facilitating project developers' access to public funding and private investments.

6.1 ICAO will be organizing a series of additional events throughout 2024, including the [ICAO Symposium on Non-CO₂ Aviation Emissions](#), to be held in ICAO Headquarters in Montréal, from 16 to 18 September 2024, and the [2024 ICAO LTAG Stocktaking event](#), which will also be held in ICAO Headquarters, from 7 to 10 October 2024.

6.2 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 (refer to [Assembly Resolution A41-21](#), paragraph 9), as well as the CAAF/3 request to monitor the implementation of the ICAO Global Framework (refer to the [Framework](#), paragraph 11).

6.3 In addition, ICAO is planning a series of five Environmental Regional Seminars from August to September 2024, 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.

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

7.1 While ICAO and its Member States have agreed on the LTAG at the 41st Session of the ICAO Assembly in 2022 and further adopted the ICAO Global Framework for SAF, LCAF and other Aviation Cleaner Energies at the CAAF/3 in November 2023, a concrete mechanism had already been in place to complement the aviation in-sector CO₂ reduction measures and achieve ICAO's medium-term goal of 2020 carbon neutral growth for international aviation, through the [Carbon Offsetting and Reduction Scheme for International Aviation \(CORSIA\)](#).

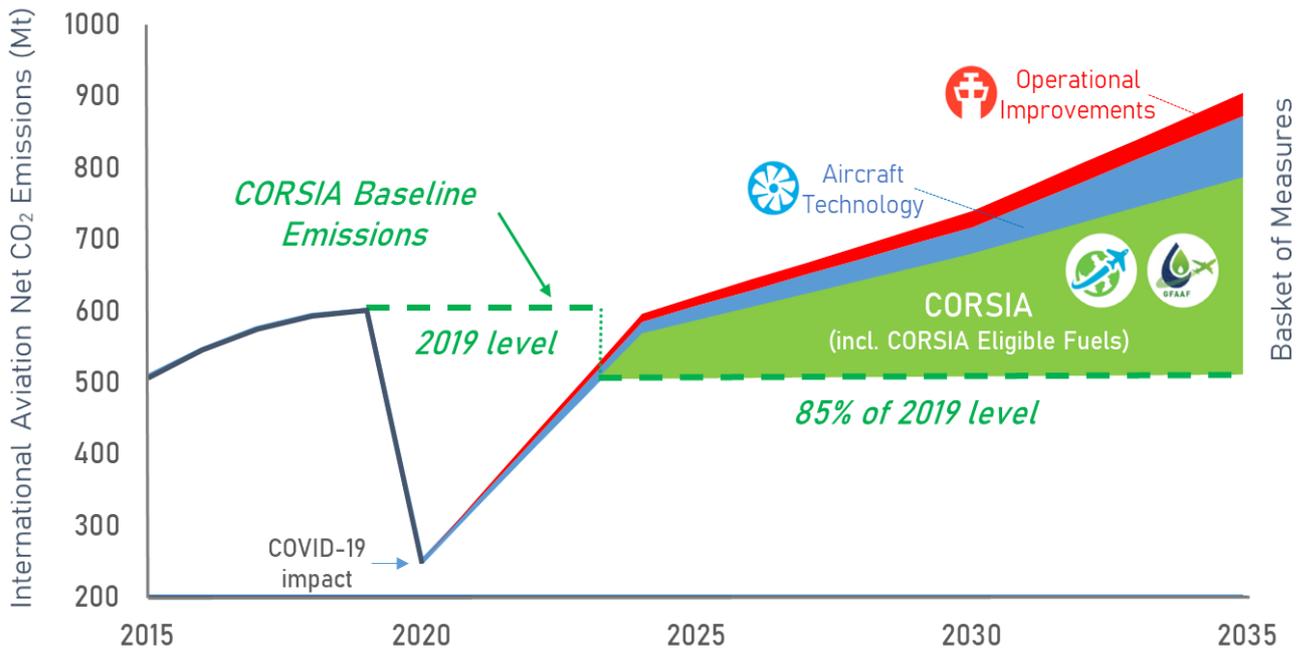
7.2 CORSIA was agreed at the 39th Session of the ICAO Assembly in 2016, as the first-ever global market-based measure for any industry sector, reflecting many years of intensive efforts and negotiations by Member States in cooperation with the aviation industry and other stakeholders. Since its agreement, 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 made it possible for the implementation of CORSIA according to its established schedule.

Milestones for CORSIA Implementation

- a) In June 2018 – less than two years since the CORSIA agreement – the ICAO Council adopted the Standards and Recommended Practices (SARPs) that put in place the concrete and robust requirements for CORSIA implementation;
- b) In July 2018, ICAO launched the Assistance, Capacity-building and Training for CORSIA (ACT-CORSIA) programme to assist the implementation of the Scheme, including the establishment of partnerships among Member States (see more information below);
- c) From 1 January 2019, States and aeroplane operators started to implement the CORSIA MRV system, including Monitoring, Reporting and Verification of CO₂ emissions from international flights, and the reporting of CORSIA-specific data to ICAO through the CORSIA Central Registry (CCR) on an annual basis (see more information below);
- d) To support the implementation of CORSIA's pilot phase (2021-2023), all necessary CORSIA Implementation Elements were timely put in place. The ICAO Council approved 11 emissions unit programmes that could supply CORSIA eligible emissions units for the pilot phase. Regarding CORSIA eligible fuels, sustainability criteria, life-cycle emissions values and methodologies, and certification schemes for the pilot phase were defined;
- e) The ICAO Council conducted the first (2022) CORSIA periodic review, which was significantly influenced by the outbreak of the COVID-19 pandemic. The resulting

recommendations on amendments to the CORSIA design elements were adopted by the 2022 [Assembly Resolution A41-22](#), namely:

