



# Agenda Item 2 – Global & Regional PBN Updates

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## ICAO Assembly Resolution A37-11 - PBN Global Targets

- States complete a PBN Implementation Plan to achieve:
  - Approach procedures with vertical guidance (APV (Baro-VNAV) including LNAV-only minima for all instrument runway ends by 2016:
  - Straight-in LNAV only procedures as an exception to the above where there is:
    - no local altimeter setting; and
    - no aircraft equipped for APV with max certified mass of 5700kg or more



# Declaration of Asia Pacific Ministerial Conference on Civil Aviation

(Beijing, China from 31 January to 1 February 2018)

## 2.0 Air Navigation Services

2.1 **Commit to implementation by 2022** of the Asia/Pacific Seamless Air Traffic Management (ATM) Plan to enhance ATM capacity and harmonization in the Region, including a focus on:

- (a) Transitioning from Aeronautical Information Service (AIS) to Aeronautical Information Management (AIM) System;
- (b) **Performance Based Navigation (PBN) implementation**



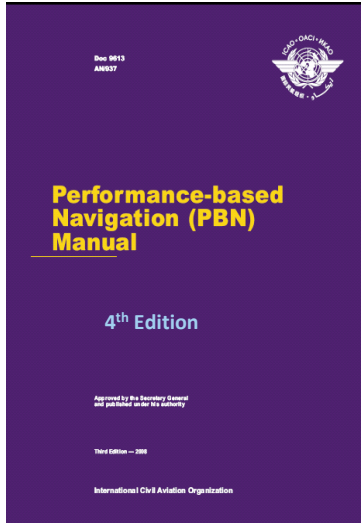
## ASIA/PACIFIC SEAMLESS ANS PLAN V3.0

**Table 1:** Asia/Pacific ASBU Block 0 and Block 1 Priority- PBN

ASBU Element	Priority
APTA-B0/1 – 2: Basic PBN SID and STAR procedures, PBN non-precision approaches (PARS 7.4, 7.5, 7.10, 7.13, 7.14, 7.21) <b>Preferred Aerodrome/Airspace and Route Specifications (PARS)</b>	1
APTA-B0/3 and 6: SBAS/GBAS CAT I precision approach procedures, and PBN Helicopter PinS Operations (PARS 7.5, 7.6, 7.10, 7.14, 7.21)	3
APTA-B0/4 – 5, 7 – 8: CDO (Basic) and CCO (Basic), and performance-based aerodrome operating minima for advanced/basic aircraft (PARS 7.14, 7.19, 7.21)	2
APTA-B1/1 – 5: advanced capability PBN approaches, PBN SID and STAR procedures and performance-based aerodrome operating minima for advanced aircraft with SVGS, CDO and CCO (Advanced) (PARS 7.14, 7.21, 7.22, 7.23)	3



# ICAO - PBN Documents



- PANS Ops(Doc 8168) Volume I 6<sup>th</sup> Edition Amendment 9, 2020
- PANS Ops(Doc 8168) Volume II 7<sup>th</sup> Edition, 2020
- PANS Ops(Doc 8168) Volume III 1<sup>st</sup> Edition, 2018
- PBN Manual (Doc 9613) 4<sup>th</sup> Edition
- RNP AR Procedure Design Manual (Doc 9905), 2<sup>nd</sup> Edition, 2016
- PBN Ops Approval Manual (Doc 9997) 2<sup>nd</sup> Edition, 2015
- Manual on PBN Use in Airspace Design (Doc 9992) 1<sup>st</sup> Edition 2013
- CDO Manual (Doc 9931) 1<sup>st</sup> Edition, 2010
- CCO Manual (Doc 9993) 1<sup>st</sup> Edition 2013
- GNSS Manual (Doc 9849) 3<sup>rd</sup> Edition 2017
- Procedure QA Manual (Vol 1 to Vol 6) (Doc 9906)



