International Civil Aviation Organization

Twenty Eighth Meeting of the Communications/ Navigation and Surveillance Sub-group (CNS SG/28) of APANPIRG

Bangkok, Thailand, 01-05 July 2024

Agenda Item 9: Regional implementation review and updates

CURRENT DEVELOPMENTS IN CNS/ATM SYSTEMS IN SRI LANKA

(Presented by Sri Lanka / AASL)

SUMMARY
This paper presents a brief introduction of the CNS/ATM related developments in Sri Lanka in recent years and activity plans in the near future.

1. INTRODUCTION

1.1 Airport and Aviation Services (Sri Lanka) Ltd. (AASL) has been entrusted with the responsibility to provide CNS/ATM infrastructure for the Air Navigation Services (ANS) in Colombo Flight Information Region (FIR).

1.2 Sri Lanka has been and is committed for the evolution of CNS/ATM and related infrastructure in keeping with APAC Seamless ANS Plan in order to achieve the mutual benefits intended to be achieved by all states through such regional level evolution to cater for the growing air traffic volumes in an efficient and sustainable manner.

1.3 Currently Sri Lanka has been able to reach many of such milestones which were lagging behind during the past few years due to the facts such as Easter attack (2019), Covid pandemic (2020-2021) and economic crisis (2022) faced by Sri Lanka.

2. DISCUSSION

2.1 Status of AIDC Implementation in Sri Lanka

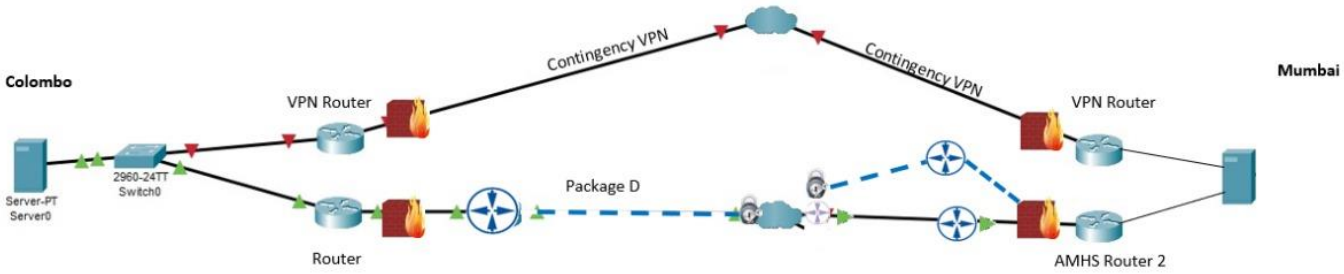
2.1.1. By the end of Second quarter of 2024, Sri Lanka's ATM automation systems are capable of the AIDC ICD V3.0 interface. Due to importance of AIDC in improving safety and efficiency, Sri Lanka plans to fully implement AIDC electronic handover within nearby states by 2025.

2.1.2. Sri Lanka’s operation of AIDC links is using AMHS network and dedicated lines. In the AIDC electronic handover, Sri Lanka mainly uses ten types of core AIDC messages, including ABI, EST, CDN, ACP, TOC, AOC, MAC, REJ, LAM, and LRM. The system is capable of handling PAC, TRU, FAN, FCN, ADS messages.

2.1.3. Sri Lanka completed the test work of AIDC between Chennai and Colombo in April 2024. The issues identified related ABI message were corrected by upgrading the software of the Colombo ATMAS to correct the information in ABI messages.

2.1.4. Meanwhile, Sri Lanka plans to start the implementation of AIDC between Colombo – Male by third quarter of 2024, Colombo – Melbourne and Colombo - Jakarta by 2025. Some tests were done with Melbourne in 2023 and were stopped due to upgrade of Melbourne system.

2.2 Status of CRV Implementation in Sri Lanka



2.2.1 Sri Lanka had planned to migrate for CRV in a phased approach and as the initial phase Sri Lanka established the contract with PCCW Global on 12th December 2023 for provisioning of CRV Package D for establishing AMHS connections with Mumbai and Singapore.

2.2.2 The initial testing for Mumbai AMHS over CRV was conducted during Quarter 1 of 2024 and circuit was successfully migrated on 04th April 2024. Singapore AMHS was also tested during the quarter 2 of 2024 and planning to fully migrate during quarter 3 of 2024. As for the AMHS between Colombo/Male, still waiting for the response as Maldives has not signed CRV contract yet

2.2.3 As Sri Lanka has selected Package D, it is planned to procure a low-cost VPN solution between Colombo and Mumbai as contingency for CRV. In this case even in a CRV single point failure, both AMHS/AFTN communication between Mumbai and Singapore towards Sri Lanka and Male will be passed through this VPN connection.

2.3 Status of ATM Automation System Implementation in Sri Lanka

2.3.1 A new Air Traffic Management [ATM] Automation system was commissioned for operations in last quarter of 2023 at Colombo Approach Control Center (CAAC) in order to replace the existing ATM system which was installed in 2004.

2.3.2 The implementation of the new ATM system was a timely necessity since the old Terminal Radar Data Processing (TRDP) system was not compatible / not compliant with the following regulatory and technological requirements.

a. Integration of AMHS data (the old system was only compatible with AFTN protocol)
b. Full compliance with ICAO Flight Plan format 2012
c. Mode-S surveillance data integration capability
d. ADS-B data integration capability
e. Multilateration (MLAT) & Wide Area Multilateration (WAM) integration capability

f. Automated QNH corrections capability using METAR receptions
g. Enhanced safety nets such as RAM, CLAM, AFDA, etc.

2.3.3 The new ATM-BIA system also provides the below improvements.
a. Mode-S surveillance DAPs integration capability
b. Electronic Flight Strip (EFS) work flow, reducing the usage of thermal paper strips and reducing controller workload of manual data entry for billing & statistics purposes. EFS are electronically progressive throughout entire workflow, supporting the coordination among Approach, Tower, Ground and Apron Control.
c. Improved synchronous playback capability for surveillance and audio data. A new Voice Recorder system is also implemented with new data integration capabilities.
d. ADS-C & CPDLC data integration capability to support Area Control contingency operations.

2.3.4 The main application of the new ATM system is to facilitate Approach Control functions at Colombo Approach Control Center and to facilitate Tower Control functions for BIA. In addition, new ATM-BIA is also intended to support Area Control Contingency operations under certain pre-defined constraints.

2.4 Status of other CNS Systems Implementation status in Sri Lanka

2.4.1 A new Automatic Weather Observation System (AWOS) and Automatic Terminal Information Service (ATIS) is being installed at VCBI airport which is compatible with IWXXM 3.0 for met data origination. This system is planned to be commissioned in 3rd Quarter of 2024.

2.4.2 An Aeronautical Information Management [AIM] system was implemented by Sri Lanka in 2023 with AIXM 5.1.1 compatibility and Sri Lanka is participating also in SWIM pioneer group of APAC.

2.4.3 Project for replacing the main surveillance source used for Area Controlling in Colombo FIR, (i.e Pidurutalagala Radar which is installed at highest point of the country (elevation 2524m) and operated for more than 3 decades) is currently on going and it is expected to be completed by last quarter of 2024. The new Radar will provide the Mode-S DAPs surveillance data in keeping with ICAO APAC Seamless ANS Plan.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) Note the information contained in this paper

b) Discuss and comment on any relevant matters as appropriate

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