- Use of 2019 CO₂ emissions as the CORSIA baseline for the pilot phase (2021 - 2023), and use of 85% of 2019 CO₂ emissions as the CORSIA baseline after the pilot phase (2024 – 2035) (see Figure below); and
- Revised percentages of the sectoral and individual operator’s growth factors for the calculation of CORSIA offsetting requirements to aeroplane operators: 100% sectoral for 2021 – 2032; and 85 % sectoral and 15% individual for 2033 – 2035;



Contribution of CORSIA for reducing international aviation net CO₂ emissions (with adjusted CORSIA baseline emissions, as a result of 2022 ICAO Assembly).

- f) Work continued in 2023 to 2024 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:
- In March 2023, the ICAO Council adopted amendments to the SARPs for CORSIA implementation, 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 amended Standards are now applicable from the start of CORSIA’s first phase (2024-2026);
 - Regarding [CORSIA eligible emissions units](#), the ICAO Council approved to apply a 2021 vintage start date in addition to the existing 2016 crediting start date parameter for the first phase. Work has been underway in 2024 for the assessment of the eligibility of emissions unit programmes for the first phase. As the future demand for CORSIA eligible emissions units is expected to grow as aeroplane operators will need to meet their offsetting requirements under CORSIA, ICAO will continue to monitor the recent developments under Article 6 of the UNFCCC Paris Agreement, in particular any implications for the eligibility of emissions units

under CORSIA, ensuring their quality and environmental integrity such as the avoidance of double-counting; and

- Regarding [CORSIA eligible fuels](#), 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. It should be noted that the CAAF/3 requested 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.

Voluntary participation in CORSIA

7.3 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, to 115 States for 2023. Eleven more States have notified ICAO of their voluntary participation from 1 January 2024, bringing the total number of volunteer States at the start of CORSIA's first phase to 126.

CORSIA Central Registry

7.4 The CORSIA Central Registry (CCR) is the platform through which, States meet the CORSIA requirements, by reporting to ICAO necessary information on such as: aeroplane operators attributed to States; verification bodies accredited in States; annual CO₂ emissions from international flights; and emissions reductions claims from the use of CORSIA eligible fuels.

7.5 The data reported by States through the CCR serves as the basis for the preparation of CCR-related ICAO documents, allowing for the calculation of the CORSIA annual Sector's Growth Factor (which in turn is used to determine annual CORSIA offsetting requirements for aeroplane operators). Data reported through the CCR so far show that close to 100% of the total CO₂ emissions have been reported by States for the period 2019 to 2022; this is an indication of the determination of both States and aeroplane operators to ensure the successful implementation of CORSIA.

7.6 In March 2024, ICAO launched an updated version of the CCR, aligned with the reporting requirements under the updated SARPs, as well as to introduce improvements to the CCR interface based on the feedback received from CCR users in States. In parallel, ICAO continues to support CCR users with training and publications, available on the [CCR Materials](#) website.

ICAO ACT-CORSIA Programme

7.7 July 2018, ICAO launched the ACT-CORSIA (Assistance, Capacity-building and Training for CORSIA) programme as part of the ICAO's *No Country Left Behind* initiative, with the aim to support all Member States with the implementation of CORSIA. The ICAO 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.

ICAO ACT-CORSIA Buddy Partnerships among 136 States.

 ACT-CORSIA^{Phase III} Assistance, Capacity-building and Training on CORSIA	
AUSTRALIA 1. BRUNEI DARUSSALAM 2. INDONESIA 3. NAURU 4. PAPUA NEW GUINEA 5. SRI LANKA 6. THAILAND	KENYA / UNITED KINGDOM 1. ETHIOPIA 2. RWANDA 3. SEYCHELLES 4. SOUTH SUDAN 5. UGANDA 6. UNITED REPUBLIC OF TANZANIA
BRAZIL 1. ANGOLA 2. CABO VERDE 3. MOZAMBIQUE 4. SAO TOME AND PRINCIPE	NEW ZEALAND 1. FIJI 2. SAMOA 3. SOLOMON ISLANDS 4. VANUATU
CANADA (Facilitated by CASSOS) 1. ANTIGUA AND BARBUDA 2. BARBADOS 3. GUYANA 4. HAITI 5. JAMAICA 6. SURINAME 7. TRINIDAD AND TOBAGO	NIGERIA 1. GAMBIA 2. GHANA 3. LIBERIA 4. SIERRA LEONE 5. SUDAN
CANADA / FRANCE 1. BENIN 2. BURKINA FASO 3. BURUNDI 4. CAMEROON 5. CENTRAL AFRICAN REPUBLIC 6. CHAD 7. COMOROS 8. CONGO 9. CÔTE D'IVOIRE 10. DJIBOUTI 11. D. R. OF CONGO 12. GABON 13. GUINEA 14. MADAGASCAR 15. MALI 16. MAURITANIA 17. MAURITIUS 18. NIGER 19. SENEGAL 20. TOGO	REPUBLIC OF KOREA 1. LAO PEOPLE'S D. R. 2. MONGOLIA 3. PAKISTAN 4. PHILIPPINES 5. VIETNAM
FRANCE (Facilitated by ACAO) 1. ALGERIA 2. MOROCCO 3. TUNISIA	QATAR 1. SAUDI ARABIA 2. IRAQ 3. JORDAN 4. KUWAIT 5. LIBYA 6. OMAN
GERMANY 1. ALBANIA 2. ARMENIA 3. AZERBAIJAN 4. BELARUS 5. GEORGIA 6. KAZAKHSTAN 7. NORTH MACEDONIA 8. REPUBLIC OF MOLDOVA 9. SAUDI ARABIA 10. SERBIA 11. TAJIKISTAN 12. TURKMENISTAN	SINGAPORE 1. COOK ISLANDS 2. KIRIBATI 3. MARSHALL ISLANDS 4. PALAU 5. TONGA 6. TUVALU
ITALY / UNITED KINGDOM 1. BAHAMAS 2. ERITREA 3. SOMALIA	SOUTH AFRICA 1. BOTSWANA 2. ESWATINI 3. LESOTHO 4. MALAWI 5. NAMIBIA 6. ZAMBIA 7. ZIMBABWE
JAPAN 1. AFGHANISTAN 2. BANGLADESH 3. BHUTAN 4. CAMBODIA 5. MALAYSIA 6. MYANMAR	SPAIN (* Facilitated by COCESNA) 1. BELIZE * 2. BOLIVIA 3. COLOMBIA 4. COSTA RICA * 5. CUBA 6. EL SALVADOR * 7. EQUATORIAL GUINEA 8. GUATEMALA * 9. HONDURAS * 10. MEXICO 11. NICARAGUA * 12. PARAGUAY * 13. PERU 14. URUGUAY
USA 1. ARGENTINA 2. DOMINICAN REPUBLIC 3. ECUADOR 4. PANAMA	
 <div style="display: inline-block; border: 1px solid black; padding: 5px;"> 17 SUPPORTING STATES 119 REQUESTING STATES </div>	