# ICAO's initiatives in the Region

- PBN Focal points
- PBNICGs – awareness and coordination among States
- Implementation Projects – through FPP program
- PBN Ops Approvals - through COSCAPs
- Go-Teams - Expert Teams' Visits to address specific implementation issues on request from States for
  - PBN Assessments / Gap Analysis
  - PBN Plan Development
  - Training
  - Implementation Assistance
  - Recent Go Team visits to Lao PDR, Myanmar & Vietnam to help states in PBN Implementation & Other interested States may contact us
- PBN-in-a-Page- Available on APAC Website
- GBAS-SBAS Implementation TF/1& 2 in 2020 & TF/3 Scheduled in Sept 2021.
- Workshops/ Webinars- CDO/CCO Webinar conducted in 2020 and next Scheduled in Sept 2021
- PBN Pre-implementation Checklists for Preparation of PBN Procedure Implementation Safety Assessment is available on APAC website.



## What other solutions PBN can provide which are not commonly used now in this Region?

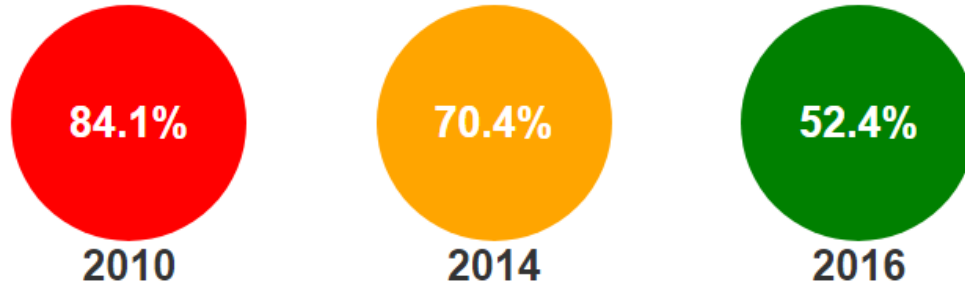
- LPV Cat I or APV(SBAS)
  - Precision Approach
  - Needs SBAS infrastructure & Aircraft Equipage
- RNAV/RNP transition to XLS(ILS, GLS etc)
- RNAV/RNP Missed Approach to XLS
- Simultaneous parallel Approaches with PBN
- Helicopter Pins Procedure – to facilitate efficient IFR operations for Helicopters

Note – GBAS- although not in PBN as such, but could provide PA Cat I/II/III.



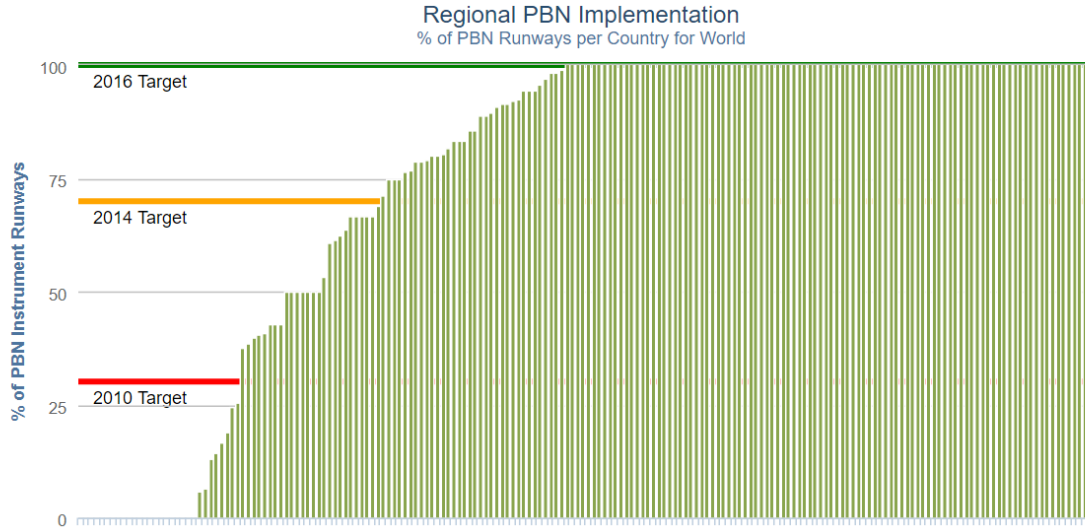
## PBN Update(March 2021) –APAC-as per iSTARS 3.0

