



VIRONMENT



Second Arab Forum for Environmental Protection in the Arab Civil Aviation Industry

Marrakech, 26th & 27th February 2024



ICAO

ENVIRONMENT

Overview of ICAO's work on SAF



History on ICAO and SAF

15 years ago

- Technical feasibility and safety under consideration
- No certified conversion processes
- Very few demonstration flights
- Then, in 2009, the First Conference on Aviation and Alternative Fuels (CAAF/1) was convened in Rio de Janeiro and recommended:
 - the use of SAF as a means to reduce aviation emissions;
 - the establishment of the ICAO Global Framework for Aviation Alternative Fuels (GFAAF);
 - the development of life cycle analysis methodologies;
 - the development of a common definition of Sustainability require



Over the past 13 years...

- 2010 – Inclusion of SAF as a measure to reduce aviation CO₂ emissions (ICAO Resolution A37-17)
- **2012 – Rio + 20 conference – SAF flight from Montréal to Rio with then ICAO Secretary General**
- 2017 – ICAO Second Conference on Aviation and Alternative Fuels (CAAF/2) – 2050 ICAO Vision
- 2018 – CORSIA adoption (including SAF provisions)
- 2022 - **Assembly agreed to a collective long-term global aspirational goal (LTAG)** of net-zero carbon emissions from international aviation by 2050 - SAF has the greatest potential to reduce CO₂ emissions
- **2023 – CAAF/3 – Global Framework for SAF, LCAF and cleaner energies**





ICAO Activities on SAFs

ICAO is facilitating SAF development and deployment by:



- 1) Establishing **Policies, measures and goals**
- 2) Developing globally-accepted **Standards, sustainability criteria, and life cycle methodologies for SAF use in CORSIA.**
- 3) Organizing **events** for information-sharing and outreach
- 4) Sharing **information and best practices**

The [ICAO Global Framework for SAF, LCAF and other aviation cleaner energies](#) was adopted by CAAF/3 on 24 November 2023

**Collective global aspirational Vision
to reduce CO2 emissions in international aviation by
5 % by 2030, through aviation cleaner energy use**

Building Block 1: Policy and planning

- Supporting policies to promote the development and deployment of cleaner energy for aviation
- Metrics and projections for potential quantified goals for cleaner energy for international aviation

Building Block 2: Regulatory framework

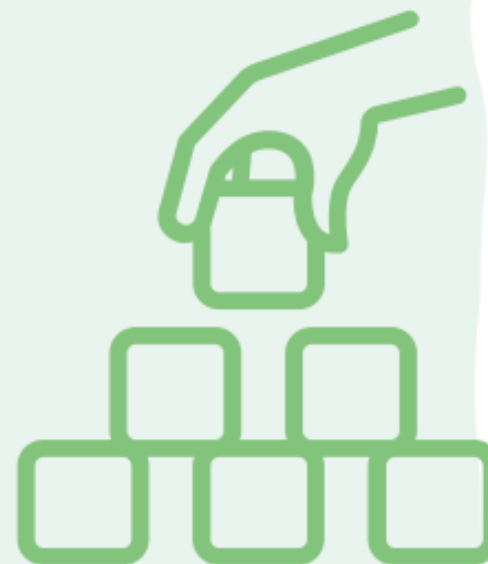
- Fuel sustainability certification
- Fuel accounting and reporting methodologies

Building Block 3: Implementation support

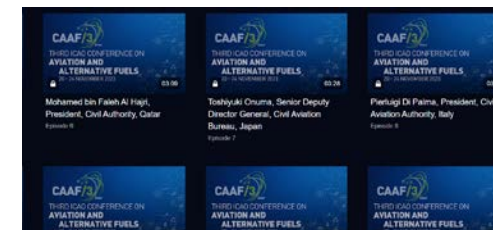
- Assistance and capacity-building for cleaner energy

Building Block 4: Financing

- Financing cleaner energy



Available on ICAO TV



ICAO Platform ACT-SAF

90

States

Name of State

- Albania
- Argentina
- Australia
- Austria
- Bahamas
- Bangladesh

60

Organizations

Name of Organization

- Fastjet Zimbabwe Pvt Ltd
- European Commission
- European Civil Aviation Conference
- Eurocontrol
- EASA - European Aviation Safety Agency
- Cranfield University
- Chemcore Consultants

