



ASSEMBLY — 42ND SESSION

EXECUTIVE COMMITTEE

Agenda Item 16: Environmental Protection – International Aviation and Climate Change

COCESNA'S CONTRIBUTION TO ENVIRONMENTAL PROTECTION

(Presented by Belize on behalf of the Member States of COCESNA²)

EXECUTIVE SUMMARY

The Central American Corporation for Air Navigation Services (COCESNA) has made significant contributions to the environmental protection objective of the International Civil Aviation Organization (ICAO), through the implementation of advanced technologies and the optimization of airspace management in the Central American region. These initiatives have made it possible to reduce the environmental impact of air operations, in conformity with global sustainability commitments and international regulations.

One of the most notable actions is the implementation of ADS-B satellite technology, which has improved air traffic efficiency in oceanic airspace, enabling a reduction in fuel consumption and greenhouse gas (GHG) emissions. Furthermore, COCESNA has optimized air routes and implemented performance-based navigation (PBN) procedures, such as RNAV and RNP, which have facilitated more precise and efficient navigation.

In 2025, COCESNA will conduct a diagnosis of the Central American airspace, which will include a detailed analysis of GHG emissions and their environmental impact. This diagnosis will serve to identify opportunities for improvement and to establish recommendations for more sustainable airspace management. At the same time, COCESNA has actively collaborated with ICAO and other international organizations, such as IATA, in order to align their initiatives with global environmental protection goals, including support for CORSIA (Carbon Offsetting and Reduction Scheme for International Aviation).

In summary, COCESNA's actions have contributed to the more efficient and sustainable management of Central American airspace, reducing the environmental impact of aviation and supporting global efforts to mitigate climate change. These initiatives not only benefit the environment, but also improve operational efficiency and reduce costs for airlines, demonstrating COCESNA's commitment to sustainability and environmental protection.

Action: The Assembly is invited to:

- a) mandate ICAO to promote collaboration with ICAO and other international organizations, in order to align regional initiatives with global sustainability goals;
- b) ensure that ICAO develops guidance for the continuous monitoring of GHG emissions and their impact on the environment, with a view to identifying new opportunities for improvement; and
- c) ensure that ICAO promotes the adoption of sustainable practices among airlines and other aviation sector actors in the region.

¹ Spanish version provided by Belize.

² Belize, Costa Rica, El Salvador, Guatemala, Honduras and Nicaragua

<i>Strategic Goals:</i>	This working paper relates to the Strategic Goals – <i>Aviation is Environmentally Sustainable, Economic Development and Seamless, Accessible and Reliable Mobility.</i>
<i>References:</i>	

1. INTRODUCTION

1.1 The International Civil Aviation Organization (ICAO) has established environmental protection as one of its strategic goals, with the aim of reducing the environmental impact of international civil aviation. In this context, the Central American Corporation for Air Navigation Services (COCESNA) has played an important role in the Central American region, implementing initiatives and technologies that contribute to operational efficiency and the reduction of greenhouse gas (GHG) emissions in the airspace under its management. These actions are aligned with global sustainability commitments and international regulations established by ICAO.

2. IMPLEMENTATION OF ADVANCED SURVEILLANCE TECHNOLOGIES (SATELLITE ADS-B)

2.1 COCESNA has implemented ADS-B satellite surveillance technology in Central America's oceanic airspace, which has enabled more efficient air traffic management. This technology has contributed to reducing fuel consumption and, therefore, to lowering CO₂ emissions. By optimizing routes and allowing aircraft to reach more efficient flight levels, a more rational use of airspace has been achieved, reducing the environmental footprint of air operations.

2.2 Reduction of separation between aircraft: The implementation of satellite ADS-B has made it possible to reduce the longitudinal separation between aircraft, thereby optimizing traffic flow and reducing flight time and fuel consumption. This has been particularly significant in oceanic airspace, where less efficient control procedures were previously applied.

2.3 Optimum flight levels: By enabling aircraft to reach more efficient flight levels, fuel consumption and polluting gas emissions have been reduced. This not only benefits the environment, but also reduces operating costs for airlines.