### Percentage of States in World meeting the Resolution Targets for Applicable Years





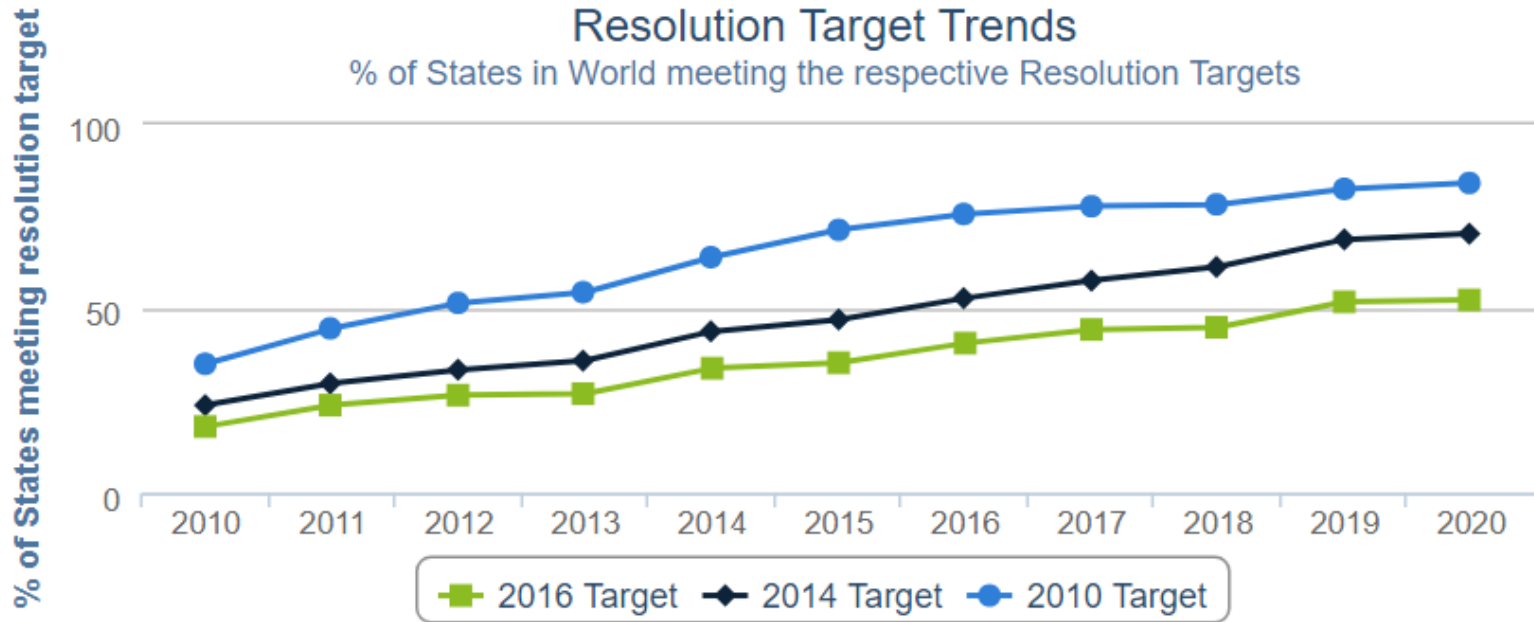
# PBN Update(March 2021) –APAC-as per iSTARS 3.0



States in World	PBN Runway Ends	Intr. Runway Ends	PBN Runway Ends (%)
189	2688	3535	76%

