



International Civil Aviation Organization

**The Sixth Meeting of the APANPIRG ATM Sub-Group
(ATM/SG/6)**

Hong Kong, China, 30 July – 03 August 2018

Agenda Item 4: ATM Systems (Modernisation, Seamless ATM, CNS, ATFM)

INDONESIA MODERNISATION AIR NAVIGATION SYSTEM (IMANS) UPDATE

(Presented by AIRNAV INDONESIA)

SUMMARY

This paper presents update of Indonesia Modernisation Air Navigation System (IMANS)

1. INTRODUCTION

1.1 Indonesia Modernization Air Navigation System (IMANS) is AirNav Indonesia initiative to modernize national air navigation system that aims to achieve high levels of safety, service and efficiency. IMANS will implement a modern, safe, secure, efficient, environmentally friendly, and harmonized air navigation system and an operation that will support and enhance growth in the Association of Southeast Asian Nations (ASEAN) region during 2018 – 2028 timeframe

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1.3 IMANS and the associated modernization vision are to Indonesia as the Next Generation Air Transportation System (NextGen) is to the United States (U.S.), Single European Sky Air Traffic Management Research (SESAR) is to Europe, and Collaborative Actions for Renovation of Air Traffic Systems (CARATS) is to Japan.



2. DISCUSSION

Proposed Future Operation

2.1 Modernization of Indonesian ANS requires national level support and awareness, with a single program for observers to hold accountable. AirNav first long-term plan (Air Navigation Service Roadmap) dating 2014-2018, began this task by initiating the replacement of significantly outdated automation, communication, navigation, and surveillance (CNS) infrastructure but it is nearing the end of its period of performance.

2.2 From an operational perspective, today's air traffic demand frequently exceeds capacity limits, high- demand conditions require ATC personnel to constantly react to resolve challenging situations with little system-wide Air Traffic Flow Management (ATFM) planning and coordination. The design of airspace and procedures does not take full advantage of advanced aircraft equipage capabilities. Moreover, these conditions result in decreased flight efficiency contributing to longer flight times and adverse environmental effects

2.3 High-level summary of comparisons between the current operations and the proposed future operations in IMANS are as follows:

CURRENT OPERATION	FUTURE OPERATION
Physically separate ATM facilities with varied equipment, processes, and procedures.	ATM facilities remain physically separate but are logically integrated so that they operate with common equipment, process, and procedure
AirNav personnel primarily work independently, doing what is best for their individual facility, sector, or airport	AirNav personnel work collaboratively across sector and facility boundaries, managing from a system perspective
ATM systems have limited on-site and no off-site redundancy; severely limiting the ability to maintain ANS in the event of a system or facility failure	ATM systems have on-site and off-site redundancy to continue operations in the event of system or facility failures.
Strategic ATFM allocates a fixed number of slots for airports operations. The system is slow to respond to disruptions such as convective weather and other unexpected events.	Strategic slot allocation is supported by predictive, responsive ATFM services that effectively balance demand and capacity. Collaborative Decision Making (CDM) exchanges between AirNav, airspace users, and airport operators becomes the standard
Some automation, communication, navigation, and surveillance systems are near or beyond their useful service life.	All automation, communication, navigation, and surveillance systems are modern, provide advanced capabilities, and are restored to fully functional condition
Data and communications connections between facilities are limited and, where they do exist, are often single links susceptible to a wide-range of potential interruptions.	ATM systems and facilities will be connected via high- speed, high-reliability networks utilizing redundant fiber loops and satellites.
CNS does not provide adequate coverage over all Indonesian airspace to provide separation services to nearly half of aircraft operating below FL245	CNS capabilities provide full coverage of all sovereign Indonesian airspace, enabling all aircraft operating on instrument flight rule (IFR) clearances to receive separation services.
Airspace is designed to respond to an immediate problem without full consideration of the long-term implications. The route structure is difficult	Airspace design will fully integrate performance based operations that better accommodate new and expanded airports, provide more efficient

to change as traffic demand rapidly evolves.	flight paths, and reduce controller workload.
Training is developed and provided by each facility according to local guidelines.	Training is centralized and consistent across all facilities.

Action Plans

2.4 Action plans for realizing the IMANS vision for each of the service domain areas as proposed in table above were grouped into three categories:

CATEGORY 1 Meeting Near-term Operational Needs	CATEGORY 2 Strengthening Organization & Institutional Capabilities	CATEGORY 3 Strategic and Political Programs
Execute an integrated program through establishing a dedicated Change Management Office (CMO)	Develop Data Driven Analysis Capabilities to assess service quality and perform Cost-Benefit analysis for increasing service fee	Socialize IMANS Program: In country promotion and international promotion
New Jakarta Automated Air Traffic System (JAATS II) is a jump start that will establish the foundational automation capabilities to achieve the needed changes.	Start internal data architecture development project	Intensify AirNav participation in regional ICAO programs
Near-term airspace changes especially the one that enable WIII (CGK) airport capacity enhancement	Start in-house capability (tools, facilities, people) building projects	Establish internal research and development capabilities to work on aviation problems that disproportionately affect Indonesia
Enhance in-country ATFM /CDM system by establishing airspace demand/capacity baseline and prediction. Start with Jakarta and Ujung Pandang Center	Perform quick assessment of AirNav cybersecurity	

Update on New JAATS (Jakarta Automated Air Traffic System II)

2.5 JAATS II component consist of new Air Traffic Control automation system (ATCAS) for Jakarta FIR and also Aeronautical Information Management and Meteorological and Information Display System (AMI) and Air Traffic Flow Management that will cover whole Indonesia FIR.

2.6 JAATS II procurement has begun and expected to operate at the end of 2019.

3. ACTION BY THE MEETING

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

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