

**54th CONFERENCE OF
DIRECTORS GENERAL OF CIVIL AVIATION
ASIA AND PACIFIC REGIONS**

*Ulaanbaatar, Mongolia
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**AGENDA ITEM 3: AVIATION SAFETY AND
AIR NAVIGATION**

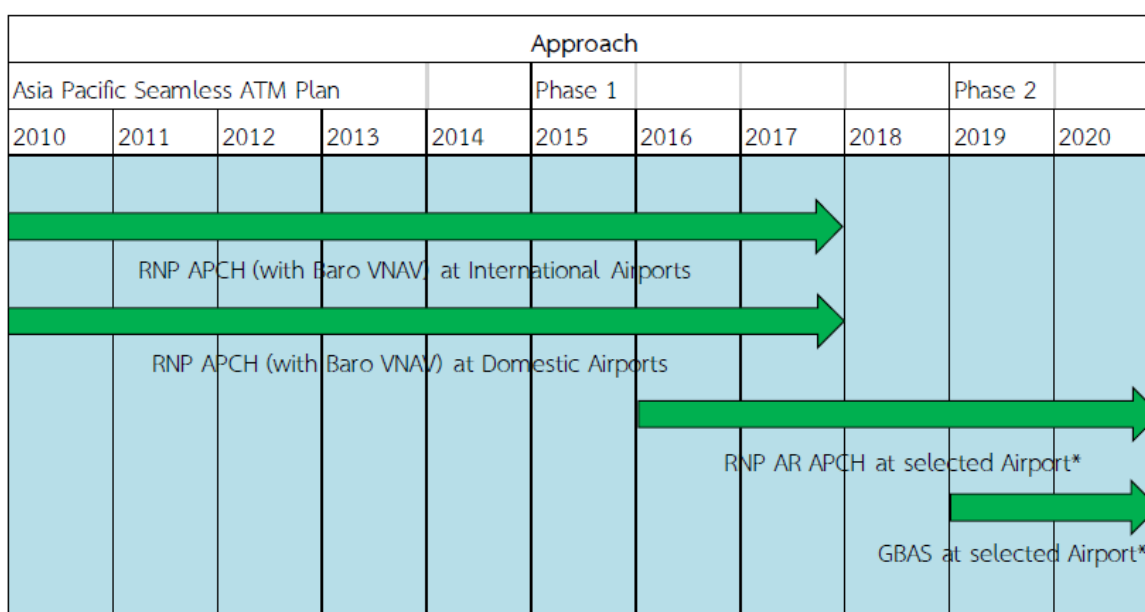
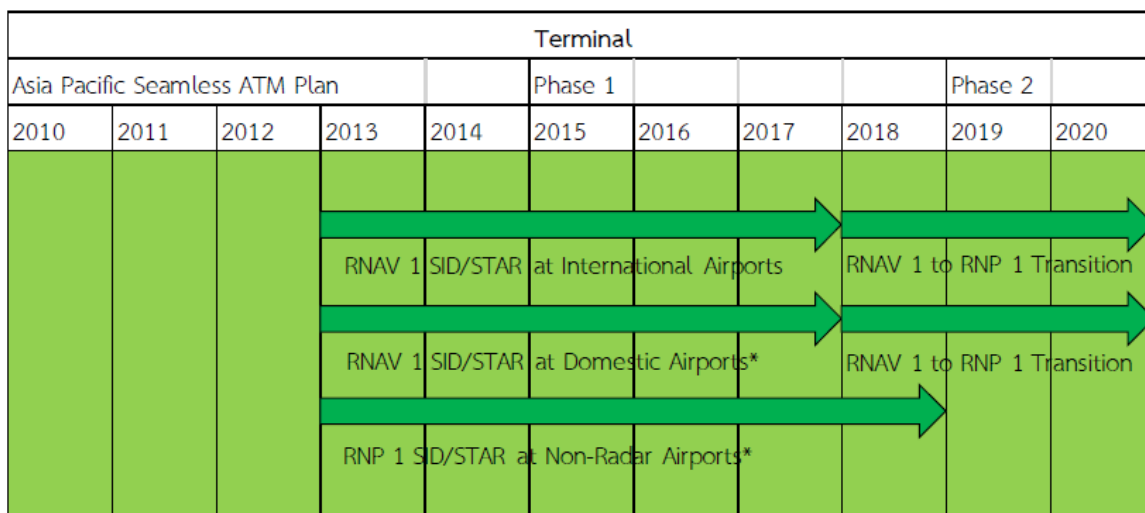
THAILAND PBN IMPLEMENTATION

