

Environmental Considerations... here to stay

- Gilles Bourgeois
 - Citizen
 - Parent
 - Public Servant
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 - Representative of Canada on the ICAO Committee on Aviation Environmental Protection



ICAO Assembly Resolution A39-1:

Consolidated statement of continuing ICAO policies and practices related to environmental protection – General provisions, noise and local air quality

Acknowledging

that substantial progress has been achieved in addressing the effects of aviation on the environment, and that aircraft produced today, are 80 per cent more fuel efficient and 75 per cent quieter than they were in the 1960s;

TRENDS IN FUEL BURN (Source ICAO CAEP/10 Report)



Figure 1. Potential Replacement of Jet Fuel with Alternative Fuels

Trends in CO2 Emissions (Source ICAO CAEP/10 Report)



Figure 2. Alternative Fuels Life Cycle CO₂ Emissions Reductions

TRENDS IN NOx THAT AFFECTS LOCAL AIR QUALITY (Source ICAO CAEP/10 Report)



Figure 4. Total International Aircraft NOx Below 3,000 Feet



TRENDS IN AIRCRAFT NOISE EXPOSURE (Source ICAO CAEP/10 Report)

Figure 3. Total Global Aircraft Noise Contour Area Above 55 dB DNL



ICAO Assembly Resolution A39-2

Consolidated statement of continuing ICAO policies and practices related to environmental protection – Climate change

Noting

that, to promote sustainable growth of international aviation and to achieve its aspirational goals, a comprehensive approach, consisting of a basket of measures including technology and standards, sustainable alternative fuels, operational improvements and market-based measures to reduce emissions is necessary;



Current Status of International Design Standards

- ICAO has aircraft engine emissions standards for: CO unburned hydrocarbons smoke (as a smoke number, SN), a NOx.
- The first three were implemented in the early 1980s and have been unchanged since that time, due to the very low levels emitted. The NOx and noise regulatory level has been reduce four times over the years.
- ICAO also has recently developed a new CO2 standard for airplanes, which will be applicable as of 2020 for new type designs, and in 2023 for airplanes that are already in production.
- ICAO is presently working on a new mass and number standard for non-volatile particulate matter (aka black carbon), expected for 2019.

ICAO Block Upgrades Concept (Source ICAO)





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SUSTAINABILITY

"Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

From Our Common Future, also known as the Brundtland Report (1987)

More specifically to Aviation

It has become clear from the study that no commonly agreed definition is currently used in the aviation sector or by the stakeholders related to the sector. Most organisations use limited definitions, which meet the organisations' political ability or the operators' commercial objectives. However, despite the fact that they all have slightly different and in some cases quite different interpretations of the priority and range of the sustainability concept, it is important to note that all efforts within this field point in the same direction whether it is a worldwide general political statement from a UN organisation or a commercial objective by an airline in a very competitive market. They all recognise the importance of economic and social growth as well as sustainable and prudent environmental behaviour.

United Nations Sustainable Development Goals (Source ICAO)





ICAO/CAEP Terms of Reference

Assessments and proposals are pursued taking into account:

- technical feasibility;
- environmental benefit;
- economic reasonableness;
- interdependencies of measures
- developments in other fields; and
- international and national programmes.





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ICAO Assembly Resolution A39-3:

Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA)

- CORSIA is the **first global MBM scheme** for any industry sector
- CORSIA is one element in the basket of measures to achieve ICAO's global aspirational goal of carbon neutral growth from 2020 (CNG 2020)
- CORSIA is a complementary measure to a broader package in the basket of measures preference is for non-MBM measures to reduce aviation emissions (i.e. through aircraft technology, operational improvements, sustainable alternative fuels)

Trends in CO2 Emissions (Source ICAO CAEP/10 Report)



Figure 2. Alternative Fuels Life Cycle CO₂ Emissions Reductions



Framework on Clean Growth and Climate Change

- Canada's ambitious national plan for reducing emissions, increasing resilience to the changing climate, and supporting the transition to a low-carbon economy.
- The framework includes directions and actions from a number of different perspectives such as mitigation, research and development and adaptation.
- The framework includes the intention to implement a national price on carbon. It also includes a commitment to develop and implement a clean fuel standard which will establish a modern, flexible, and performance-based approach that will incent the use of a broad range of low-carbon fuels and alternative technologies such as electricity, renewable natural gas, hydrogen, and biofuels. The clean fuels regulation are expected to be finalized in 2019.