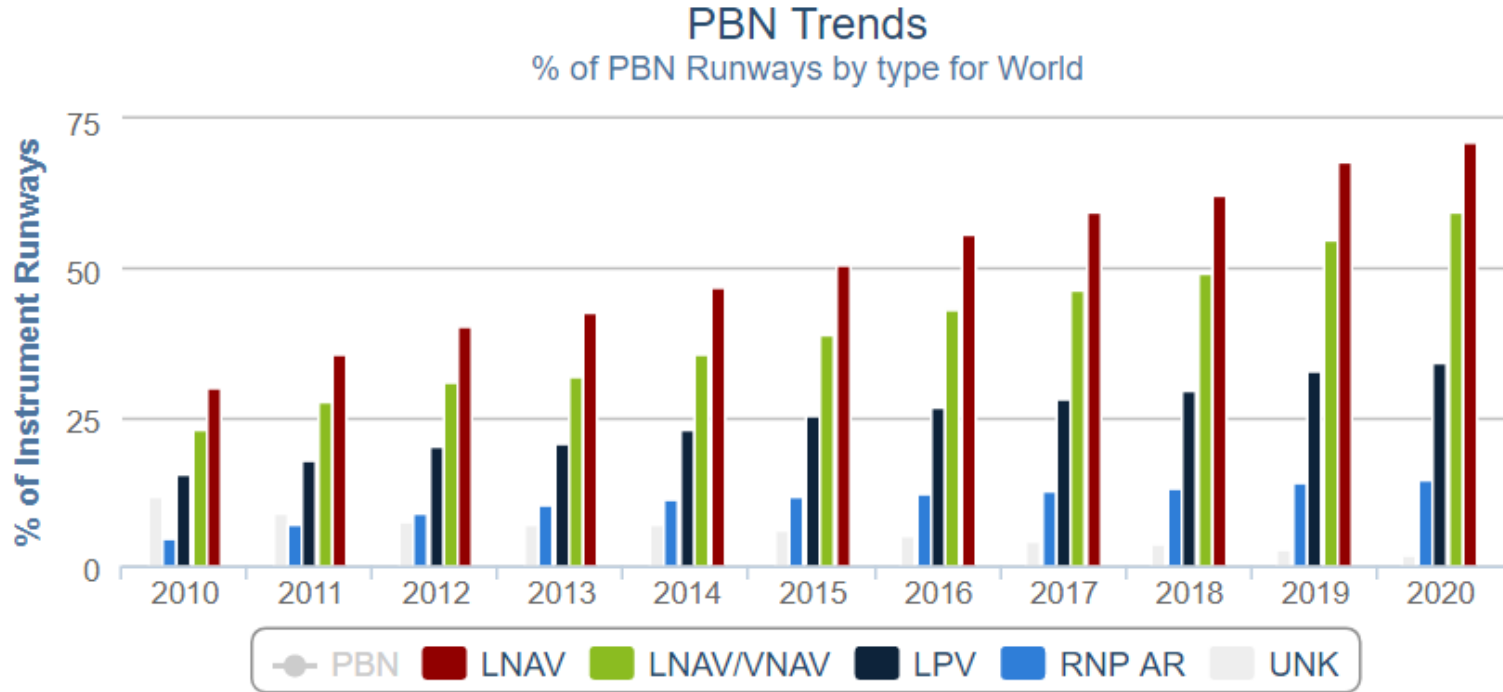


## PBN Update(March 2021) –APAC-as per iSTARS 3.0



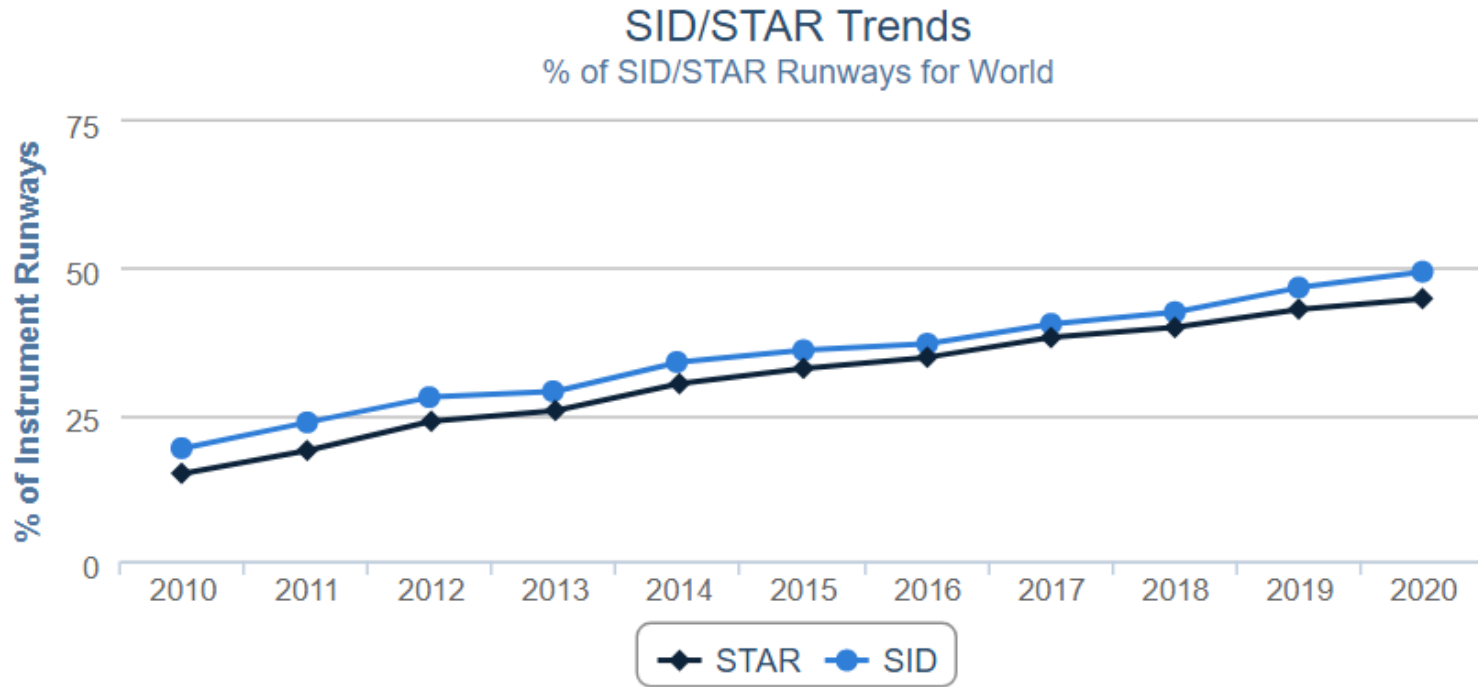


## PBN Update(March 2021) –APAC-as per iSTARS 3.0





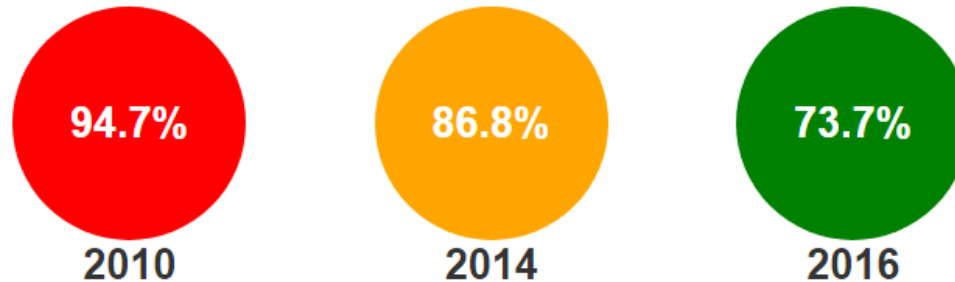
## PBN Update(March 2021) –APAC-as per iSTARS 3.0





