



INTERNATIONAL CIVIL AVIATION ORGANIZATION

Ninth Meeting of the AASPG Airspace and Aerodrome Operations Sub-Group (AAO/SG9)

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Agenda Item 3: Achievements in Airspace and Aerodromes Operations

ACCELERATING THE IMPLEMENTATION OF AIR TRAFFIC FLOW MANAGEMENT (ATFM) SERVICE IN AFRICA

(Presented by CANSO)

SUMMARY
Air traffic demand across the AFI region continues to grow, placing increasing pressure on airport and airspace capacity. Although many States are investing in infrastructure modernization, the implementation of Air Traffic Flow Management (ATFM) remains uneven, with traffic demand often managed through tactical air traffic control measures rather than proactive ATFM measures. This paper highlights the importance of implementing ATFM before traffic congestion becomes systemic emphasizing that early implementation enables States to optimize existing capacity, improve operational predictability, strengthen safety, and enhance collaboration among aviation stakeholders. Action by the meeting is in Item 3
REFERENCE(S): • ICAO Doc. 9971 <i>Manual on Collaborative Air Traffic Flow Management</i>. • ICAO Doc. 9750 <i>Global Air Navigation Plan</i>, • CANSO Mombasa ATFM Roadmap
Related ICAO Strategic Goal(s): <i>(a)- Every Flight is Safe and Secure</i> <i>(b)- Aviation Delivers Seamless, Accessible, and Reliable Mobility for All</i>

1. INTRODUCTION

1.1 Air traffic demand in the AFI region is projected to grow significantly over the coming decades, increasing pressure on airports, airspace, and air traffic services. To accommodate this growth safely and efficiently, States should establish Air Traffic Flow Management (ATFM) services to balance traffic demand with available airport and airspace capacity in accordance with ICAO provisions.

1.2 Despite ongoing investments in CNS/ATM infrastructure, many States of the AFI

region continue to face challenges associated with limited airport and airspace capacity, fragmented operational coordination, and the absence of harmonized ATFM implementation. Consequently, traffic demand is frequently managed through tactical air traffic control measures rather than proactive demand-capacity balancing.

1.3 ICAO provisions require States to implement ATFM whenever traffic demand is expected to exceed or exceeds the declared capacity of the air traffic services system. Early implementation enables States to optimize the use of existing infrastructure, improve operational predictability, enhance safety, and strengthen collaboration among airspace users, airports, air navigation service providers (ANSPs), military authorities, and regulators.

1.4 Recognizing the importance of ATFM, CANSO Africa developed the Mombasa ATFM Roadmap in 2018 to provide a phased implementation strategy for the AFI Region. The roadmap was subsequently adopted by APIRG through Conclusion 24/43, providing a regional framework for advancing ATFM implementation.

1.5 Building on this foundation, ICAO and CANSO jointly conducted airport and ATC sector capacity assessment workshops in Abuja and Entebbe in 2024. The workshops reinforced a fundamental principle of ATFM: effective demand-capacity balancing depends on States establishing and declaring the operational capacity of their airports and airspace sectors before ATFM can be successfully implemented.

1.6 ICAO has coordinated the formation of the ATFM Project Management Team to facilitate and drive implementation in the AFI region.

1.7 This paper proposes practical measures to accelerate ATFM implementation across the AFI Region through strengthened collaboration, capacity development, harmonized implementation, and regional operational information sharing.

2. DISCUSSION

2.1 The Need for Collaborative Decision Making (CDM)

2.1.1 ATFM is fundamentally dependent on CDM. Effective demand-capacity balancing can only be achieved when all operational stakeholders share timely, accurate, and consistent information to support coordinated decision-making during operations.

2.1.2 In many States of the AFI region, operational decisions continue to be made independently by individual organizations, resulting in fragmented information sharing, inconsistent situational awareness, and limited coordination among ANSPs, airports, aircraft operators, military authorities, ground handlers, and meteorological services. This fragmented approach reduces the effectiveness of traffic flow management and limits the optimal use of available airport and airspace capacity.

2.1.3 The dynamic nature of aviation operations such as fluctuating traffic demand, adverse weather, infrastructure constraints, special use airspace, and unforeseen operational disruptions, requires CDM to support timely and coordinated operational decisions.

2.1.4 The implementation of CDM enables stakeholders to develop a common operational picture through the timely exchange of operational information. Improved situational awareness supports proactive demand-capacity balancing, facilitates the early identification of potential constraints, and enables coordinated mitigation measures before congestion develops.