7.8 The [Buddy Partnerships](#) among States are the cornerstone of the ACT-CORSIA programme, currently involving 136 States (17 supporting States and 119 requesting 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.

7.9 In order to maintain the coordinated approach for the ACT-CORSIA programme, the ICAO Secretariat organizes annual Training of Trainers (ToT) including the recent ToT sessions in March 2024, to the experts of the supporting States involved for the delivery of harmonized training activities to the requesting States under the Buddy Partnerships. Recognizing the importance of

providing continued support to States for the CORSIA implementation, ICAO Secretariat also organizes a series of seminars/webinars sessions, as well as hands-on training for the use of the CCR.

7.10 The ACT-CORSIA programme has been contributing to the robust CORSIA implementation, as demonstrated by data such as the increase in the number of CORSIA volunteer States, and the high coverage of annual CO₂ emissions data submitted by States through the CCR.

8. UNFCCC – CLIMATE FINANCE

8.1 The Paris Agreement and associated COP21 decision did not include a reference to international aviation. One of the key elements in the Paris 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. In addition, 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 1/CP.21, paragraphs 53 and 114).

8.2 It should be noted that in 2010, ICAO Member States adopted global aspirational goals for the international aviation sector for improving the sector's fuel efficiency by two percent per year and keeping its global CO₂ emissions from 2020 at the same level. These aspirational goals were affirmed by the subsequent Sessions of the ICAO Assembly.

8.3 In addition, as mentioned above, the 41st Session of the ICAO Assembly in 2022 adopted a long-term global aspirational goal (LTAG) for the international aviation sector of net-zero carbon emissions by 2050 (*refer to Resolution A41-21, paragraph 7*). ICAO and its Member States have also agreed at the CAAF/3 in November 2023 to strive to achieve a collective global aspirational Vision to reduce CO₂ emissions in international aviation by 5 per cent by 2030, compared to zero cleaner energy use (*refers to the ICAO Global Framework for SAF, LCAF and other Aviation Cleaner Energies, paragraph 1*).

8.4 The achievement of the ICAO's global aspirational goals and aviation's clean energy transition requires adequate financial resources within the international aviation sector itself, enabling it to effectively respond to the global climate change challenge. The growing commitment of Member States and other partners to support ICAO's assistance, capacity-building and financing efforts demonstrates how critical these activities and resources are to the achievement of the ICAO global aspirational goals for international aviation.

8.5 For example, ICAO continues to make further progress on concrete assistance, capacity building and implementation support to its Member States, through the [ICAO ACT-SAF programme](#) and [ICAO State Action Plans \(SAPs\) initiative](#), and is currently developing the [ICAO Finvest Hub](#), to facilitate access to financing and investments towards aviation decarbonization projects.

8.6 In this regard, the 41st Session of the ICAO 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" (*refer to Resolution A41-21, paragraph 16*).

APPENDIX

ICAO Global Framework for SAF, LCAF and other Aviation Cleaner Energies (Adopted by CAAF/3 on 24 November 2023)

Whereas the 41st Session of the Assembly resolved under Resolution A41-21, paragraph 7 that “ICAO and its Member States are encouraged to work together to strive to achieve a collective long-term global aspirational goal for international aviation (LTAG) of net-zero carbon emissions by 2050, in support of the Paris Agreement’s temperature goal, recognizing that each State’s special circumstances and respective capabilities (e.g. the level of development, maturity of aviation markets, sustainable growth of its international aviation, just transition, and national priorities of air transport development) will inform the ability of each State to contribute to the LTAG within its own national timeframe”;

Whereas the Assembly Resolution A41-21, paragraph 8 further recognizes that “the LTAG is a collective global aspirational goal, and it does not attribute specific obligations or commitments in the form of emissions reduction goals to individual States, and urges each State to contribute to achieving the goal in a socially, economically and environmentally sustainable manner and in accordance with national circumstances”;