States

Acceptance to ... ● Pending ● Yes



International Organizations

Acceptance T&C ● (Blank) ● Pending ● Yes



[ACT-SAF platform](#) provides the details on ACT-SAF participation and initiatives



Many ACT-SAF partners and aviation Stakeholders are supporting the implementation of cleaner energies for aviation

ACT-SAF Training Series

➤ Technical knowledge is a pre-requisite for the implementation of specific SAF projects and policies

➤ ACT-SAF partners can participate live and directly ask questions and have feedback

➤ In 2024, ICAO will continue to organize ACT-SAF Series trainings on various subject matters such as SAF in State Action Plans, ICAO SAF supporting tools, feasibility assessments, etc.







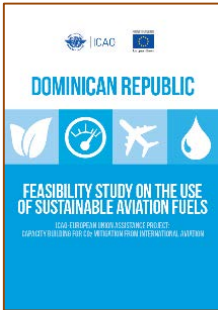
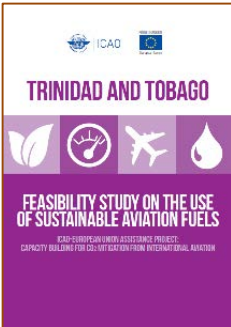
ACT-SAF Series	Date	Topics	Contributor(s)	Abstract	Video and Presentation
#1	23 November 2022	An introduction to SAF	ICAO	<ul style="list-style-type: none"> Introduction to ACT-SAF Basics of SAF 	 Download Presentation
#2	25 January 2023	SAF sustainability and reporting under CORSIA	IBCC RSB Vertavis	<ul style="list-style-type: none"> process for sustainability certification of SAF Reporting and verification of SAF claims under CORSIA 	 Download Presentation
#3	23 February 2023	SAF technology and certification	Airbus US FAA Saftco	<ul style="list-style-type: none"> specifications for aviation turbine fuels process for approval for new production pathways 	 Download Presentation
#4	23 March 2023	SAF policies	Brazil, European Commission, France, Japan, Singapore, United Arab Emirates, United States	<ul style="list-style-type: none"> Practical experiences from States that are developing a policy for SAF Sharing of knowledge in the policy development process 	 Download Presentation
#5	21 August 2023	SAF conversion processes	<ul style="list-style-type: none"> Neste Gevo Shell Topsoe SAF+ Consortium 	<ul style="list-style-type: none"> Conversion processes available to produce SAF HEFA Hydroprocessed esters and fatty acids ATJ - Alcohol to jet Fischer-Tropsch Power to Liquids (PtL) 	Download Presentation
#6	12 October 2023	SAF accounting and book and claim systems	IATA IBAC COSAFI RMI/SABA RSB IBCC	<ul style="list-style-type: none"> Basic concepts on SAF accounting and an overview of ICAO work and ongoing industry initiatives on Book & Claim systems 	Download Presentation
#7	TBC	Feasibility Assessment	TBC		

TABLE 6: ACT-SAF Training Series

Replay the trainings of ACT-SAF Series Season 1 on the [dedicated website](#)

