

ICAO EUR/NAT Environment Workshop

Hosted by the State Civil Aviation Agency of the Republic of Azerbaijan



ICAO



Green Airports

What are “Green Airports”?



- In the 1960’s (Noise)



- In the 1970’s (Local Air Quality)



- In the 1980’s - 1990’s (Environmental management Systems)



- In 2000 (Climate change, Community engagement, Clean Energy)



- Since 2020s (Net-Zero Airports, Climate-Adaptive and Resilient Infrastructure, and Advancements in Digitalization)



How do we define “Green Airports”?



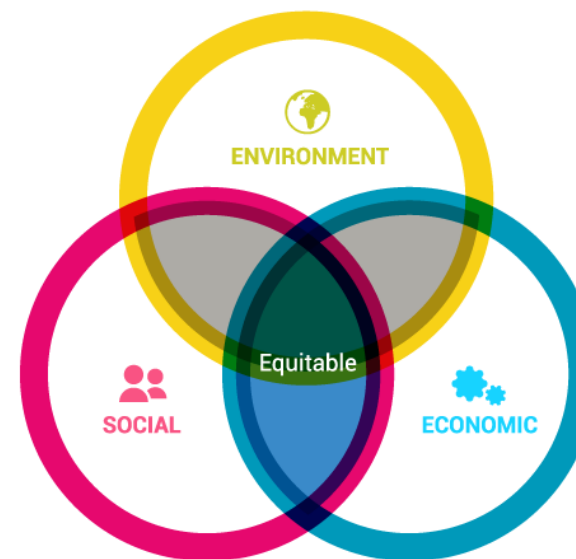
- The quietest?



- The least consumer of natural resources?



- The least energy-demanding?



There are more than 2000 international AIRPORTS and AS MANY WAYS of being GREEN!

Environmental Impacts of Airports



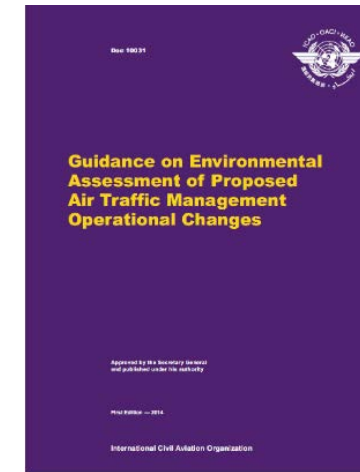
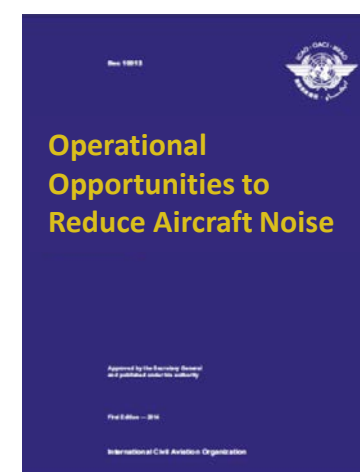
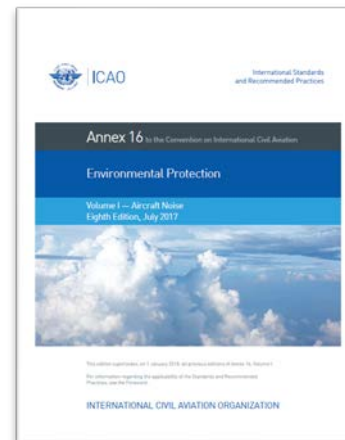
ICAO' WORK ON AIRPORTS

ICAO developed a range of guidance documents:

ICAO Standards: Annex 14 and Annex 16

guidance materials related to airports and operations (Airport Services Manual (Doc 9137); Aerodrome Design Manual (Doc 9157);

practical and ready-to-use information to support the planning and implementation of airport infrastructure projects: **Eco Airport e-collection**



Airport Planning Manual Part 2 (Doc 9184)

- **ICAO Doc 9184, Airport Planning Manual, Part 2 — Land Use and Environmental Control**

- Guidance on **minimization, control or prevention of the impact** of airports on the environment
- outlines high-level guidance material on the **infrastructure** that can be included in an airport design which can enable and facilitate environmental management by the airport operator
- Effective practices to reduce environmental effects caused by the airport and its operations
- Facilitates environmentally-friendly airport design and management.