Whereas the Assembly Resolution A41-21, 17th preamble “recalls the UNFCCC and the Paris Agreement and acknowledges its principle of common but differentiated responsibilities and respective capabilities, in light of different national circumstances”;

Whereas the Assembly Resolution A41-21, 18th preamble “also acknowledges the principles of non-discrimination and equal and fair opportunities to develop international aviation set forth in the Chicago Convention”;

Recognizing that achieving the LTAG requires a comprehensive approach consisting of a basket of measures, including technology, sustainable fuels, operational improvements, and market-based measures. Sustainable Aviation Fuels (SAF), Lower Carbon Aviation Fuels (LCAF) and other aviation cleaner energies are expected to have the largest contribution to aviation CO₂ emissions reduction by 2050 and, whilst there are increasing initiatives to develop and deploy these fuels, current production levels of these fuels are still extremely low at only 0.2 per cent of all aviation fuel use;

Accordingly, there is a need for urgent global action to accelerate the global scale up in development and deployment of SAF, LCAF and other aviation cleaner energies in order to achieve the LTAG and thus provide ICAO’s continuous leadership in addressing emissions from international aviation;

Recalling that the Assembly Resolution A41-21, paragraph 28. f) requested to “convene the CAAF/3 in 2023 for reviewing the 2050 ICAO Vision for SAF, including LCAF and other cleaner energy sources for aviation, in order to define a global framework in line with the *No Country Left Behind* (NCLB) initiative and taking into account national circumstances and capabilities”;

Recognizing that there is significant potential for States to economically, socially and environmentally contribute to, and benefit from, the value chain for the development, production and deployment of SAF, LCAF and other aviation cleaner energies, including as new economic streams and alternative sources for the energy security;

Recognizing that SAF, LCAF and other aviation cleaner energies need to be developed and deployed in an economically feasible, cost-effective and socially and environmentally acceptable manner and in accordance with national circumstances;

Recognizing that means of implementation commensurate to the level of ambition, including financing, will promote the achievement of the LTAG and, by extension, the development and deployment of SAF, LCAF and other aviation cleaner energies;

Recalling that ICAO, through the ICAO Council Industry Consultative Forum; the ICAO Council's dialogues with energy and financial institutions; and the 2023 ICAO Stocktaking on Aviation in Sector CO₂ Emissions Reductions, have heard the industry calls to help reduce risk and attract investment by providing greater regulatory certainty governing SAF, LCAF and other aviation cleaner energies and better access to financing, and by establishing better collaboration and coordination between all stakeholders;

Recognizing that the production of SAF, LCAF and other aviation cleaner energies is currently concentrated in a small number of States. The global framework intends to emphasize the benefits for States and ICAO in working toward the decentralization of such fuel production across all States and regions, providing a fair and equal opportunity to participate across the value chain, from feedstock to fuel production and use;

Recognizing that no single fuel source will be produced at a level necessary to achieve the LTAG. Accordingly, the global framework needs to be flexible and not exclude any particular fuel source, pathway, feedstock or technology that meets the CORSIA agreed criteria;

Recognizing that aviation is part of a global effort to address climate change, and the intent to accelerate the global scale up in development and deployment of SAF, LCAF and other aviation cleaner energies is consistent with recent international commitments in accelerating clean, sustainable, just, affordable and inclusive energy transitions and, in doing so:

- a) recognizes the needs, vulnerabilities, priorities and different national circumstances, particularly of developing countries; and
- b) supports strong enabling environments to foster innovation, technology transfer, building on and consistent with Assembly Resolution A41-21, paragraph 18. d), and access to low-cost financing;

Recognizing that no country should have to choose between fighting poverty and fighting for our planet. In this regard, efforts to decarbonize aviation need to work alongside efforts to sustainably develop the sector, particularly in developing countries.

Acknowledging that the role of this global framework is to facilitate the global scale-up in development and deployment of SAF, LCAF and other aviation cleaner energies by providing greater clarity, consistency and predictability to all stakeholders, including those beyond the aviation sector, on the policies, regulations, implementation support, and financing and investments required, to ensure all States have equal opportunities to contribute to, and benefit from, the expected emissions reductions from such aviation cleaner energies;

Also acknowledging that the global framework is built across four building blocks: policy and planning; regulatory frameworks; implementation support; and financing. These building blocks are interconnected and need to advance and work together to achieve their intended purpose;

Further acknowledging that throughout this global framework, the support for developing countries and States with particular needs, exists along a continuum, from the first step of the process to the last. Comprehensive capacity-building and implementation support and financing activities, are intended to work hand-in-hand to achieve this outcome and broader aviation decarbonization efforts in a sustainable manner;

Building Block 1 – Policy and Planning:

