

OVERVIEW

BY ICAO SECRETARIAT

ICAO first initiated the development of Standards and Recommended Practices related to aircraft noise in the 1960s with similar work on smoke emissions from aircraft engine following shortly thereafter. These efforts were aimed to limit the adverse impact of international civil aviation on the environment becoming a strategic objective of the Organization. To ensure a sound basis for policy decisions to achieve this objective, since 2010, the Assembly has agreed that the environmental trends projections prepared by the ICAO Committee on Aviation Environmental Protection (CAEP) be the basis for their decision-making on matters related to the environment. Today, ICAO has agreed a comprehensive set of environmental aircraft design Standards that cover noise, five pollutants that affect local air quality, and CO₂ emissions to protect the global climate.

ICAO's policies are established by its 191 member States, who meet normally every three years at the ICAO Assembly. Given that decisions taken by ICAO are international in nature, a solid and common basis for its consensus-based decision-making is needed, and ICAO is quite unique as it develops these trends assessments in-house.

CAEP brings together the most comprehensive set of data on aircraft performance and operations available and a cadre of experts from all regions of the world to apply a state-of-the-art modelling framework in order to prepare the trends. The scenarios presented for the consideration of the Assembly reflect the inputs of all relevant stakeholders, including aircraft and engine manufacturers, airlines, air navigation service providers and non-governmental organizations. In addition, panels of independent experts provide unbiased input related to noise, emissions, and operational changes. The involvement of this broad range of expertise allows the effects of traffic growth, fleet turnover, technology improvement, and operational enhancements to be accurately captured. The end result of these efforts is the globally recognized trends that are described in this chapter.

The trends that were presented to the ICAO Assembly in 2010 provided insights into the future contributions of aircraft technology and operational changes to aircraft noise, emissions that affect local air quality and emissions that affect the global climate. Updates were made to the trends presented to the ICAO Assembly in 2013, including updated traffic and fleet forecasts and the ability to understand the contributions that aircraft technology and operational changes can make independently. The trends presented in 2010 only showed the combined effects of technology and operational improvements.

Of course, the needs and priorities of the Organization evolve over time and while the trends cover a period of 40 years, they require regular update. One of the most rapidly evolving areas in the field of aviation environmental protection is the development of sustainable alternative fuels. As discussed in Chapter 4, Global Emissions, with five approved pathways to date for producing alternative jet fuel, their technical feasibility of proven. It is, therefore, now appropriate to begin developing

scenarios that reflect their possible contribution toward reducing lifecycle CO₂ emissions. The inclusion of these scenarios represents the most significant update to the trends, thereby supporting discussions related to not only alternative fuels, but also in the context of the basket of measures for reducing international aviation's impact on the global climate.

This chapter describes the set of trends that are presented to the Assembly for their decision-making, complete with descriptions of the scenarios in order to provide the reader with insight into the future evolution of international civil aviation noise and emissions. The effectiveness of ICAO's Standards is clear, with aircraft noise and emissions both growing at a rate slower than the increase in air traffic, including the possibility that within 15 years, under advanced technology scenarios, aircraft noise may no longer grow at all. All indications are that the future is brighter... and quieter!

Sustainable Development Goals