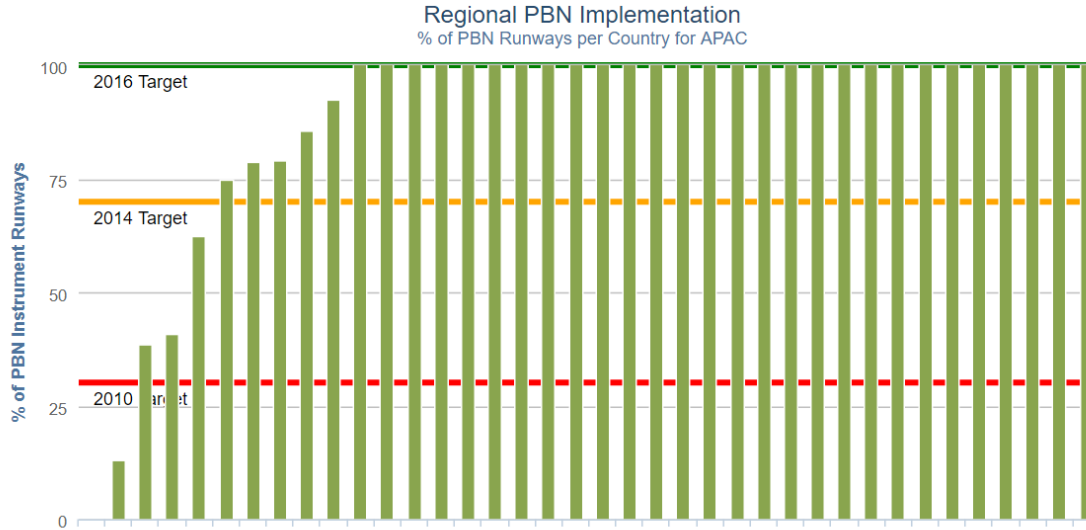
## PBN Update(March 2021) –APAC-as per iSTARS 3.0

### Percentage of States in APAC meeting the Resolution Targets for Applicable Years





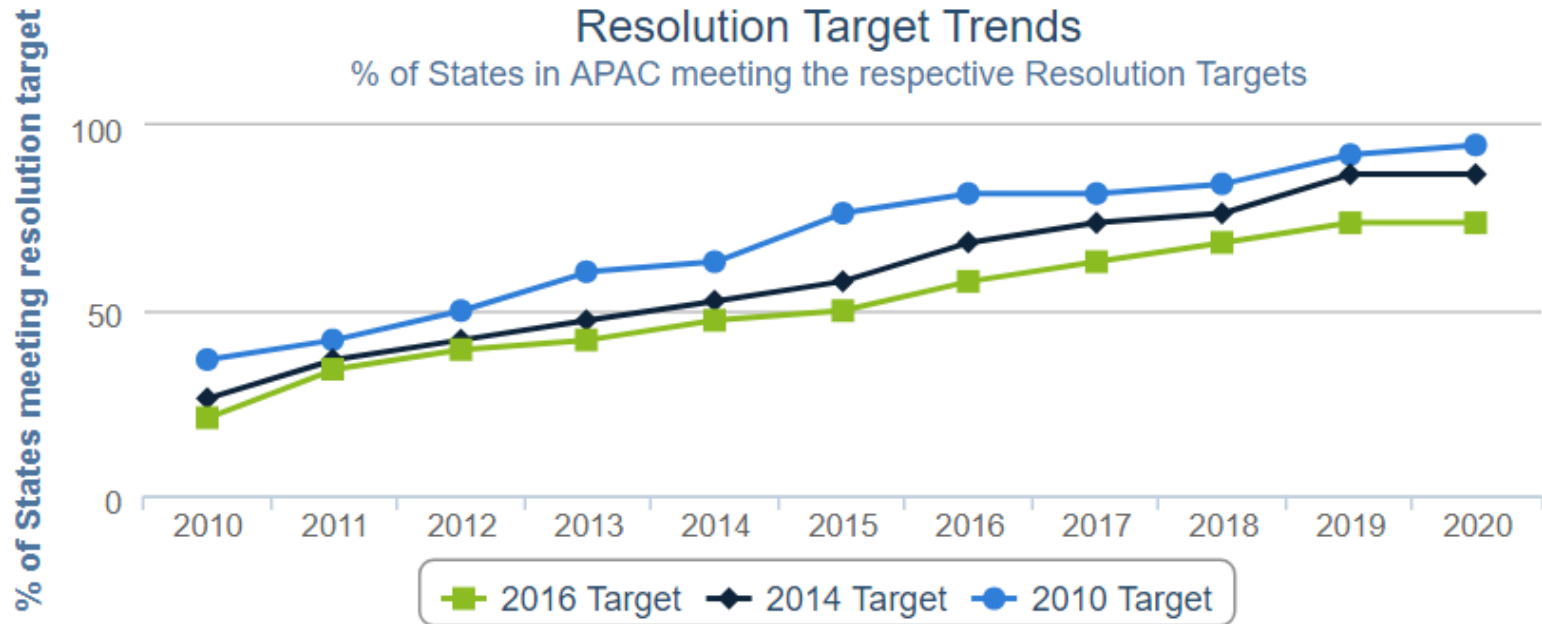
# PBN Update(March 2021) –APAC-as per iSTARS 3.0



