ASEAN ATM Master Plan

ASEAN Seamless Sky: One Sky for "One Vision, One Identify, One Community"

ARISE PLUS CIVIL AVIAITON PROJECT

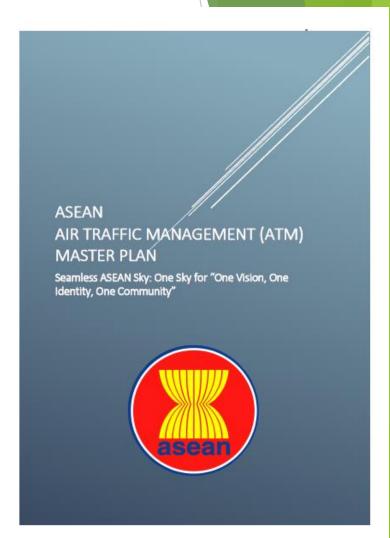Support ASEAN ATM Master Plan – Workshop 2: ASEAN-Wide

Implementation of Agreed Initiatives

10 September 2018

Presented by the Development Team

Presentation Items

- ► 1. Background

- ► 2. The Plan

- ► 3. Progress report - Annex I

ASEAN
AIR TRAFFIC MANAGEMENT (ATM)
MASTER PLAN

Seamless ASEAN Sky: One Sky for "One Vision, One Identity, One Community"

1. Background (1/2)

▶ Under the support of the ASEAN Air Transport Integration Project (AATIP) supported by EASA, the ASEAN ATM Master Plan (the Plan) had been drafted by assigning AMSs to work on individual chapters:

Chapter 1 Introductions (Laos),

Chapter 2 Future Vision (Singapore),

Chapter 3 Current Situation (Thailand),

Chapter 4 Performance Based Approach (EU/AATIP),

Chapter 5 Development Program (Thailand),

Chapter 6 Human Performance (Malaysia) &

Chapter 7 Risk Management and Progress Monitoring (EU/AATIP).

▶ The Plan had been drafted in line with the ASBU and Asia-Pacific Seamless ATM Plan.

▶ The development team (Laos, Thailand and Singapore/ Cambodia later joined in 2016) was formed during the 1st SPG, the team later-on presented the draft of the plan to the 2nd SPG and it was adopted by the 36th ATWG.

▶ The ASEAN ATM Master plan was also approved by 44rd STOM/23rd ATM in October 2017.

1. Background (2/2)

- Scope:
  - Short to medium term implementation planning from 2018-2022 (5 years).
  - Covers regional elements regarding ATM operations in aerodromes, terminal areas, and en-route, incorporating civil-military coordination and globally interoperable systems.
- Review Process:
  - every two years.
  - the SPG would annually monitor the progress and conduct analysis to address implementation issues.

2. The Plan

▶ 2 Phases of Implementation

Phase	ASEAN Proposed Implementation Time Frame	ASEAN Proposed Target Completion Date
Phase I	From 1 January 2018 to 31 December 2020	31 December 2018
Phase II	From 1 January 2018 to 31 December 2022	31 December 2020

▶ Initiatives:

    ▶ Five Initiatives: Required ASEAN-wide Harmonized Implementation

    ▶ Eight Initiatives: First-priority Implementation

2. The Plan

Five Initiatives: Required ASEAN-wide Harmonized Implementation

Initiative	Focus Area
Performance Based Navigation Routes (PBN Routes)	En-route
Air Traffic Flow Management (ATFM)	En-route
ATS Inter-facility Data Communication (AIDC)	Information Management
Aeronautical Information Management (AIM)	Information Management
Common Aeronautical Virtual Private Network[11] (CRV)	Information Management

2. The Plan

Harmonized 1. PBN Routes   En-route

5.6.1   Phase I of Required ASEAN-Wide Harmonized Implementation

5.6.1.1. **PBN Routes:** All ATS routes serving major aerodromes should be designated as RNAV2 or RNP2 (other acceptable - RNAV5)

5.6.2.   Phase II of Required ASEAN-Wide Harmonized Implementation

5.6.2.1. **PBN Routes:** PBN ATS routes serving major aerodromes should be designated as RNP2.

2. The Plan

Harmonized 2. ATFM   En-route

5.6.1   Phase I of Required ASEAN-Wide Harmonized Implementation

5.6.1.2. **ATFM:** All States should achieve at least a Level-2 capability to support cross-border ATFM operations. States should have established local procedures in accordance with the Asia/Pacific Regional Framework for Collaborative ATFM to be able to comply with ATFM measures implemented by other States.