1. ICAO and its Member States will work together to strive to achieve a Vision of implementing the elements of this global framework in order to globally scale-up the development and deployment for SAF, LCAF and other aviation cleaner energies, as such fuels are expected to have the largest contribution to aviation CO₂ emissions reductions in the ‘basket of measures’ to achieve the LTAG. To support the achievement of the LTAG, ICAO and its Member States strive to achieve a collective global aspirational Vision to reduce CO₂ emissions in international aviation by 5 per cent by 2030 through the use of SAF, LCAF and other aviation cleaner energies (compared to zero cleaner energy use). In pursuing this Vision, each State’s special circumstances and respective capabilities will inform the ability of each State to contribute to the Vision within its own national timeframe, without attributing specific obligations or commitments in the form of emissions reduction goals to individual States.
2. This Vision will be continually monitored and periodically reviewed, as described in paragraph 11 below, including through the convening of CAAF/4 no later than 2028, with a view to updating the ambition on the basis of market developments in all regions.
3. Increasing the production of SAF, LCAF and other aviation cleaner energies across all regions will be integral to achieving the Vision and will rely on means of implementation including financing, technology transfer and capacity building.
4. In addition, the Vision should:
 - a) enable the increased production and supply of SAF, LCAF and other aviation cleaner energies across all regions;
 - b) be flexible, attainable and feasible;
 - c) be continually monitored and periodically reviewed (refer to paragraph 11 below);
 - d) be ambitious, in order to send a positive market signal to induce demand, trigger supply and attract significant additional investment, taking into account special circumstances and respective capabilities of States;
 - e) not negatively impact the growth of air transport, especially in developing countries;
 - f) contribute to a level playing field among all States and avoid market distortion;
 - g) be supported by the appropriate means of implementation including financing, technology transfer and capacity building;
 - h) not exclude any particular fuel source, pathway, feedstock or technology, as long as it meets the CORSIA sustainability criteria;
 - i) take account of the projections included in the LTAG report and subsequent analysis by CAEP;
 - j) note national fuel-related emissions reduction goals and roadmaps by States and any other industry commitments;
 - k) not give rise to any mandatory measures to achieve this Vision and the objective of this framework; and
 - l) contribute to mitigating air pollution, maximising both public health and climate benefits.
5. States are encouraged to implement policies in support of the Vision, in a socially, economically and environmentally sustainable manner and in accordance with their special circumstances and respective capabilities.

6. In developing these policies, States are invited to consider the usefulness and benefits of the non-exhaustive and non-prescriptive list of potential policy components contained within the ‘toolkit’ in paragraph 18 below, noting that ICAO guidance provides further detail on these potential policy components and the guidance does not provide any endorsement of specific policies.
7. In developing and implementing their policies, States are encouraged to recognize:
 - a) the need for, and benefits of, a combination of policies under a coherent and coordinated national plan for the scale-up in production and deployment of SAF, LCAF and other aviation cleaner energies, noting that no one single policy is likely to deliver the best and most efficient outcomes and that the appropriate policy-mix will differ between States due to different national circumstances;
 - b) the need for policies to take into account cost impacts and affordability, and to avoid extraterritorial measures;
 - c) the need for policies to take into account the latest scientific and technological developments;
 - d) the importance of the policy’s transparency, certainty and stability, for aircraft operators, feedstock producers, fuel producers, financial institutions and other relevant stakeholders; and
 - e) the need for policies to be applied in accordance with the Chicago Convention and its relevant instruments and any appropriate bilateral and multilateral agreements in place between States, with particular regard for the fundamental principles of non-discrimination, fair and equal opportunity; and the avoidance of market distortion.
8. States are encouraged to work together towards the harmonization of policies, to the extent possible and appropriate to circumstances, across States and regions as a longer-term objective.
9. The Vision is a collaborative effort with action required from different stakeholders, and States are to encourage relevant stakeholders (i.e. aircraft operators, airports, aircraft and engine manufactures, fuel producers, ICAO’s approved Sustainability Certification Schemes, and fuel standards bodies) to plan, develop and implement their own actions to help achieve the Vision, as appropriate, including:
 - a) *Aircraft operators* to prioritize the negotiation, cooperation and commercial procurement of SAF, LCAF and other aviation cleaner energies; facilitate access for travellers, air cargo shippers and businesses who wish to voluntarily reduce their air travel footprint through access to the purchase of SAF, LCAF and other cleaner fuels; and implement measures to increase SAF compatibility within their fleets;
 - b) *Airports* to plan and deliver changes in airport infrastructure necessary to ensure efficient supply and access to drop-in fuels and, in collaboration with aircraft operators, fuel producers and other stakeholders, explore innovative ways to share the cost of such infrastructure changes across the value chain;

- c) *Aircraft and engine manufactures and fuel producers* to accelerate work to ensure 100 per cent SAF compatibility is feasible in new, in-production and existing aircraft, as soon as it is considered safe to do so and in line with their announced commitments, and innovate to understand and maximize the opportunities offered by other cleaner energy sources in the longer term;
 - d) *Fuel producers* to foster innovation and investment into SAF, LCAF and other aviation cleaner energies and demonstrate technological readiness, scalability and sustainability of these fuels in line with the CORSIA requirements;
 - e) *ICAO's approved Sustainability Certification Schemes* to accelerate the sustainability certification of qualifying SAF, LCAF and other aviation cleaner energies in line with the CORSIA requirements; and
 - f) *Fuel standards bodies*, particularly ASTM, to work with all stakeholders to accelerate the qualification and approval of additional fuel production pathways.
10. States are encouraged to include their respective policies, actions and roadmaps for the development and deployment of SAF, LCAF and other aviation cleaner energies, in their State Action Plans, and where possible, to:
- a) identify resources, capacity and other factors (e.g. capacity assistance and access to technology) required;
 - b) help ICAO to tailor capacity building and implementation support measures, including facilitating access to financing and funding, in line with the State's needs; and
 - c) to quantify their Plans, to support ICAO's work in monitoring progress towards achieving the LTAG.
11. The implementation of the global framework should be continually monitored and periodically reviewed, including through annual ICAO stocktaking, and the convening of CAAF/4. In this regard, ICAO, with the technical contribution of CAEP, should identify and develop methodologies for monitoring the:
- a) progress on emissions reductions from SAF, LCAF and other aviation cleaner energies toward the achievement of the LTAG, including through the gathering, compiling and analyzing, by ICAO, of actions undertaken by States according to their State Action Plans and other relevant State reporting mechanisms;
 - b) progress, at a global and regional level, on means of implementation support, including financing, provided to achieve the emissions reductions from SAF, LCAF and other aviation cleaner energies toward the achievement of the LTAG, including through the gathering, compiling and analyzing, by ICAO, of actions undertaken by States, industry, and other stakeholders; and
 - c) impacts on the sustainable growth of the aviation industry, the geographical distribution of SAF production, cost impacts (including airfares and the price of SAF, LCAF and other cleaner energies), and the maintenance of fair and equal opportunities for the development and deployment of SAF, LCAF and other aviation cleaner energies, aspiring to have production sites in all ICAO regions before CAAF/4.

