



Agenda

Item 3: Report of working groups activities and deliverables of the GT-Interop and Subgroups

b) CNS Implementation. Progress of the Subgroups.

CNS Implementation in Guyana

(Prepared by Guyana)

SUMMARY

This information paper presents the improvements of the CNS/ATM systems. The upgrade have brought significant advancement compared to the old system. The ATM improvements boast state-of-the-art technology, improved user faces and faster data processing.

References:

- ICAO Annex 10 - Aeronautical Telecommunications
- ICAO Doc. 9750 - Global Air Navigation Plan
- ICAO Doc. 9854 - Manual on Global Performance of the Air Navigation System

1. Background

1.1 Guyana's aviation sector has experienced significant growth in recent years, driven by a rebound in air travel following the pandemic and the commencement of offshore oil and gas operations. This growth has necessitated the expansion of air traffic monitoring capabilities to ensure sustainable growth, optimize traffic flow, minimize delays, and guarantee operational safety.

1.2 The two main airports, Cheddi Jagan International Airport (**CJIA**) and Eugene F. Correia International Airport (**EFCIA**), present a complex traffic situation due to their proximity and the congestion at EFCIA, which handles 95% of domestic air traffic, helicopter operations to offshore platforms, and international operations. These upgrades will significantly benefit the entire flight information region (SYGC) with improved Communication and Surveillance Coverages.

2. Analysis

2.1 Air traffic in the Georgetown Flight Information Region (FIR) is slowly reaching post-pandemic, 2019 levels. See attachment A (SYGC Aircraft movements)

2.2 Offshore oil and gas operations have further increased air traffic demand, particularly helicopter operations.

2.2.1 Helicopter operations to offshore platforms have considerably increased traffic complexity, constituting 15% of daily operations. This is expected to increase significantly. Dedicated arrival and departure routes have been established, incorporating wake turbulence separation requirements due to the presence of fixed-wing operations.

2.3 EFCIA's congestion poses challenges for efficient air traffic management.

2.3.1 Overview of Eugene F. Correia International Airport (**EFCIA**) Traffic Capacity.

2.3.1.1 EFCIA's traffic capacity is influenced by its infrastructure, airspace configuration, and aircraft mix. Effective optimization strategies and potential infrastructure upgrades can enhance traffic flow management, ensuring safe and timely operations. EFCIA is a vital domestic and regional air travel hub, handling various scheduled passenger flights, general aviation operations, and helicopter flights to offshore oil and gas platforms.

- a) EFCIA's single runway (07/25) restricts larger aircraft types due to its 4,200 feet length.
- b) The limited apron and terminal building size further constrain capacity.
- c) EFCIA's proximity to Cheddi Jagan International Airport (CJIA) necessitates careful air traffic control coordination for effective traffic flow management.
- d) EFCIA accommodates smaller regional airliners, general aviation aircraft, and helicopters. This mix of smaller, faster-moving aircraft enables higher throughput compared to larger, slower-moving aircraft.
- e) Daily average movements 140 aircraft, with 70% occurring between sunrise and sunset.

2.3.1.2 Overview Cheddi Jagan International Airport:

Key changes to Cheddi Jagan International Airport (**CJIA**):

a) Runway Extension

The runway was extended from 7,500 feet (2,286 meters) to **11,025 feet (3,360 meters)**, enabling the airport to accommodate larger aircraft operations and facilitate long-haul flights.

b) Terminal Expansion and Modernization

The terminal building underwent a comprehensive expansion and modernization, increasing passenger capacity. The modernized terminal features a larger check-in area, additional security checkpoints, and an expanded selection of shops and restaurants. Moreover, the **addition of six passenger boarding bridges** streamlines boarding and disembarkation processes.

c) Infrastructure Enhancements

The CJIA expansion project encompassed the construction of a new taxiway and apron, further augmenting the airport's operational capabilities and enabling efficient aircraft movement.

2.3.1.3 Overall Impact

The aforementioned improvements have transformed CJIA into a modern and efficient aviation hub,

capable of handling increased passenger and cargo traffic. The expansion project has significantly bolstered Guyana's economy and strengthened its global connectivity.

2.3.1.4 In 2017 an analysis using the DORATASK model determined a theoretical runway capacity of nineteen (19) movements per hour.

2.4 Upgraded CNS/ATM systems.

2.4.1 Overview of the previous CNS system

The existing remote site locations provided uninterrupted ADS-B surveillance coverage for a range of 100 nautical miles (NM) at flight level (FL) 80 and higher. VHF communication coverage varies also between 100 nautical miles (NM) at Flight Level (FL) 80 and higher and extends to a maximum range of 230 NM at FL 300 and above.