States in APAC	PBN Runway Ends	Intr. Runway Ends	PBN Runway Ends (%)
38	320	497	64.4%



## PBN Update(March 2021) –APAC-as per iSTARS 3.0

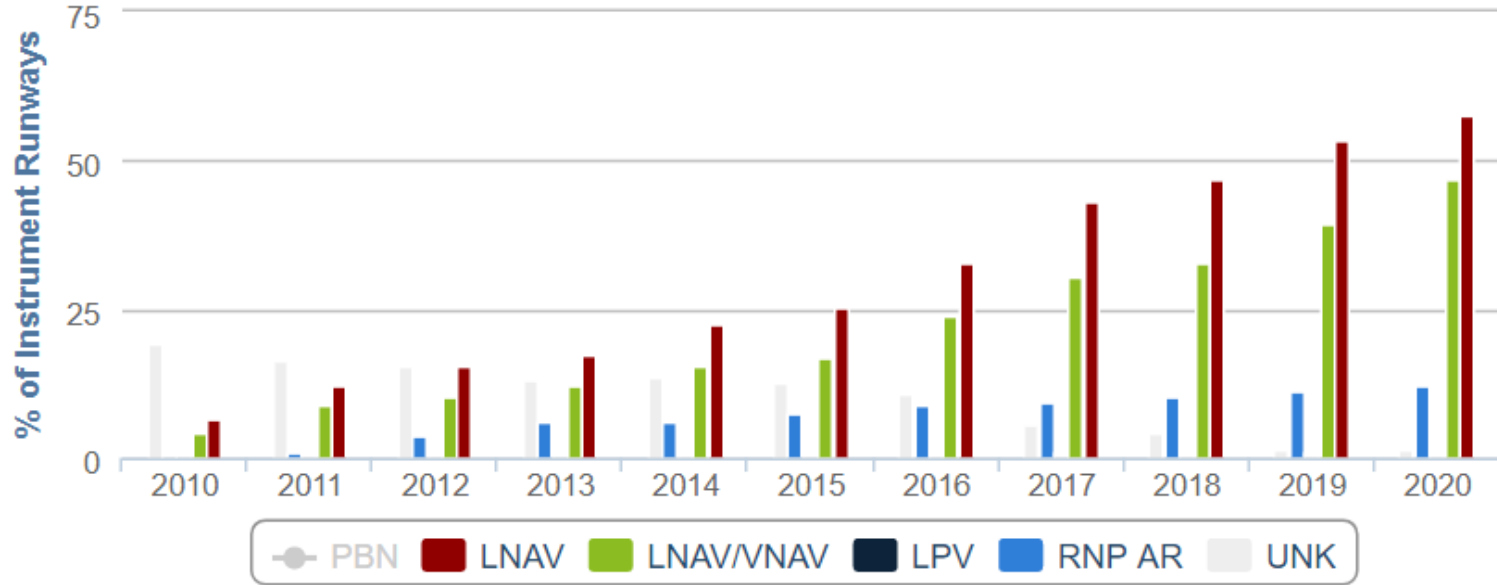




## PBN Update(March 2021) –APAC-as