Building Block 2 – Regulatory Framework:

12. In the interests of providing regulatory transparency, certainty, stability and assurances of environmental integrity to feedstock producers, fuels producers and financial institutions, the CORSIA 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.
13. ICAO, States and industry are encouraged to enhance efforts to increase the number of ICAO approved Sustainability Certification Schemes, in all regions, to accelerate the sustainability certification of qualifying SAF, LCAF and other aviation cleaner energies in line with the CORSIA requirements, without excluding any particular fuel source, pathway, feedstock or technology. In this regard, ICAO, with technical and neutral contributions of CAEP, is encouraged to accelerate the development and approval of new Sustainability Certification Schemes for SAF, LCAF and other aviation cleaner energies and to accelerate the analysis and approval of life cycle values for new fuel sources and pathways.
14. ICAO, States, industry and other relevant stakeholders are encouraged to work with fuel standards bodies, such as ASTM, to accelerate the certification of additional fuel production pathways, with a view to maximizing the number of certified sources of SAF, LCAF and other aviation cleaner energies.
15. Accounting methodologies on the use of SAF, LCAF and other aviation cleaner energies for international aviation, such as the CORSIA MRV, provides confidence in the use of such fuels and the claim of their environmental benefits by aeroplane operators, noting that such accounting methodologies could help support the monitoring of progress towards the achievement of the LTAG. Accounting methodologies and the associated reporting frameworks should take into account the following parameters, which seek to promote transparency, accuracy, consistency, comparability and completeness:
 - a) ensure the global coverage of emissions from international civil aviation, as part of the monitoring of the LTAG;
 - b) support consistent application of methodologies amongst States, in a transparent manner;
 - c) enable accurate emissions reporting, including the use of cleaner energy for international civil aviation;
 - d) ensure environmental integrity through the avoidance of double-counting, including between domestic and international civil aviation;
 - e) use verified emissions information, supported with other information for the verification or validation of reported emissions;
 - f) promote cost-effectiveness by using simple accounting and reporting methodologies and procedures;
 - g) avoid excessive administrative burden on States and aeroplane operators; and
 - h) leverage, to the extent possible, existing methodologies and procedures under the CORSIA MRV.
16. ICAO should, with technical contributions of CAEP, undertake a study of fuel accounting systems for international aviation currently used in the open market. This study would include preliminary exploration of the so-called ‘book and claim’ concept to assess its relevancy and applicability, and taking into account relevant developments in other UN bodies, including the Article 6 of the Paris Agreement. The intent of the study would be to better understand these accounting systems and

concepts and identify potential areas for further investigation. This work can help determine what, if any, role ICAO could have in supporting these systems to facilitate access to environmental benefits of SAF, LCAF and other aviation cleaner energies for international aviation and ensure environmental integrity, with a view to fostering without disincentivising the global production of such fuels, in particular in developing countries.

Building Block 3 – Implementation Support

17. All States should have access to the means to participate across all stages of the development and deployment of SAF, LCAF and other aviation cleaner energies, and all States and regions are encouraged to work together in a spirit of solidarity to ensure there is a truly global effort to contribute to, and benefit from, the work to reduce emissions from such aviation cleaner energies.
18. The global scale-up in production of SAF, LCAF and other aviation cleaner energies requires a robust and substantial capacity-building and implementation support programme. States, ICAO, industry, academia and other relevant stakeholders are encouraged to work together to deliver such a programme that:
 - a) recognizes the need for an expanded, robust, targeted and tailored support to account for the various stages of readiness across the entire SAF/LCAF value chain, taking into account different circumstances across States and regions;
 - b) facilitates partnerships, alliances and cooperation between States and all relevant stakeholders, including regional collaborations that may result in regional solutions that produce fuels efficiently;
 - c) includes exchange of information, sharing of best practices and technological developments among States, for which ICAO should provide a platform to facilitate this exchange and track progress;
 - d) supports States in their planning, development and implementation of national and regional policies that can be applied across all stages of fuel supply-chain, including the following potential policy components that form part of a non-exhaustive ‘toolkit’ (referred to paragraph 6 above):
 - i. foster multi-stakeholder partnerships, alliances and cooperation, including with (as appropriate) aeroplane operators, airports, aircraft and engine manufacturers, energy producers and financial institutions;
 - ii. government incentives, including loans, grants, tax credits, regulatory support and other mechanisms for:
 - research and development, including determination of the technology readiness level;
 - sourcing of potential feedstock;
 - development and acceleration of feedstock production; and
 - development and acceleration of fuel production;
 - iii. targets and/or mandates for:
 - emissions reduction levels;
 - uptake of SAF, LCAF and other aviation cleaner energies; and
 - fuel blending levels;
 - iv. where beneficial, identify SAF, LCAF and other aviation cleaner energies as priorities for financing for economy-wide decarbonization efforts;