2.1.5 The successful implementation of ATFM therefore requires the establishment of

a mature CDM environment founded on transparent information sharing, clearly defined stakeholder responsibilities, and coordinated decision-making processes at local, national, and regional levels.

2.2 **Current Landscape, Challenges and Opportunities**

2.2.1 **Current Landscape**

The AFI region comprises States with varying levels of ATM maturity, infrastructure, and technical capability. While significant investments have been made in CNS/ATM modernization, the implementation of ATFM remains uneven, with some States yet to establish the institutional, procedural, and technical foundations necessary to support ATFM.

2.2.2 **Implementation Challenges**

The principal challenges affecting ATFM implementation include:

- a) varying levels of airport and airspace infrastructure across the region;
- b) limited harmonization of ATFM procedures.
- c) insufficient operational data sharing and collaborative decision-making among aviation stakeholders.
- d) limited technical expertise and the need for sustained capacity building; and
- e) the absence of formally declared airport and ATC sector capacities in some States.

2.2.3 **Opportunities for the AFI region**

Despite these challenges, the AFI region is well positioned to accelerate ATFM implementation through:

- a) strengthened regional cooperation and knowledge sharing;
- b) continued implementation of the Mombasa ATFM Roadmap;
- c) coordinated capacity-building program led by ICAO, CANSO and regional partners;
- d) increased adoption of digital technologies, operational data sharing, and automation; and
- e) progressive implementation of regional ATFM capabilities through common operational tools and harmonized information sharing.

2.2.4 **Airport Collaborative Decision-Making (A-CDM)**

Airport Collaborative Decision-Making (A-CDM) is a critical enabler of ATFM. Since every flight originates and terminates at an airport, effective demand-capacity balancing depends upon timely and accurate operational information from airport stakeholders.

A-CDM establishes a common operational picture by enabling airports, ANSPs, airlines, ground handlers, and other stakeholders to share operational information in real time. This improves turnaround predictability, departure sequencing, stand management, runway utilization, taxi operations, and disruption management, thereby significantly improving the effectiveness of ATFM.

2.2.5 **ATFM and Contingency Management**

ATFM should form an integral part of ATM contingency planning. During disruptions such as adverse weather, equipment failures, staffing shortages, or reduced airport capacity, ATFM provides structured measures to safely balance demand with the reduced operational capacity. Similarly, contingency procedures should be established to ensure continuity of ATFM operations in the event of degradation or failure of the ATFM system itself.

Collectively, these measures strengthen the resilience of the ATM system and improve its ability to respond safely and efficiently to both planned and unforeseen operational events.

2.3. Addressing the Regional Coordination Challenge

2.3.1 Effective ATFM depends on timely information sharing and coordinated decision-making across airports, air navigation service providers (ANSPs), neighboring flight information regions (FIRs), and other aviation stakeholders. In many parts of the AFI Region, operational coordination continues to rely on telephone calls, emails, and isolated messaging platforms, providing limited cross-border visibility and reducing the effectiveness of the provision of air traffic services.

2.3.2 As traffic demand continues to increase, these traditional coordination methods become increasingly difficult to sustain and will negatively affect the implementation of ATFM. Delayed information exchange often results in reactive traffic management measures, reducing operational predictability and limiting opportunities to proactively balance traffic demand with available capacity.

2.3.3 To address these challenges and support regional implementation, CANSO has developed the CANSO Operational Messaging Platform for Air Traffic Flow Management Sharing and Synchronization (COMPASS). COMPASS is a collaborative operational information exchange platform designed to support ATFM by providing participating States and ANSPs with a common operational picture and a structured mechanism for exchanging ATFM information. The details and merits of the COMPASS platform are discussed in the relevant Information Paper.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) Note the information presented in this working paper.
- b) Note the historical initiatives available to support and build forward the development of ATFM in the AFI region.
- c) Encourage States to establish ATFM in accordance with ICAO provisions.
- d) Promote the implementation of A-CDM as a key enabler of effective ATFM.
- e) Encourage States to establish and regularly review declared airport and ATC sector capacities as the foundation for demand and capacity balancing.
- f) Encourage the review existing regulations to remove barriers to data sharing and multi-stakeholder collaboration.
- g) Promote the harmonization of ATFM regulations, operational procedures, and cross-border coordination arrangements to facilitate regional ATFM interoperability.