5.6.2.   Phase II of Required ASEAN-Wide Harmonized Implementation

5.6.2.2. **ATFM:** All States with aerodromes as defined in paragraph 7.4 of Asia/Pacific Regional Framework for Collaborative ATFM should achieve a Level-3 capability to implement cross-border ATFM operations to balance traffic demand and resource capacity. These States should also be able to comply with ATFM measures implemented by other States, with established local procedure to support the operations.

2. The Plan

Harmonized 3. AIDC   Information Management

5.6.1   Phase I of Required ASEAN-Wide Harmonized Implementation

5.6.1.3. **AIDC:** ATM systems should enable AIDC between ATC units where transfers of control between States are conducted. AIDC message types, including ABI, EST, ACP, TOC, and AOC, should be implemented.

5.6.2.   Phase II of Required ASEAN-Wide Harmonized Implementation

5.6.2.3. **AIDC:** Full AIDC messaging should be implemented.

2. The Plan

Harmonized 4. AIM   Information Management

5.6.1   Phase I of Required ASEAN-Wide Harmonized Implementation

5.6.1.4. **AIM:** ATM systems should be supported by digitally-based AIM systems through implementation of Phase 1 and Phase 2 of the AIS-AIM Roadmap.

5.6.2.   Phase II of Required ASEAN-Wide Harmonized Implementation

5.6.2.4. **AIM**: ATM systems should be supported by digitally-based AIM systems through implementation of the AIS-AIM Roadmap Phase 3.

2. The Plan

Harmonized 5. CRV   Information Management

5.6.1   Phase I of Required ASEAN-Wide Harmonized Implementation

None

5.6.2.   Phase II of Required ASEAN-Wide Harmonized Implementation

5.6.2.5. **CRV:** All ANSPs should connect to CRV.

2. The Plan

Eight Initiatives: First-priority Implementation

Initiative	Focus Area
PBN Approach	Terminal
ATS Surveillance	En-route
ADS-C/CPDLC	En-route
ATS Surveillance with Data Integrated	En-route
Airborne Safety Systems	En-route
Civil/Military Use of SUA:	Civil/Military Cooperation
Strategic Civil/Military Coordination	Civil/Military Cooperation
Tactical Civil/Military Coordination	Civil/Military Cooperation

2. The Plan

1st Priority 1. PBN Approach   Terminal

5.7.1. Phase I of First-Priority Implementation

5.7.1.1. **PBN Approach:** Where practicable, all major aerodromes with instrument runways serving airplanes should have GBAS precision approaches or ILS approaches; or stright-in RNP APCH with LNAV/VNAV.

5.7.2. Phase II of First-Priority Implementation

5.7.2.1. **PBN Approach:** Where practicable, all aerodromes with instrument runways serving aeroplanes should have GBAS precision approaches or ILS approaches; or straight-in RNP APCH with LNAV/VNAV.

2. The Plan

1st Priority 2. ATS Surveillance   En-route

5.7.1. Phase I of First-Priority Implementation

5.7.1.2. **ATS Surveillance:** Unless supported by other means of ATS surveillance (such as radar), all Category S upper controlled airspace and Category T airspace supporting major aerodromes should be designated as non-exclusive or exclusive as appropriate ADS-B airspace requiring operation of ADS-B using 1090ES with DO-260/260A and/or 260B capability.

5.7.2. Phase II of First-Priority Implementation

5.7.2.2. **ATS Surveillance:** All Category S upper controlled airspace and Category T airspace should be designated as non-exclusive or exclusive as appropriate ADS-B airspace requiring operation of ADS-B using 1090ES with DO-260/260A and/or 260B capability.

5.7.2.3. **ATS Surveillance:** In areas where ADS-B based separation service is provided, the mandatory carriage of ADS-B OUT using 1090ES with DO-260/260A and/or 260B should be prescribed.

2. The Plan

1st Priority 3. ADS-C/CPDLC   En-route

5.7.1. Phase I of First-Priority Implementation

5.7.1.3. **ADS-C/CPDLC:** Within Category R airspace, ADS-C surveillance and CPDLC should be enabled to support PBN-based separations.

5.7.2. Phase II of First-Priority Implementation

None.

2. The Plan

1st Priority 4. ATS Surveillance with Data Integrated   En-route

5.7.1. Phase I of First-Priority Implementation

5.7.1.4. **ATS Surveillance with Data Integrated:** ATS Surveillance using ADS-B and/or MLAT and/or radar should be implemented to provide coverage for Category S airspace as far as practicable, with surveillance data integrated into ATC system situation display.

5.7.2. Phase II of First-Priority Implementation

2. The Plan

1st Priority 5. Airborne Safety Systems   En-route

5.7.1. Phase I of First-Priority Implementation

5.7.1.5. **Airborne Safety Systems:** All Category R and Category S upper controlled airspace, and Category T airspace supporting major aerodromes should require the carriage of ACAS through the implementation of TCAS v7.1 as specified in RTCA/DO-185B or EUROCAE/ED-143.