Feasibility studies are the first step to assess the SAF potential in a State

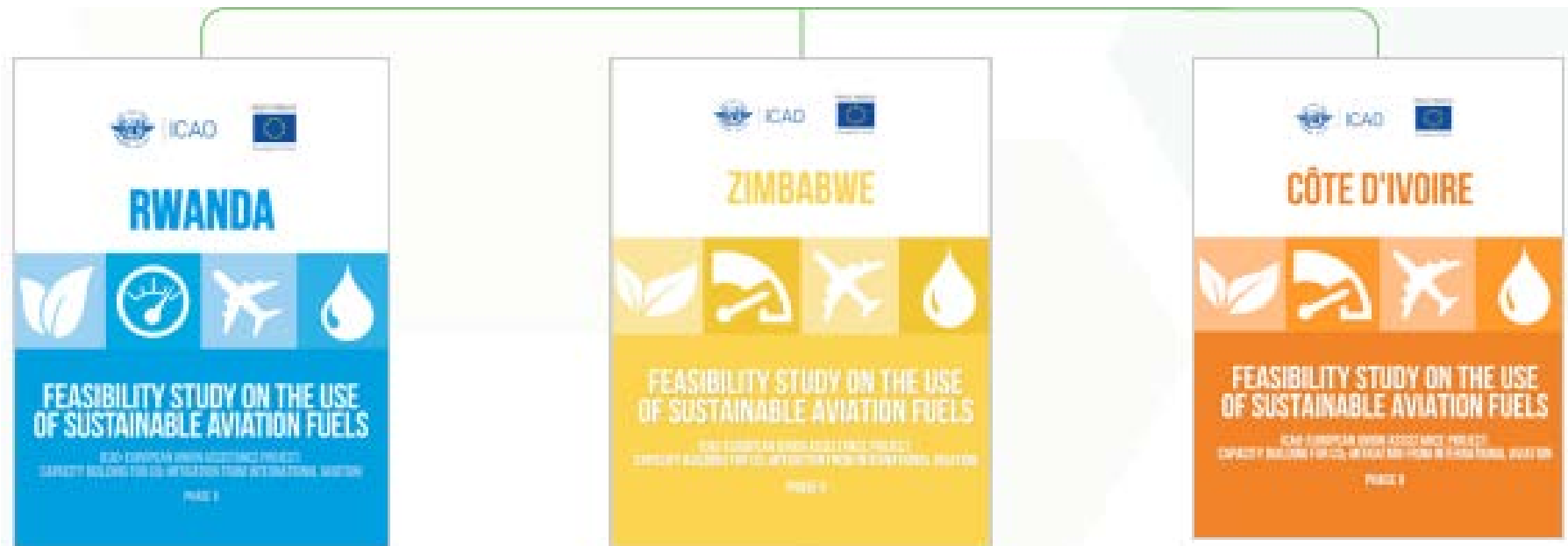
ICAO SAF Feasibility studies - 4 feasibility studies were developed as part of the ICAO assistance project with EU funding "Capacity building for CO2 mitigation from international aviation".

 <p>Feasible feedstocks identified :</p> <ul style="list-style-type: none">• Tropical grasses like elephant grass• Agricultural residues from sorghum• Jatropha• Municipal Solid waste (MSW)• Cashew and shea nutshell oil• Waste animal fats (tallow)	 <p>Feasible feedstocks identified :</p> <ul style="list-style-type: none">• used cooking oil (UCO)• municipal solid waste (MSW)• sugarcane byproducts (cane tops)• water hyacinth
 <p>Sugarcane-based SAF could be economically feasible</p>	 <ul style="list-style-type: none">• SAF economically unviable (lack of quantity of locally sourced feedstock)• Suitable options identified for ground support equipment: biodiesel and natural gas



ICAO Capacity building activities: SAF feasibility Studies

- three ACT-SAF feasibility studies recently completed for Cote d'Ivoire, Rwanda, and Zimbabwe
- Many feasibility studies will be developed in the ACT-SAF programme (projects funded by Cote d'Ivoire, EU, France, Netherlands, United Kingdom, Airbus)





Template and Guide for SAF Feasibility Studies



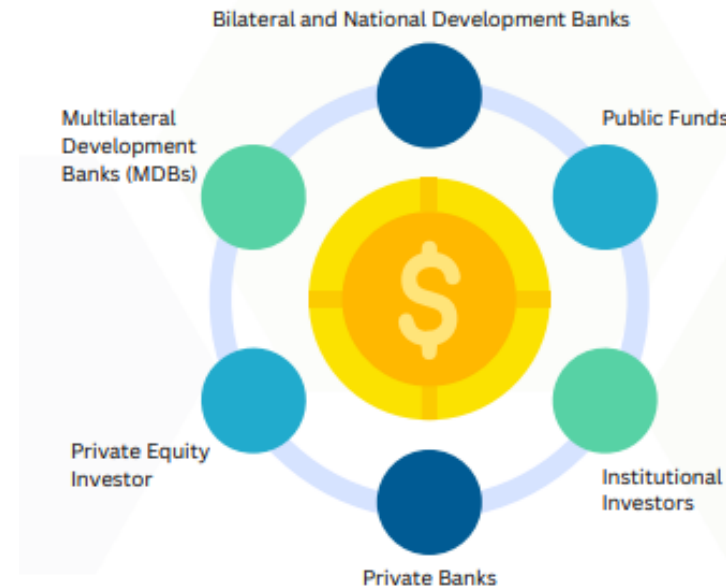
- ICAO developed a **template for feasibility studies** on SAF to facilitate the preparation of standardized feasibility studies on SAF
- with an **accompanying guide**, which is consistent with the structure defined in the template, and incorporates examples from a selection of publicly available feasibility studies, as well as resources on SAF published by ICAO, to show in a practical manner varying approaches in support of the development of a SAF feasibility Study
- Implementation of feasibility studies will be a key item on the agenda for ICAO in 2024