3. CENTRAL AMERICAN AIRSPACE DIAGNOSIS

3.1 The Central American airspace diagnosis to be conducted by COCESNA in 2025 will include a detailed analysis of GHG emissions and their impact on the environment. This diagnosis will make it possible to identify opportunities for improvement in airspace management, with the aim of reducing the environmental impact of air operations in the region.

3.2 Compilation of statistical data: COCESNA will compile data on air traffic volume, fuel consumption, and GHG emissions, to allow for an exhaustive analysis of the current environmental impact. These data will be essential to identifying areas for improvement and establishing environmental performance metrics.

3.3 Recommendations for continuous improvement: The diagnosis will include specific recommendations for optimizing air routes and implementing more efficient technologies, with the aim of reducing emissions and improving the sustainability of Central American airspace. These recommendations will be based on a technical and operational analysis and will be aligned with international best practices.

4. OPTIMIZATION OF AIR ROUTES AND NAVIGATION PROCEDURES

4.1 Once the diagnosis of Central American airspace has been completed, COCESNA will work on optimizing air routes and implementing performance-based navigation (PBN) procedures, such as RNAV (Area Navigation) and RNP (Required Navigation Performance). These procedures allow for more precise and efficient navigation, which translates into reduced fuel consumption and reduced GHG emissions.

4.2 Route redesign: COCESNA will redesign air routes in the region, making it possible to shorten flight distances and reduce aircraft operation time. This is especially important in areas with high traffic density, such as air corridors connecting North America with South America.

4.3 Update of SID/STAR procedures: Updating departure procedures (SID) and arrival procedures (STAR) will contribute to greater efficiency in takeoff and landing operations, reducing fuel consumption during these critical phases of flight. These procedures will be aligned with the capabilities of modern aircraft, which can perform more precise and efficient approaches.

5. COLLABORATION WITH ICAO AND OTHER INTERNATIONAL ORGANIZATIONS

5.1 COCESNA has worked in collaboration with ICAO and other international organizations such as IATA (International Air Transport Association), to align its initiatives with global environmental protection objectives. This collaboration has allowed for the implementation of international standards in the region, contributing to greater efficiency and sustainability in aviation operations.

5.2 Compliance with international regulations: COCESNA has implemented technologies and procedures that comply with ICAO regulations, such as Annex 11 (Air Traffic Services) and Annex 19 (Air Traffic Management), thus enabling more efficient and sustainable airspace management. These regulations establish minimum standards for safety and operational efficiency, including aspects related to environmental protection.

5.3 Support for global initiatives: COCESNA has supported global initiatives such as the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA), contributing to reduction of GHG emissions in the region. This scheme aims to stabilize CO₂ emissions from international aviation through offsetting and reduction measures.

6. REGIONAL IMPACT AND ENVIRONMENTAL BENEFITS

6.1 The initiatives implemented by COCESNA have had a positive impact on the region, not only in terms of operational efficiency, but also in reducing the environmental impact of aviation. By optimizing the use of airspace and reducing fuel consumption, a decrease in CO₂ emissions and other polluting gases has been achieved. This contributes to global efforts to mitigate climate change and protect the environment in Central America.

6.2 Emissions reduction: The implementation of technologies such as satellite ADS-B and route optimization has led to a significant reduction in GHG emissions. This is particularly important in a region that relies heavily on tourism and air transport.

6.3 Improved operational efficiency: By reducing flight times and fuel consumption, airlines operate more efficiently, which is reflected in lower operating costs and lower environmental impact.

6.4 It is important to mention that the air traffic service in the upper airspace of Central America, especially in the MHCC FIR (Flight Information Region), is provided under the seamless sky model, as delegated to the Central American Corporation for Air Navigation Services (COCESNA). This model allows for efficient coordination and integrated regional airspace management.

7. **CONCLUSION**

7.1 COCESNA has made a significant contribution to ICAO's environmental protection objective, through the implementation of advanced technologies, the optimization of routes and procedures, and collaboration with international organizations. These initiatives have conducted to more efficient and sustainable management of Central American airspace, reducing the environmental impact of air operations and contributing to global efforts to mitigate climate change.

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