5.7.2. Phase II of First-Priority Implementation

None.

2. The Plan

1st Priority 6. Civil/Military Use of SUA   C/M coordination

5.7.1. Phase I of First-Priority Implementation

5.7.1.6. **Civil/Military Cooperation on SUA:** All States should ensure that SUA are regularly reviewed by the appropriate Airspace Authority to assess the effect on civil air traffic and the activities affecting the airspace.

5.7.2. Phase II of First-Priority Implementation

None.

2. The Plan

1st Priority 7. Strategic Civil/Military Coordination   C/M coordination

5.7.1. Phase I of First-Priority Implementation

5.7.1.7. **Strategic Civil/Military Coordination:** All States should ensure that a national civil/military body coordinating strategic civil-military activities is established.

5.7.2. Phase II of First-Priority Implementation

None.

2. The Plan

1st Priority 7. Tactical Civil/Military Coordination   C/M coordination

5.7.1. Phase I of First-Priority Implementation

None.

5.7.2. Phase II of First-Priority Implementation

5.7.2.4. **Tactical Civil/Military Coordination:** All States should ensure that formal civil-military liaison for tactical responses are established.

3. Progress Report

▶AMS will submit progress report twice in 2018—to track status to be in line with Phase I Target Completion Date of December 2018

    ▶ June 2018

    ▶ December 2018

▶First tracking date to offer AMS the opportunity to notify changes in expected completion date and

▶Second tracking date to update the implementation status as compared to Phase I Target Completion Date.

3. Progress Report

▶Subsequently, the Development Team will be providing the template for updating and tracking of the status of implementation every half yearly

▶AMSs are to submit their respective updated status of implementation via email to the ASEAN Secretariat for compilation, by the stipulated first and second tracking dates

▶The status of implementation will be reported by the Chairman of the SPG meeting at the next available SPG meeting, or ATTC/ATWG meetings, whichever is earlier

3. Progress Report

Implementation Status Reported by AMSs

6 States have submitted their implementation status namely:

- ▶ Cambodia,

- ▶ Malaysia,

- ▶ Myanmar,

- ▶ Laos,

- ▶ Thailand and

- ▶ Singapore.

3. Progress Report

Five Initiatives: Required ASEAN-wide Harmonized Implementation

Initiatives	Comments	Phrase I Progress	Comments	Phrase II Progress
PBN Routes	Lao PDR is currently drafting its national PBN Implementation plan, one of the the main focus is dedicated on the development of the ATS PBN route from VLVT-VLLB. The Plan will cover the other main ATS routes serving major aerodromes.(Laos)/Thailand Implemented some ATS routes (RNAV5) for serving major aerodromes since 2010 (Thailand)/Myanmar is going to implement RNP2 based city-paired routes among 5 major airports as per Myanmar PBN Implementation Plan (Myanmar)	9%	Upon completing of Phrase I, the proposed updating B329 to N639 would be a great step to create PBN Routes network among Cambodia, Laos and Vietnam (Laos)/Thailand will re-designate some existing ATS Routed within BKK FIR to be RNAV 2 or RNP 2 as necessary and designate all current RNAV 5 route according to AIP-Thailand (ENR 3.3-1) with appropriate navigation specification and re-structure the ATS routes system within Bangkok FIR and coordinate with the neighboring countries regarding the development of international ATS route within 2019 (Thailand)	3%
ATFM	ATFM Committee has been established by the ANSP, Lao DCA is current drafting the ATFM Manual, By participating in the ATFM level 1 and SWIM in ASEAN Demonstration. Lao PDR would establish the ATFM implementation plan (Laos)/Measured against the target as defined in ICAO Asia/Pacific Regional Framework for Collaborative ATFM (Thailand)/Myanmar is participating as Level 2 Nodes since July 2017 (Myanmar)	63%	Measured against the target as defined in ICAO Asia (Thailand)/Pacific Regional Framework for Collaborative ATFM/Myanmar is considering to upgrade Level 3 based on our capability (Myanmar)	20%
AIM	AIM Automation would be installed at LATM in the end of 2018 (Laos)/Thailand invest in AIM automation and plan to publish E-AIP in 2019 (Thailand)	30%	AIM Automation would be installed at LATM in the end of 2018 (Laos)/Thailand has initiated training program for AIS personal and shall implement phase 3 of AIM roadmap after AIM automation implemented (Thailand)	15%