The template and guide are available on the [ACT-SAF Platform](#)

Facilitate SAF financing

ICAO is connecting with financial institutions across all regions to:

- Raise awareness of financial institutions on the role of SAF to achieve the LTAG, and on the interest of aviation/fuel industries for immediate and massive SAF scale-up
- Inform financial institutions of the significant investment needs to scale-up SAF production capacity across all regions, in particular for developing countries
- Explore financial institutions' existing or future financing opportunities to support SAF deployment and inform financing institutions of ways in which they can best contribute to SAF deployment



Support to policy implementation

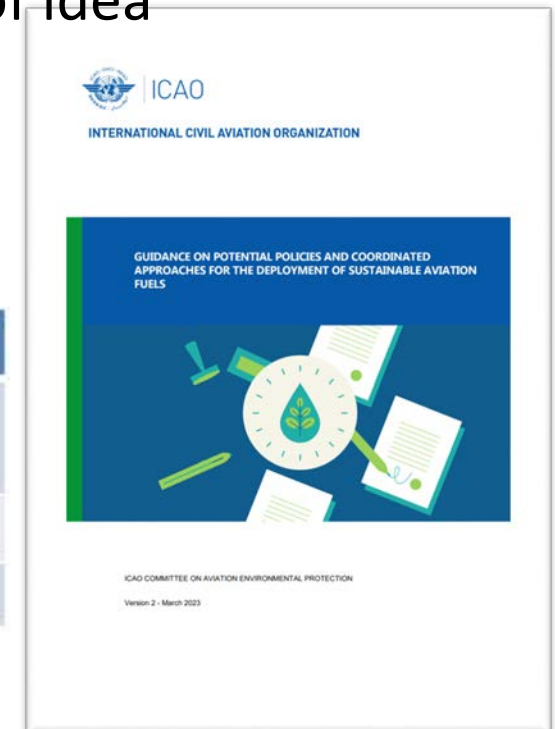
➤ Many policies are available to support SAF development.

Three key themes influence policy effectiveness:

- **Feasibility:** practicable and easy to implement
- **Effectiveness:** successful in producing a desired result
- **Practicality:** the policy targets the outcome rather than a theory or set of ideas

➤ ACT-SAF programme can support States to identify tailored policy solutions and implement a policy framework

Potential Policy Categories	
Government funding for SAF research, development, demonstration and deployment	SAF mandates
Targeted incentives and tax relief	Update of existing policies to incorporate SAF
Recognition of SAF environmental benefits	Demonstrate government leadership



How to join ACT-SAF?

The ACT-SAF Programme is open to all interested parties in supporting the programme
 To become a partner, the interested party shall accept ACT-SAF Terms and Conditions

How to become an ACT-SAF Partner?

You can become an ACT-SAF Partner by agreeing to the [ACT-SAF Terms and Conditions](#). For those interested in further information, an e-mail can be sent to the Office of Environment (officeenv@icao.int). ICAO will schedule a meeting to discuss potential needs and/or contributions under ACT-SAF and further steps into the programme.



STATE/ORGANIZATION/INSTITUTION (NAME OF STATE, ORGANIZATION OR INSTITUTION) *

Your answer _____

10.2 The Partner shall keep ICAO duly informed of all measures which it adopts for the fulfillment of these Terms and Conditions or which may affect these Terms and Conditions.

11. Acceptance *

11.1 IN WITNESS WHEREOF, the Partner hereto, acting through its duly authorized representative, has accepted these Terms and Conditions in the English language on the date indicated below.

Name and designation of duly authorized representative

Your answer _____

FOR [NAME OF STATE, ORGANIZATION OR INSTITUTION] *

Your answer _____

Date

Date
 mm/dd/yyyy

I accept the [Terms and Conditions for the ACT-SAF programme](#) *

Yes

Submit Clear form

FIGURE 8: Section of the ACT-SAF Terms and Conditions



Thank You!