Airport Air Quality Manual (Doc 9889)

- **Airport Air Quality Manual**
 - Practical information on **emissions from airport sources, emissions inventories and emissions allocation**
 - Best practices with respect to **airport-related air quality**
 - Free of charge on the ICAO website

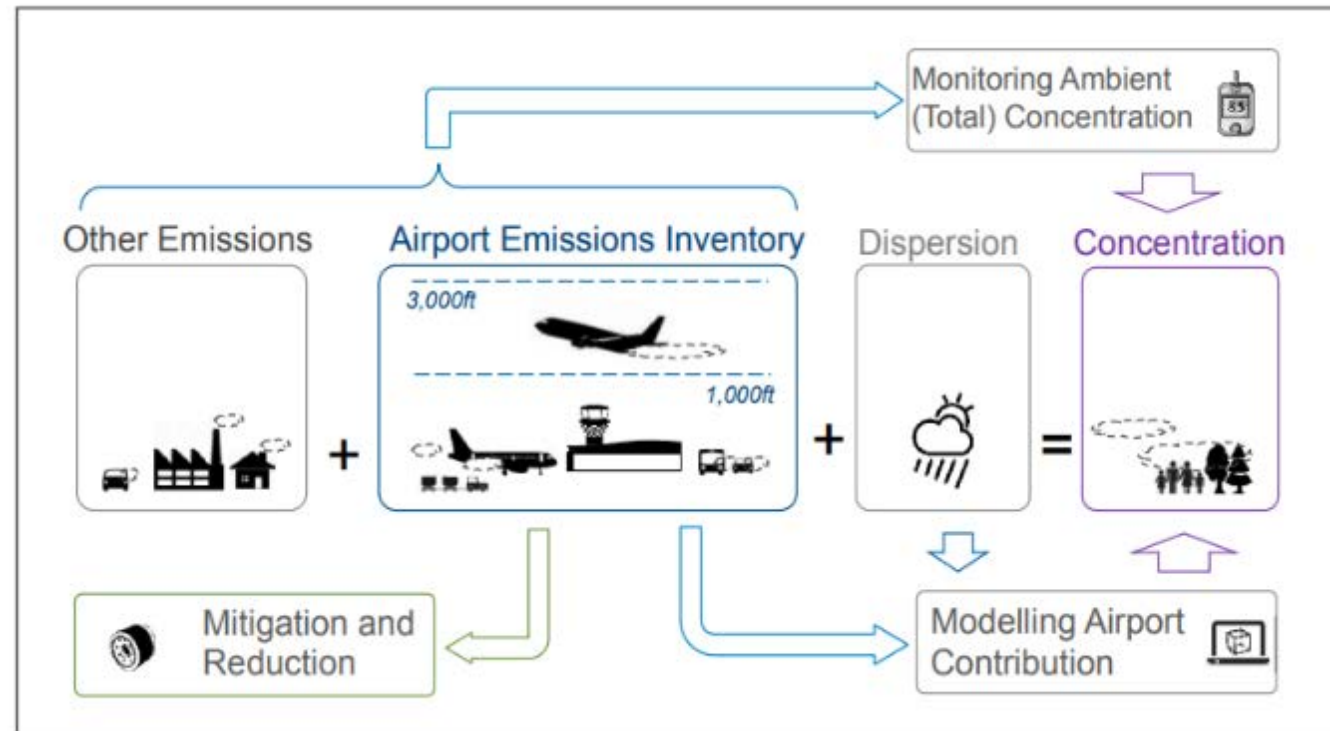


FIGURE 1: Local air quality elements and their interactions (figure courtesy of E. Fleuti, Zurich Airport)

https://www.icao.int/publications/Documents/9889_cons_en.pdf

ECO AIRPORT TOOLKIT E – COLLECTION

ICAO fosters the **exchange of information on best practices for Green Airports**, covering such subjects as smart buildings, renewable energy, green mobility, climate change resilience resource and biodiversity protection, community engagement and sustainability reporting



With the aim of sharing and harmonizing best practices amongst airports. ICAO has developed **practical and ready-to-use information to support the planning and implementation of airport infrastructure projects**

The material is provided as general information only

[Eco-Airport Toolkit e-collection \(icao.int\)](https://www.icao.int)