3. Progress Report

Five Initiatives: Required ASEAN-wide Harmonized Implementation

Initiative	Comments	Phrase I Progress	Comments	Phrase II Progress
CRV			ANSP is determining to have CRV as a mean of connection (Laos)/"Thailand ANSP (AEROTHAI) will implement the contract with the PCCW Global, as the CRV network provider, in the third quarter of 2018 and will connect to CRV network with the ATN BBIS (Backbone Boundary Intermediate System) States/Administrations, Chaina, Hongkong, Singapore and India, in the second quarter of 2019/Currently in procurement process (Thailand)/Singapore is in the midst of implementing the contract with PCCW Global, and would be expected to complete by 3Q 2018. This first application to be connected to CRV would be AMHS (with Thailand) in 2Q 2019 (Singapore)	30%
AIDC	Operational Trial is being conducted with Lao PDR, to start in August with Thailand and to start by the end of 2018 with Vietnam (Cambodia)/AIDC has been tested with Cambodia, Thailand and Vietnam (Laos)/Malaysia has implemented the 5 AIDC elements, with Chennai, others are on going with trial /testing such as Thailand, Indonesia and Singapore (Malaysia)/Operational test with VTBD and inter-operational test with ZPKM, VECC, VOMM are on going (Myanmar) "AEROTHAI, Thailand ANSP, has conducted the AIDC testing with the adjacent FIRs (Cambodia, Lao PDR, Malaysia and Myanmar) since 2016. The AIDC feature can supports the APAC AIDC ICD V.3. However, the testing results showed that some of AIDC exchange messages, including ABI, EST, ACP, TOC, AOC, LAM, and LRM, has been some rejected. These problems are reported to the APA/TF and also vendors for the future software modifications and upgrades (Thailand)	45%	AIDC has been tested with Cambodia, Thailand and Vietnam (Laos)/The full AIDC message is implemented in the third quarter of 2019 (Thailand).	13%

3. Progress Report

Eight Initiatives: First-priority Implementation

Initiative	Comments	Phrase I Progress	Comments	Phrase II - a	Phrase II - b
PBN Approach	RNP APCH have been implemented in 3 International Airport namely: VLVT, VLLB, VLPS (Laos)/RNP Approach procedures for 3 International airports are already published (Myanmar), Measured against the targets as defined in ICAO Asia/Pacific Seamless ATM Reporting Form and ASEAN ATM Master Plan (Thailand)	67%	Measured against the targets as defined in ICAO Asia/Pacific Seamless ATM Reporting Form and ASEAN ATM Master Plan (Thailand)	20%	
ATS Surveillance	The whole airspace of Phnom Penh FIR is currently under Radar coverage, supplemented by ADS-B and MLAT (Cambodia)/ ADS-Bs have been installed in Luangphabang, Xiengkhouang, Vientiane, Savannakhet and Pakxong (Laos) /Malaysia has installed /and in the process installing additional ADS-B (Malaysia)/Although VYYY and VYMD airports are serving as Radar+ADS-B supportive airspace, VYNT Category T is still required to install ADS-B (Myanmar)	22%	- Established the Airspace Policy Steering Committee - Developing the National Air Navigation and Airspace Plan including ATS surveillance Plan (Thailand)	12%	20%
ADS-C/CPDLC	Since the Bangkok FIR is all covered by the radars and VHF communications, there is no plan to provide the ADS-C/CPDLC services (Thailand)	40%			
ATS Surveillance with Data Integrated	ADS-Bs have been installed in Luangphabang, Xiengkhouang, Vientiane, Savannakhet and Pakxong (Laos)	60%			
Airborne Safety System	Requirements for ACAS equiped aircraft has been specified in the LCAR Part - Part 7 Instrument/ Equipment (Laos), Required to update in Malaysian AIP (Malaysia)	43%			

3. Progress Report

Eight Initiatives: First-priority Implementation

Initiative	Comments	Phrase I Progress	Comments	Phrase II - a	Phrase II - b
Civil-military (SUA)	Guidance for Civil-Military Cooperation on ATM has been approved. FUA Manual is under the progress. (Laos)/Regular SUA review meetings among civil and military are conducted (Myanmar)	51%			
Civil-military (Strategic)	National High Level Airspace Policy Committee (NHLAPS) would be established in compliance with FUA Manual (Laos)	50%			
Civil-military (Tactical			Guidance for Civil-Miliary Cooperation on ATM has been approved by DG of Lao DCA. FUA Manual is under draft version (Laos)	41%	
Timeframe and progress	01-01-2018 to 31-12-2020	26%	01-01-2018 to 31-12-2022	12%	

27

4. Discussion

- State's Implementation - See Annex 1 (Spread Sheet)
- State's point of view for steps of completion i.e. 100%

Thank You