



*International Civil Aviation Organization*

**ICAO**

**Fourteenth Meeting of the Air Traffic Management Sub-Group (ATM/SG/14) of APANPIRG**

Bangkok, Thailand, 3 – 7 August 2026

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**Agenda Item 5: ATM and CNS Systems Modernization**

**PROGRESS ON THE ENHANCEMENT OF AIR TRAFFIC SERVICES FROM  
PROCEDURAL TO SURVEILLANCE-BASED SERVICE AT BALIKPAPAN APP AND  
MEDAN APP**

(Presented by Indonesia)

**SUMMARY**

This paper presents an update on Indonesia's ongoing programme to enhance air traffic services from procedural to surveillance-based service at Balikpapan APP and Medan APP, aimed at improving operational safety and airspace capacity. The programme consolidates procedural ATS currently provided at Banjarmasin APP and Tarakan APP into surveillance-based service at Balikpapan APP, and upgrades the procedural service within Banda Aceh CTR into surveillance-based service at Medan APP. Full operational implementation at both locations is targeted in January 2027. This paper outlines the operational concept, traffic and capacity considerations, supporting infrastructure, and implementation status of the programme.

**1. INTRODUCTION**

1.1 Indonesia, through AirNav Indonesia as the designated Air Navigation Service Provider (ANSP), continues to implement its national air navigation modernization programme through the progressive enhancement of air traffic services across its area of responsibility. This programme is undertaken in accordance with the Long-Term Corporate Plan 2025–2029 and the Annual Corporate Work Plan year 2026 of AirNav Indonesia.

1.2 Following the successful implementation of the new ATM Automation System (ATMAS) at four locations, including in Medan and Balikpapan branch office, AirNav Indonesia is proceeding with a subsequent phase of the modernization programme, namely the enhancement of air traffic services from procedural (Category R) into surveillance-based (Category S) service at these two branch offices.

1.3 The primary objectives of this enhancement are to improve operational safety through the provision of surveillance-based separation and monitoring capability, and to increase airspace capacity in anticipation of continued traffic growth within these areas concerned. This paper presents the operational concept, current implementation status, and supporting readiness activities associated with this programme, in respect of Balikpapan APP and Medan APP.

## **2. DISCUSSION**

### Balikpapan APP

2.1 Air traffic services within Banjarmasin CTR-TMA and Tarakan CTR-TMA are currently provided as procedural service by Banjarmasin APP and Tarakan APP respectively. Under this programme, such services will be consolidated and upgraded to surveillance-based service, to be provided by Balikpapan APP, together with airspace served by Palangkaraya TWR and Pangkalan Bun TWR under combined APP-TWR arrangements.

2.2 Assessment of traffic movement data across Banjarmasin, Tarakan, Palangkaraya, and Pangkalan Bun indicates a traffic profile predominantly composed of IFR operations, with Tarakan showing a comparatively higher proportion of VFR traffic. This traffic assessment informed the evaluation to consolidate air traffic services for the four locations into a single surveillance-based service at Balikpapan APP.

2.3 The enhancement is enabled by the operational readiness of the new ATMAS at the Balikpapan branch, supported by integrated surveillance coverage derived from a combination of MSSR and ADS-B facilities available at Balikpapan, Tarakan, and Banjarmasin, together with ADS-B coverage at Pangkalan Bun, which collectively extend surveillance coverage to support the consolidated area of jurisdiction, along with adequate VHF communication coverage across the area concerned.

2.4 ATC personnel requirements have been assessed in accordance with the Fatigue Risk Management System (FRMS) methodology. The overall optimal/minimum staffing requirement for the consolidated Balikpapan APP operation, covering Balikpapan CTR, Balikpapan TMA, Banjarmasin CTR-TMA, and Tarakan CTR-TMA sectors, is assessed at 54/40 controllers, in addition to existing requirements at Banjarmasin TWR, Tarakan TWR, Palangkaraya TWR, and Pangkalan Bun TWR. Controllers assigned to Banjarmasin TWR and Tarakan TWR are additionally required to hold APP qualification to support contingency arrangements.

2.5 Preparatory activities being undertaken include review of airspace structure, and development of associated operational documentations, including amendment of the Balikpapan Branch Operation Manual, the Balikpapan APP SOP, and internal and external LOCA among the ATS units involved.

### Medan APP

2.6 Air traffic services within Banda Aceh CTR are currently provided as procedural service, delivered as a combined APP-TWR service by Sultan Iskandar Muda TWR. Under this programme, such service will be upgraded to surveillance-based service and consolidated at Medan APP, through the Medan TMA West sector.

2.7 Traffic movement data for Medan and Banda Aceh, together with the assessed airspace capacity for the sectors concerned, indicate that current and projected traffic demand approaches the established capacity thresholds, particularly for Medan APP (CTR) and Medan TMA East sector. This finding supports the need to enhance airspace management capability through consolidation of Banda Aceh CTR into surveillance-based service at Medan APP, while airspace capacity for Medan TMA West is to be evaluated following consolidation.

2.8 The enhancement is enabled by the operational readiness of the new ATMAS at the Medan Branch and supported by integrated surveillance coverage provided through a combination of MSSR and ADS-B facilities at Medan, Banda Aceh, Lasikin, and Pekanbaru. Collectively, these surveillance facilities provide coverage for the consolidated area of jurisdiction, complemented by adequate VHF communication coverage across the Medan TMA West, Medan TMA East, and Medan CTR sectors.

2.9 ATC personnel requirements assessed in accordance with the FRMS methodology indicate an optimal requirement of 77 controllers for Medan TWR-APP operations (against an existing FRMS-based requirement of 58), while Banda Aceh CTR operations at Sultan Iskandar Muda TWR require an optimal complement of 11 controllers (against an existing requirement of 9), with APP qualification required to support the enhanced service.

2.10 Corresponding operational documentations, including amendment of the Medan and Banda Aceh Branch Operation Manuals, the Medan APP SOP, and internal and external LOCA between Medan APP, Banda Aceh, the associated FIC sector, and JATSC, is being developed in parallel.

#### Supporting Activities and Implementation Status

2.11 For both locations, the programme includes preparation of AIP amendments, covering the ATC Surveillance Minimum Altitude Chart (SMAC) and related aerodrome charts (AD 2.24), ATS airspace publication (AD 2.17 and ENR 2.1), ATS communication facilities (AD 2.18), and ADS-B implementation notification (ENR 1.6.9), with target publication and effective dates aligned to the AIRAC cycle between October 2025 and January 2027.

2.12 Safety Risk Assessment and CASR 172 certification processes for the enhanced service provision at both locations will be conducted as part of the subsequent stage of the programme, in accordance with applicable national safety regulatory requirements, prior to operational implementation.

2.13 Both programmes are currently in progress, with full operational implementation targeted for January 2027, subject to completion of the above preparatory, documentation, and certification activities. The transition to surveillance-based ATS represents an important milestone in Indonesia's ATM modernization programme and is expected to enhance operational safety, improve airspace capacity, strengthen ATS coordination, and contribute to the implementation of seamless ATM operations 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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