Eco-Airport Toolkit e-collection

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

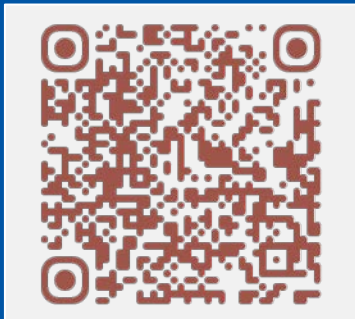


Practical and ready-to-use information

Themes selected based on immediate operational needs of States



15 e-publications available to download



Addressing Single-Use Plastics: an Overview for Aviation



Innovation and Technology in Airport Sustainability- 2023



Unmanned Aircraft Operations



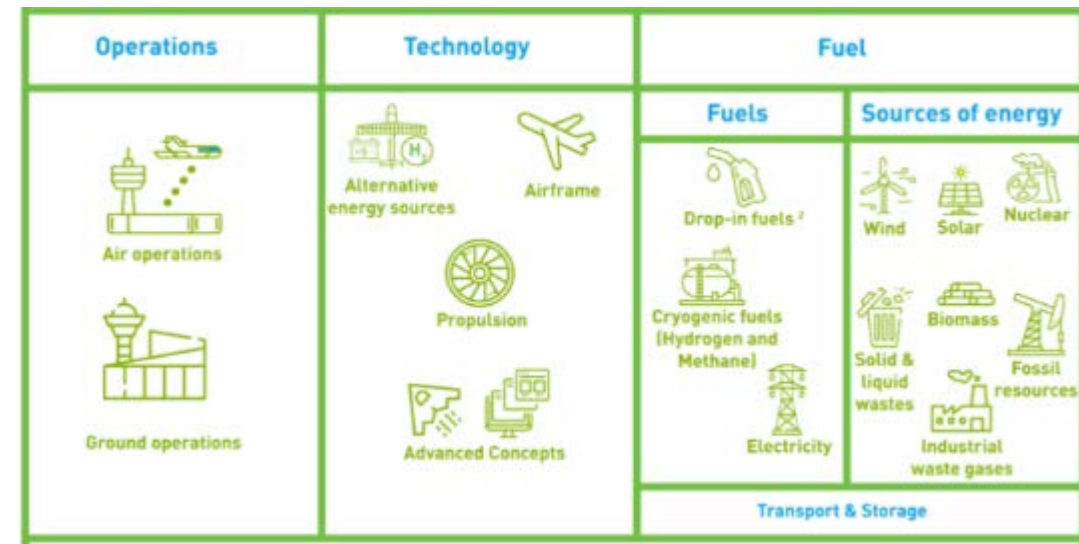
GHG Management and Mitigation at Airports

CLEAN ENERGY AT AIRPORTS



Airport Infrastructure Requirements to enable an energy transition for aviation

- **Airports to play a lead role in reducing the aviation sector's emission**
 - Smart, innovative air and ground operations
 - New breakthrough aircraft technologies
 - **Range of clean energy types of fuels**
 - Drop-in fuels (sustainable Aviation Fuels / Lower carbon Aviation Fuels)
 - Non-drop-in aviation fuels (hydrogen/electricity)



Airports will play a lead role in clean energy production, transport and storage. Airports are “future clean energy hubs”.

Sustainable Aviation Fuels at Airports

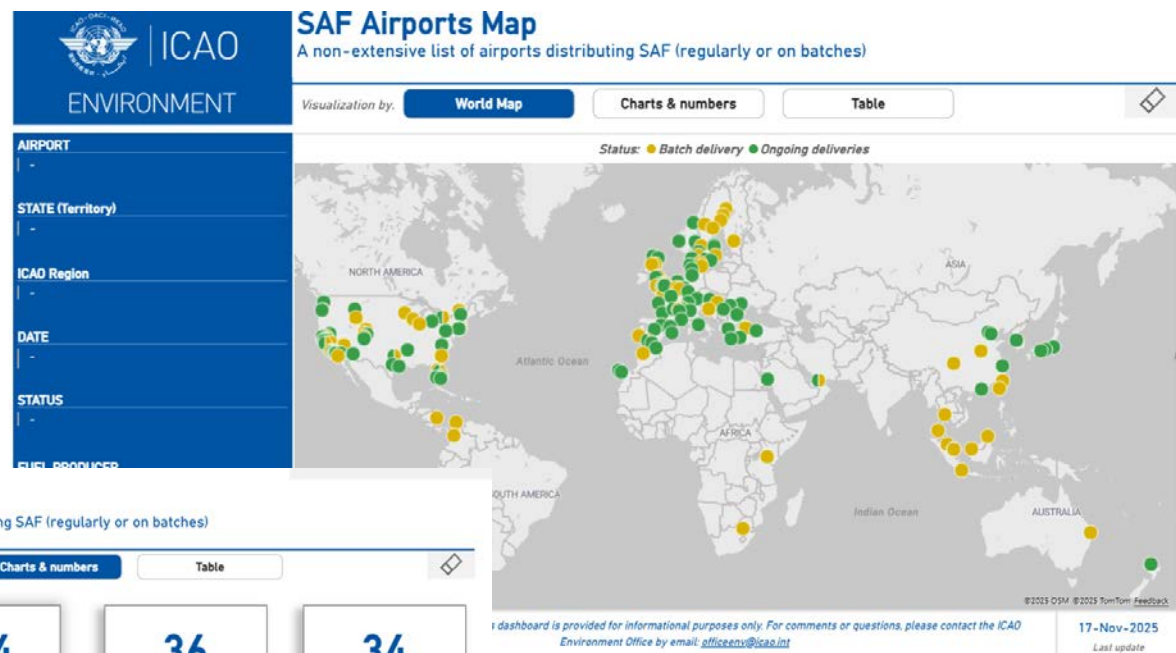
- Development of sustainable aviation fuels, including biofuels, hydrogen, and electric-powered aircraft is well underway
- Airports have an opportunity to lead the sustainability agenda
- Sustainable airport is something we can achieve right now
 - operations and infrastructure improvements
 - renewable infrastructure integration
 - possibilities to develop on-site energy generation from solar, wind, biomass and hydrogen sources



