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Agenda Item 5: ATM and CNS Systems Modernization

MODERNIZATION OF INDONESIA'S AIR TRAFFIC MANAGEMENT AUTOMATION SYSTEM

(Presented by Indonesia)

SUMMARY

Indonesia is undertaking comprehensive modernization initiatives to enhance its air navigation infrastructure. This paper provides an update on the implementation of modernization programmes at the Jakarta Air Traffic Service Center (JATSC), including the installation of a new ATM Automation System (ATMAS), Air Traffic Flow Management (ATFM) system, Aeronautical Message Handling System (AMHS), and Aeronautical Information Management (AIM) systems.

Indonesia is also undertaking the modernization of the ATMAS at selected Approach Control units, including Medan, Pontianak, and Balikpapan. These initiatives aim to improve operational efficiency, connectivity, and data exchange capabilities within the Jakarta and Ujung Pandang FIRs.

1. INTRODUCTION

1.1 Indonesia is currently undertaking significant enhancements to its air navigation infrastructure to accommodate the increasing demand for air traffic services and to support alignment with the technological framework of the ICAO Global Air Navigation Plan (GANP) and relevant ASBU elements.

1.2 This paper provides an update on implementation of ATMAS at JATSC, modernization of ATMAS at Medan, Pontianak and Balikpapan, deployment of a centralized ATFM system, enhancement of AMHS and transition from AIS to AIM.

1.3 These initiatives are intended to improve operational efficiency, safety, data exchange, regional interoperability and seamless cross-border ATS coordination within the Asia/Pacific region.

2. DISCUSSION

New ATM Automation System (ATMAS) at JATSC

2.1 Indonesia is implementing a new ATMAS at JATSC to enhance surveillance, communications and automation capabilities.

2.2 The new ATMAS supports CPDLC, ADS-C and standardized ATS Interfacility Data Communication (AIDC), improving controller coordination, reducing workload and strengthening interoperability with neighbouring ATS units.

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 In parallel with the ATMAS implementation, Indonesia is implementing a dedicated ATFM system to support demand and capacity balancing at the strategic, pre-tactical, and tactical levels. The system is intended to provide nationwide coverage across controlled airspace within the Jakarta and Ujung Pandang FIRs, with an initial focus on major aerodromes including Soekarno-Hatta, Ngurah Rai, Juanda, and Sultan Hasanuddin. The ATFM system is expected to enhance traffic predictability, optimize airspace and airport capacity, and facilitate collaborative decision-making among air navigation service providers, airports, and airspace users.

Aeronautical Message Handling System (AMHS)

2.6 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. 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).

Aeronautical Information Management (AIM)

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

2.8 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

2.9 Through the successful implementation of these modernization initiatives, Indonesia reaffirms its commitment to the ICAO GANP and the APAC Seamless ANS Plan. The modernization programme has enhanced operational efficiency, strengthened regional interoperability, improved cross-border ATS coordination, and established a solid foundation for future implementation of advanced ATM capabilities, including AIDC, SWIM, and trajectory-based operations.

2.10 The new ATMAS at the JATSC successfully entered full operational service in June 2026. A post-implementation evaluation, conducted 30 days after full operational service, confirmed that the system has been operating safely and reliably in accordance with operational and technical requirements. Building upon this successful implementation, Indonesia plans to progressively implement AIDC with adjacent FIRs beginning in 2027 to further enhance cross-border coordination, interoperability, and seamless air traffic management within the Asia/Pacific region.

3. ACTION BY THE MEETING

3.1 The meeting is invited to note the information contained in this paper.

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