(Presented by Thailand)

INFORMATION PAPER

SUMMARY

This paper discusses the progress of PBN implementation in Thailand. The paper notes the revision of Thailand PBN Implementation Plan, the completion of Thailand's PBN approach implementation at all international instrument runway ends, where practicable, as stated by ICAO Assembly Resolution 37/11. The paper also discusses the current PBN implementation status and the future PBN implementation in Thailand.



Current PBN Implementation Status

2.3 By 2016, Thailand has completed PBN implementation plan as submitted to ICAO in terminal airspaces of twelve international and major airports as listed in Asia-Pacific Regional Air Navigation Plan (APAC ANP). Furthermore, PBN procedures have already been in place and flown at fifteen additional domestic airports with the plan for complete implementation of all instrument airports by the end of 2017. In line with Asia and Pacific Seamless ATM Plan, Approach with Vertical Guidance (APV) procedures based on Baro-VNAV are expected to complement LNAV procedures at the rest of instrument airports, where practicable, by 2019.

2.4 Currently, PBN SID/STARs have been implemented at thirteen international and domestic airports with three more airports under progress and targeted for 2017. In general, a PBN SID is designed together with a PBN Approach, whereas implementations of PBN STARs will depend on the operational needs of that particular airport.

2.5 For en-route airspace, in 2013, three unidirectional RNAV 5 routes were established for the country’s the top two domestic city pairs, Bangkok - Phuket and Bangkok - Chiang Mai. Based on the Flexible Use of Airspace (FUA) concept, the routes enable reduction in fuel consumption and green-house gas emission as well as enhance safety and improve flow capacity of air traffic operations. Subsequently in 2014, Thailand has established five additional unidirectional

RNAV 5 routes connecting Bangkok with southern domestic destinations, two of which have later been upgraded to international routes into Malaysia. In 2016, four additional domestic RNAV 5 routes were established between Bangkok and its eastbound international destinations with the goal of enhancing flow of traffic and lessening the congestion of the existing routes. Additionally, effectively from February 2017, implementation of 50NM longitudinal separation minima was applied to international westbound RNP10 routes including L507, P646, N895, L524 and L301.

Future PBN Implementation

2.6 A GBAS system is currently being considered for Suvarnabhumi International Airport to serve as the backups for ILS at four runway ends, with the system installation planned tentatively for 2020. Subject to further study on signal interference, local ionospheric behaviors and regulatory approval process, GLS implementation is expected to follow shortly after. With the third runway being built, the GBAS system will eventually support Category I precision approach operations at all six runway ends of the airport. In June 2017, a consultation on GBAS and GLS approach implementation has been progressed with CAAT and other aviation stakeholders.

2.7 In 2015, Thailand has embarked on RNP-AR implementation process for four airports with operational limitation and benefits to be gained from advanced PBN capabilities. After review by the regulatory approval process, RNP-AR approach procedures have been published for Phuket International Airport in July 2017. More RNP-AR procedures are currently being developed for four other airports: Hat Yai, Krabi, Samui and Don Mueang.

2.8 The implementation of RNAV 2 and RNP 2 navigation specifications for en-route operations are to be expected to be completed by 2022. To ensure Seamless ATM operations between States in the Region, close coordinations with adjacent FIRs are being conducted for appropriate navigation specification for ATS route planning.

3. ACTION BY THE CONFERENCE

3.1 The Conference is invited to note the information contained in this Paper.

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