2.4.2 Guyana has six ADS-B/VHF sites in operation at the following locations. Each site is equipped with VHF-AM radios and ADS-B ground station and connected to the central site at Timehri Control Tower. See Attachment B (Site locations)

- a) Timehri airport- 06° 30' 03.85" N and 058° 15' 18.72" W; (Central location)
- b) Kaiteur site, 05° 10' 17.59" N and 059° 29' 34.32" W;
- c) Annai site, 03° 58' 29.50" N and 059° 06' 10.36" W;
- d) Kamarang site, 05° 51' 48.69" N and 060° 36' 49.55" W;
- e) Port Kaituma site. 07° 43' 30.13" N and 059° 52' 31.56" W;
- f) FPSO (offshore platform}. 08° 0' 35.86" N and 056° 54' 47.39" W

2.5 Upgraded CNS System.

2.5.1 Guyana's upgraded CNS infrastructure has significantly enhanced safety, efficiency, and airspace utilization. The strategic implementation of ADS-B surveillance and robust VHF communication systems has expanded coverage and improved communication reliability. These advancements have resulted in several benefits for aircraft operators, including increased operational efficiency, enhanced situational awareness, and improved safety.

2.5.2 Key Points:

- a) Upgraded CNS infrastructure provides uninterrupted ADS-B surveillance coverage for the entire Georgetown Flight Information Region (FIR) **from Flight Level (FL) 030 upwards.**
- b) ADS-B surveillance coverage extends to a minimum of 340 nautical miles from TIM above FL 300.
- c) VHF communication coverage varies between 150 nautical miles (NM) at FL 30 upwards and extends to a maximum range of 320 NM at FL 300 and above.

2.5.3 In line with ICAO's commitment to promoting global aviation safety and efficiency, Guyana has undertaken a comprehensive upgrade of its Communication and Surveillance (CNS) infrastructure. This initiative aligns with ICAO's Aviation System Block Upgrades (ASBUs) framework, which emphasizes the implementation of advanced technologies to enhance airspace management and air navigation services.

The upgraded CNS services in Guyana will yield significant benefits, aligning with ICAO's objectives of ensuring safe, efficient, and sustainable air transport operations. These benefits include:

- a) **Enhanced Safety:** With accurate and real-time data on aircraft positions and movements, enabling air traffic controllers to effectively identify and mitigate potential conflicts, reducing the risk of incidents, and enhancing overall airspace safety.
- b) **Improved Efficiency:** Aircraft operators benefit from improved communication and surveillance capabilities, leading to reduced delays, more precise routing, and optimized flight planning. This, in turn, improves operational efficiency, fuel savings, and reduces costs for both airlines and passengers.
- c) **Enhanced Airspace Utilization:** Air traffic controllers can effectively monitor and manage aircraft movements. Which allows for increased capacity and more flexible routing options, contributing to a greater number of flights and improved connectivity.

3. Planned action

3.1 To ensure seamless operations and raise awareness among airline operators about the upgraded CNS services in Guyana, the state plans to implement the following actions:

- a) Engage with airline operators, industry associations, and aviation stakeholders to provide detailed information about its CNS services.
- b) Organize workshops, seminars, and training sessions to familiarize airline operators with the new systems and procedures.
- c) Update communication channel for airlines to address queries and provide ongoing support.
- d) Gather feedback from airline operators to identify and address any operational challenges or concerns.
- e) Implement regular updates and enhancements to the CNS systems based on user feedback and operational needs.

4. Conclusion

In conclusion, Guyana's investment in CNS modernization is a positive step that will benefit the country's aviation sector and the SAM Region. Upgraded CNS/ATM services in Guyana can foster growth and development, benefiting both the country and airlines, enhancing traffic capacity, reducing delays, improving safety, and contributing to environmental sustainability with economic growth.

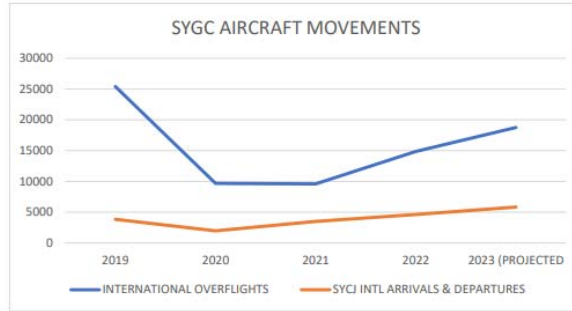
5. Suggested Actions

5.1 The Meeting is invited to take note of the presented information.

Attachment A. (SYGC AIRCRAFT MOVEMENTS)

SYGC AIRCRAFT MOVEMENTS

	2019	2020	2021	2022	2023 (PROJECTED)	2023 (1ST JAN - 16TH OCT)
INTERNATIONAL OVERFLIGHTS	25411	9655	9587	14859	18769	13067
SYCJ INTL ARRIVALS & DEPARTURES	3843	1966	3484	4612	5826	3774



SYEC ARRIVALS & DEPARTURES

SYEC ARRIVALS & DEPARTURES	2019	2020	2021	2022	2023 (PROJECTED)	2023 (1ST JAN - 16TH OCT)
DOMESTIC	32766	28240	30185	28468	23205	23205
OFFSHORE	3770	2536	3641	4411	3725	3725



Attachment B