Sustainable Aviation Fuels at Airports

- ICAO is also maintaining a tracker of SAF availability at airports

Many airports are now offering Sustainable Aviation Fuels, either continuously or in batches.



Batch delivery refer to airports that received one-off deliveries of SAF, generally associated with a single flight or a series of flights.

Ongoing deliveries refer to airports that announced a continuous availability of SAF for its operations.



<http://www.icao.int/SAF/SAF-airports>

Cooperation with other organizations

- New role of airports requires coordination with more and different stakeholders



Recap. Green Airports

A “Green Airport” is an evolving concept;

- Fully powered by renewable energy
- Integrated SAF (Sustainable Aviation Fuel), LCAF (Low Carbon Aviation Fuel) production & distribution
- Climate-resilient infrastructure & operations
- Digitally optimized environmental performance
- Smart grid and micro-energy systems embedded
- Net-zero carbon emissions

Building and operating airports with renewable energy at the heart of the operations

Multi-stakeholders cooperation is a key-factor of success



Green Airports and SAP

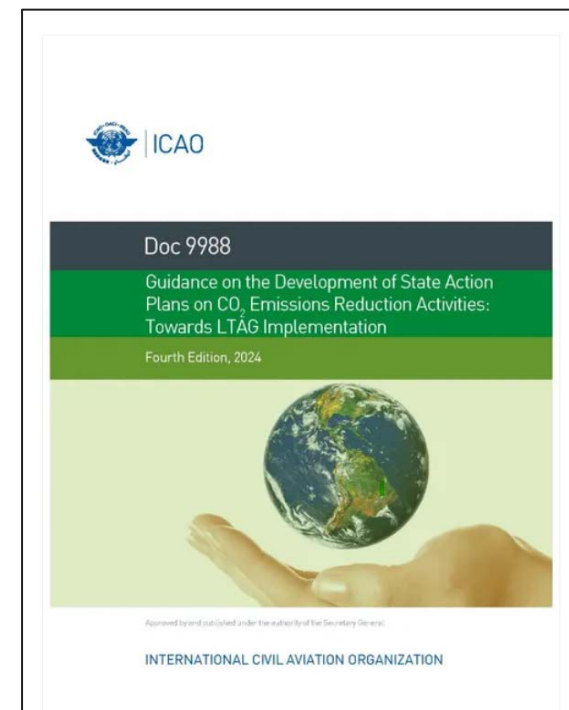
States can incorporate the utilization of renewable energy sources at airports, such as wind, solar, hydroelectric, geothermal and biomass into their action plans as long as they **play a role in reducing international aviation emissions**.

States could also include the activities taken by airports in developing and deploying SAF, LCAF and other aviation cleaner energies.

The development of State Action Plans can **generate supplemental benefits** for domestic aviation through the implementation of mitigation measures that can have **both an impact on international aviation CO2 emissions and on domestic aviation CO2 emissions**.

States are invited to use their State Action Plans to showcase these supplemental benefits for domestic sectors, their quantified impacts should not be reported within the context of the international baseline scenario or the international expected results, which are required as a part of the State Action Plan.

ICAO Member States can quantify the supplemental benefits for domestic sectors as part of their reporting obligations under the United Nations Framework Convention on Climate Change (UNFCCC).



Thank You



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