



International Civil Aviation Organization
ICAO **Seventh Meeting of the Bay of Bengal Traffic Flow Review Group (BOBTFRG/7)**

Virtual Meeting, 09 – 11 December 2025

Agenda Item 7: Any Other Business

UPGRADING AIR NAVIGATION SYSTEMS TO SUPPORT FUTURE ATM OPERATIONS

(Presented by Indonesia)

SUMMARY

This paper presents the comprehensive modernization initiatives currently undertaken by Indonesia regarding its air navigation infrastructure. The update covers the installation of the new ATM Automation System (ATMAS) at the Jakarta Air Traffic Service Center (JATSC), the implementation of a national Air Traffic Flow Management (ATFM) system, the enhancement of Aeronautical Message Handling Systems (AMHS) and Aeronautical Information Management (AIM) systems. These initiatives aim to improve operational efficiency, connectivity, and data exchange capabilities within the Jakarta and Ujung Pandang FIRs.

Strategic Objectives:

- A: **Safety** — Enhance global civil aviation safety
- B: **Air Navigation Capacity and Efficiency** — Increase the capacity and improve the efficiency of the global aviation system
- C: **Environmental Protection** — Minimize the adverse environment effects of civil aviation activities.

1. INTRODUCTION

1.1 Indonesia is currently undertaking significant upgrades to its air navigation infrastructure to meet the growing demand for air travel and to align with the technological blocks of the ICAO Global Air Navigation Plan (GANP).

1.2 This paper provides a progress update on four critical system implementations: the new ATM Automation System (ATMAS) at the Jakarta Air Traffic Service Center (JATSC), the deployment of a centralized Air Traffic Flow Management (ATFM) System, and the upgrading of the Aeronautical Message Handling System (AMHS) and AIM System.

2. DISCUSSION

New ATM Automation System (ATMAS) at JATSC

2.1 Indonesia is currently in the process of installing a new ATM Automation System (ATMAS) at the Jakarta Air Traffic Service Center (JATSC). This state-of-the-art system is designed to enhance surveillance and communication capabilities significantly.

2.2 A key feature of the new ATMAS is its capability to support Automatic Dependent Surveillance-Contract (ADS-C) and Controller-Pilot Data Link Communication (CPDLC), ensuring robust coverage and communication over oceanic and remote areas. Furthermore, to streamline coordination between air traffic service units, the system incorporates ATS Interfacility Data Communication (AIDC) based on the latest Interface Control Document (ICD).

2.3 The system supports a comprehensive suite of AIDC messages to automate the coordination process, including but not limited to: ABI, EST, ACP, TOC, AOC, PAC, LAM, LRM, CDN, REJ, and MAC.

2.4 To manage traffic flow in tactical situations effectively, the ATMAS features an integrated Arrival Management (AMAN) and Departure Management (DMAN) capability. Additionally, the system is future-proofed with the ability to process current ATS messages via AMHS and is prepared for the future Flight Information Exchange Model (FIXM).

Air Traffic Flow Management (ATFM) System

2.5 Parallel to the ATMAS upgrade, Indonesia is installing a dedicated Air Traffic Flow Management (ATFM) System. This system is designed to manage traffic demand and capacity during the strategic and pre-tactical phases, with a specific focus on Indonesia's major airports: Soekarno-Hatta (Jakarta), Ngurah Rai (Denpasar), Juanda (Surabaya) and Sultan Hasanuddin (Makassar).

2.6 The ATFM system will serve as a core component of the Indonesia Network Management Center (INMC), supporting Flow Management Positions for both the Jakarta and Ujung Pandang FIRs. It is capable of producing the ATFM Daily Plan and implementing ATFM Measures, covering Ground Delay Programs (GDP) through the publication of Calculated Take Off Time (CTOT), Miles In Trail (MIT), Minutes In Trail (MINIT), Re-routing, and Ground Stops.

2.7 Integration is a priority for this project; the ATFM system will be integrated with the new ATMAS at JATSC and the existing ATMAS at the Makassar Air Traffic Service Center (MATSC). It ensures the distribution of ATFM information to stakeholders via website, email, and AMHS. Looking ahead, the system is designed to integrate with Flight and Flow Information for a Collaborative Environment (FF-ICE) services.

Robust Aeronautical Message Handling System (AMHS)

2.8 To ensure seamless data exchange, a more robust and reliable AMHS is being implemented to cover both the Jakarta and Ujung Pandang FIRs. The primary purpose is to facilitate the exchange of aeronautical messages, including standard ATS messages, AIDC messages and other messages.

2.9 Furthermore, this system supports the exchange of the ICAO Weather Information Exchange Model (IWXXM), marking a significant step in Indonesia's preparation for the transition to System Wide Information Management (SWIM).

Transition to Aeronautical Information Management (AIM)

2.10 Finally, Indonesia is advancing the transition from Aeronautical Information Service (AIS) to Aeronautical Information Management (AIM). The new AIM system focuses on the

provision of quality-assured aeronautical data and information. The system facilitates the management and distribution of digital datasets, including digital AIP, terrain data, aerodrome mapping data, and digital instrument flight procedure datasets.

2.11 The system supports current operational requirements by distributing data through AMHS and is ready for the future exchange of data using the Aeronautical Information Exchange Model (AIXM).

Conclusion

2.12 Through the implementation of these systems, Indonesia affirms its commitment to supporting the ICAO Global Air Navigation Plan (GANP). These modernization efforts are not only aimed at increasing capacity and safety but also at fostering a more sustainable aviation operation by reducing delays and optimizing flight trajectories.

2.13 The modernization programmes are currently in the installation phase. System implementation is planned to begin in the second quarter of 2026. A phased transition will be carried out to ensure operational readiness and minimal disruption, with full local transition targeted for completion by the end of the fourth quarter of 2026. AIDC implementation with other state is planned for 2027

3. ACTION BY THE MEETING

3.1 The Meeting is invited to:

- a) note the information contained in this paper regarding the modernization of air navigation systems in Indonesia; and
- b) encourage States to collaborate on the harmonization of AIDC and ATFM procedures to maximize the benefits of these technological upgrades.

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