- v. promote increasing the number of ICAO approved Sustainability Certification Schemes for SAF, LCAF and other aviation cleaner energies;
 - vi. promote feasibility studies for potential SAF, LCAF and other cleaner energy pathways;
 - vii. promote necessary changes in airport and energy supply infrastructure; and
 - viii. promote the use of Public Private Partnerships to deliver SAF and LCAF projects.
- e) regularly updates the ICAO detailed guidance on the ‘policy toolkit’ and the ‘Rules of Thumb’, where applicable, to estimate the costs, investment needs and production potentials, to help inform States’ consideration of the selection of national and regional policies that are appropriate to their circumstances, noting that the guidance does not provide any endorsement of specific policies;
- f) supports the delivery, in a continuum, of feasibility studies, pilot projects, and ‘proof of concept’ plans, which may facilitate access to investment for their implementation;
- g) develops and provides training to enhance State’s awareness and readiness, as well as to support the SAF and LCAF project’s readiness to attract investment, including training on financial aspects of project development, financial planning and investment promotion; and
- h) assists in the development of relevant aspects of State Action Plans and roadmaps, including ICAO guidance and tools, and State-to-State support partnerships, noting that State Actions Plans may also include information on specific assistance needs for the implementation of measures to reduce aviation CO₂ emissions, which may facilitate access to investment and technology.
19. Access to technology is imperative for States to contribute to, and benefit from, cleaner energy development and deployment. Accordingly, States and industry shall promote and facilitate, in accordance with 14th preamble above, the effective transfer of technology, in particular to developing countries and States with particular needs, in line with the *No Country Left Behind* (NCLB) initiative, through comprehensive technical skills, manufacturing, processing and equipment, and noting the global benefits that come from increasing the supply of cleaner energy.
20. The ICAO capacity-building and implementation support should be delivered in an efficient, effective and coordinated manner under the ‘one-ICAO’ approach, incorporating support for all stages of SAF, LCAF and other aviation cleaner energies development and deployment, and building upon the success of the ACT-CORSIA and ACT-SAF programmes. States are also encouraged to develop specific projects under the ICAO Technical Cooperation Programme.
21. In line with the *No Country Left Behind* initiative, States are urged to make regular and substantial contributions to the ICAO Voluntary Environment Fund and other in-kind contributions (e.g. secondments) to support delivery of the substantial ICAO capacity building and implementation support programme, aimed at assisting developing countries and States with particular needs, including, as a priority, for feasibility studies and technology adaption.
22. Industry is also urged to provide expertise and financial support to support delivery of the substantial capacity building and implementation support programme including, as a priority, for feasibility studies and technology adaption.

23. ICAO should regularly monitor the progress and effectiveness of the capacity-building and implementation support efforts, including ensuring there are sufficient resources to deliver its support programme, as part of the broader means of implementation. In this regard, ICAO should consider developing necessary methodologies for monitoring and reporting back to States, including information on where its support efforts are located and the cost of those efforts.

Building Block 4 – Financing

24. As recognized in Assembly Resolution A41-21, paragraph 17, “means of implementation commensurate to the level of ambition, including financing, will promote the achievement of the LTAG. It requires substantial investments for States, according to their national circumstances, and that various possible modalities and/or funding mechanisms could be used by ICAO to facilitate financing and investment support for implementation of specific aviation CO₂ emissions reduction measures”.
25. According to the LTAG report, fuel suppliers will need to invest up to 3.2 trillion USD in producing aviation cleaner energies through to 2050, and additional investments will be needed for other aviation CO₂ reduction measures such as aircraft technologies and operational improvements. The scale of this task presents both challenges and opportunities for ICAO, States and other stakeholders, including the financing community.
26. Specific to financing and funding, Assembly Resolution A41-21, paragraphs 18. a) and b), request the Council to:
- a) “initiate specific measures or mechanisms so as to facilitate, in particular for developing countries and States having particular needs, better access to private investment capacities, as well as funding from financial institutions, such as development banks, for projects contributing to the decarbonization of international aviation, as well as encourage new and additional funding to this purpose”; and
 - b) “further consider the establishment of a climate finance initiative or funding mechanism under ICAO, while addressing the possible financial, institutional and legal challenges, and report to the 42nd Session of the ICAO Assembly”.
27. These two paragraphs of the Assembly Resolution must be urgently progressed, in parallel, if the challenge of scaling-up SAF, LCAF and other aviation cleaner energies is to be addressed at the global level in a sustainable manner, including economic, social and environmental concerns.
28. With a view to achieving the LTAG, the primary objective for ICAO and its Member States with respect to financing should be to support countries in particular developing countries and States with particular needs, to improve access to low-cost financing and funding, and further de-risking of projects to develop and deploy SAF, LCAF and other aviation cleaner energies in order to promote sustainability and stimulate investment, in line with the *No Country Left Behind* initiative.
29. Measures to attract greater investment in SAF, LCAF and other aviation cleaner energies from development banks and other capital markets are integral to ICAO efforts under Assembly Resolution A40-22, particularly paragraph 8, to “continue fostering ICAO’s partnership with financial institutions seeking the prioritization or inclusion of aviation in their agendas and work programmes in order to facilitate States’ access to fund or finance their aviation development projects”.

30. Some financing instruments (e.g. blended finance and Public-Private Partnerships) require significant cooperation and collaboration between stakeholders, including States, industry and public and private financial institutions, to mitigate the investment risk. There is a role for ICAO and its Member States to engage in this cross-stakeholder collaboration as appropriate, on possible measures to de-risk investments.
31. ICAO, States and industry have a key role to play in advocating for greater investment in SAF, LCAF and other aviation cleaner energy projects by increasing awareness and understanding amongst the international finance community on:
 - a) the collective commitment of States and the industry to achieve the LTAG;
 - b) the importance of the sustainable growth of the international aviation sector including the economic and social connectivity and trade flows;
 - c) the benefits of the use of SAF, LCAF and other aviation cleaner energies to address aviation's contribution to climate change;
 - d) the strong action from ICAO, States and industry to the global scale-up of SAF, LCAF and other aviation cleaner energies;
 - e) the direct and indirect economic and social benefits to States across the value chain of SAF and LCAF production;
 - f) the scale of the demand for SAF, LCAF and other aviation cleaner energies;
 - g) the challenges to accessing affordable and needed financing for projects for SAF, LCAF and other aviation cleaner energies; and
 - h) potential investment opportunities and returns.
32. As part of this advocacy and outreach, States and ICAO should enhance and deepen their engagement and dialogue with the international finance community and other relevant stakeholders, including:
 - a) public and private financial institutions, including sub-national, national, regional and multilateral banks;
 - b) private capital markets, including investors and insurers;
 - c) capital and banking alliances;
 - d) State donors;
 - e) UN, and other internationally-recognized funds and investment vehicles; and
 - f) energy producers.
33. ICAO, in cooperation with States, should develop a series of case studies of successful SAF, LCAF and other aviation cleaner energies projects, drawing from examples in regions with different characteristic and investment risk. Such case studies could assist both project developers and prospective investors by providing examples of 'tried and tested' pathways for investment and instill confidence that investment opportunities can be realized.
34. States acknowledge and welcome the establishment of the 'ICAO Finvest Hub', which delivers on Assembly Resolution A41-21, paragraph 18. a), and look forward to its work to facilitate enhanced access to public and private investment capacities and funding from financial institutions, with prioritization of allocation to developing countries and States with particular needs, for projects contributing to the decarbonization of international aviation, including for the scale-up in development and deployment of SAF, LCAF and other aviation cleaner energies, as well as encourage new and additional funding for this purpose.

35. As a first step, ICAO should urgently put in place the necessary structure and capability, toward the operationalization of the proposed 'ICAO Finvest Hub' initiative. Such work should clearly identify how the Finvest Hub initiative complements broader aviation decarbonization capacity building and implementation efforts, including the ACT-SAF programme.
36. Key activities that the ICAO Finvest Hub could undertake include:
 - a) developing a platform to connect aviation decarbonization projects with potential public and private investors, including a 'matchmaking' function, thus helping investors to identify and assess projects;
 - b) working with various stakeholders to explore innovative funding and risk mitigation mechanism adapted to the decarbonisation of aviation, incentivizing investments, and promoting collaboration among stakeholders to mobilize financial resources effectively (e.g. fostering Public Private Partnerships);
 - c) collaborating with financial institutions, such as development banks, to create pathways for the funding of projects;
 - d) developing a database of funding and financing sources, together with their terms and conditions, for project developers to be able to draw on; and
 - e) developing a toolkit of term sheets templates (basic conditions to satisfy investors) for SAF, LCAF and other aviation cleaner energies.
37. Private capital alone will not be enough to fully address the challenge of scaling-up the development and deployment of SAF, LCAF and other aviation cleaner energies. Sizable public investment, including concessionary funding, as appropriate, will be required to support some SAF, LCAF and other aviation cleaner energy projects, particularly in developing countries and in States with particular needs.
38. States recognize the important role that ICAO can play in encouraging scaled up funding flows, including new and additional funding flows, as appropriate, and their transparent and effective disbursement. ICAO and its Member States need to ensure 'no stone is left unturned' in exploring avenues to support these objectives.
39. To this end, States underscore the importance of Assembly Resolution A41-21, paragraph 18. b) and agree that ICAO should expedite its work to further consider the establishment of a climate finance initiative or funding mechanism under ICAO, while addressing the possible financial, institutional and legal challenges. Recognizing the recent decision of the Council to undertake a study regarding the consideration of the establishment of a climate finance initiative or funding mechanism under ICAO, this work must be completed for consideration by the 42nd Session of the ICAO Assembly, in accordance with A41-21, paragraph 18. b).
40. States recognize that, in its work preparing the report under A41-21 paragraph 18. b), the ICAO Council should consider, among others, the following aspects:
 - a) achieving the LTAG in a fair and sustainable manner;
 - b) the role that a climate finance initiative or a funding mechanism could play in reinforcing and complementing the work of the Finvest Hub, and other mechanisms of the Organization, such as the ACT-SAF programme, the ICAO Technical Cooperation Program and the ICAO Voluntary Environment Fund;
 - c) the need for a gap analysis to identify where there are specific needs with attention to developing States and States having particular needs; and

- d) the objective of promoting the increase of SAF production worldwide and concomitant economic, social and environmental benefits across all regions.
41. Globally, there are ongoing efforts to mobilize climate finance and maximize resources, including concessional financing, as appropriate, in order to support clean energy transitions. Aviation must have a role in these efforts to support its own transition and the achievement of the LTAG.
42. ICAO and its Member States should initiate a work stream to actively identify, analyse gaps and monitor developments in the UN and across the international financing community, including *inter alia* the Green Climate Fund and its upcoming replenishment, the Net Zero Asset Owner Alliance, and the Multilateral Development Banks Vision Statement, to identify and aggressively pursue opportunities to increase the allocation or earmarking of public and private capital devoted to aviation decarbonization projects, particularly on SAF, LCAF and other aviation cleaner energies.

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