per iSTARS 3.0

### PBN Trends

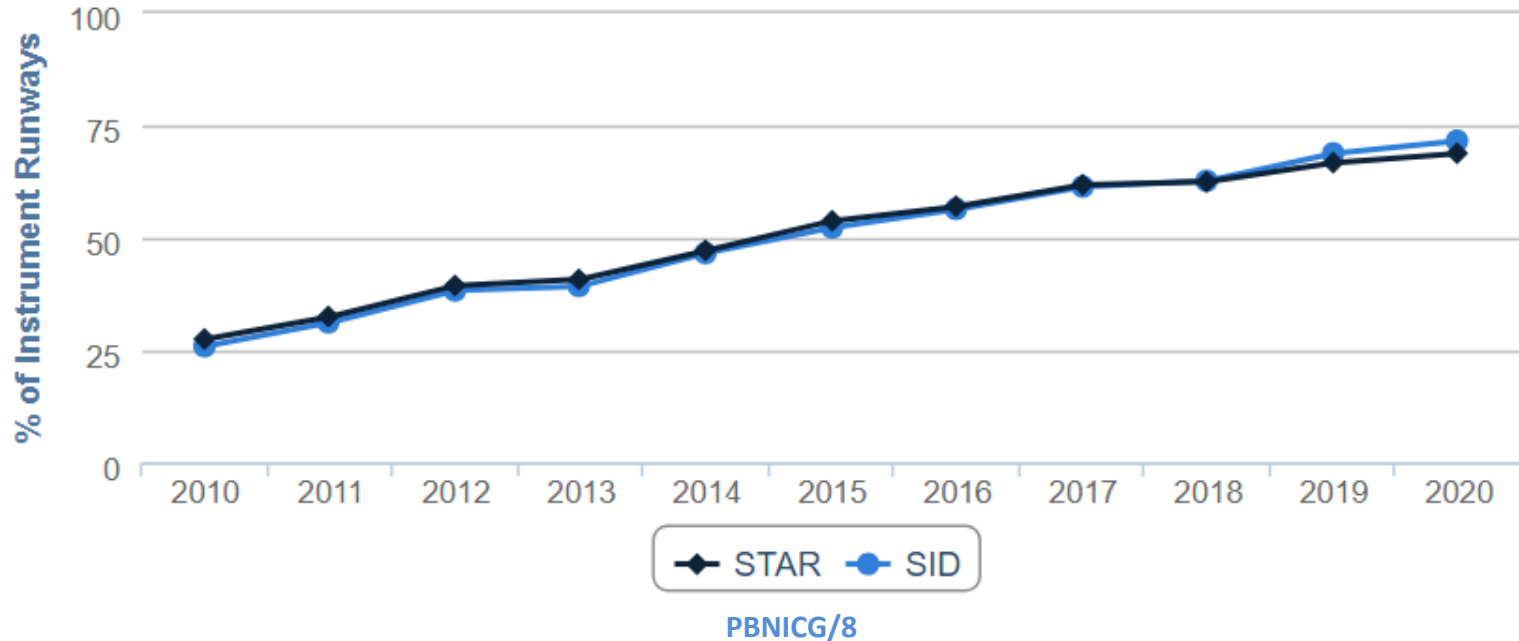
% of PBN Runways by type for APAC





## PBN Update(March 2021) –APAC-as per iSTARS 3.0

SID/STAR Trends  
% of SID/STAR Runways for APAC





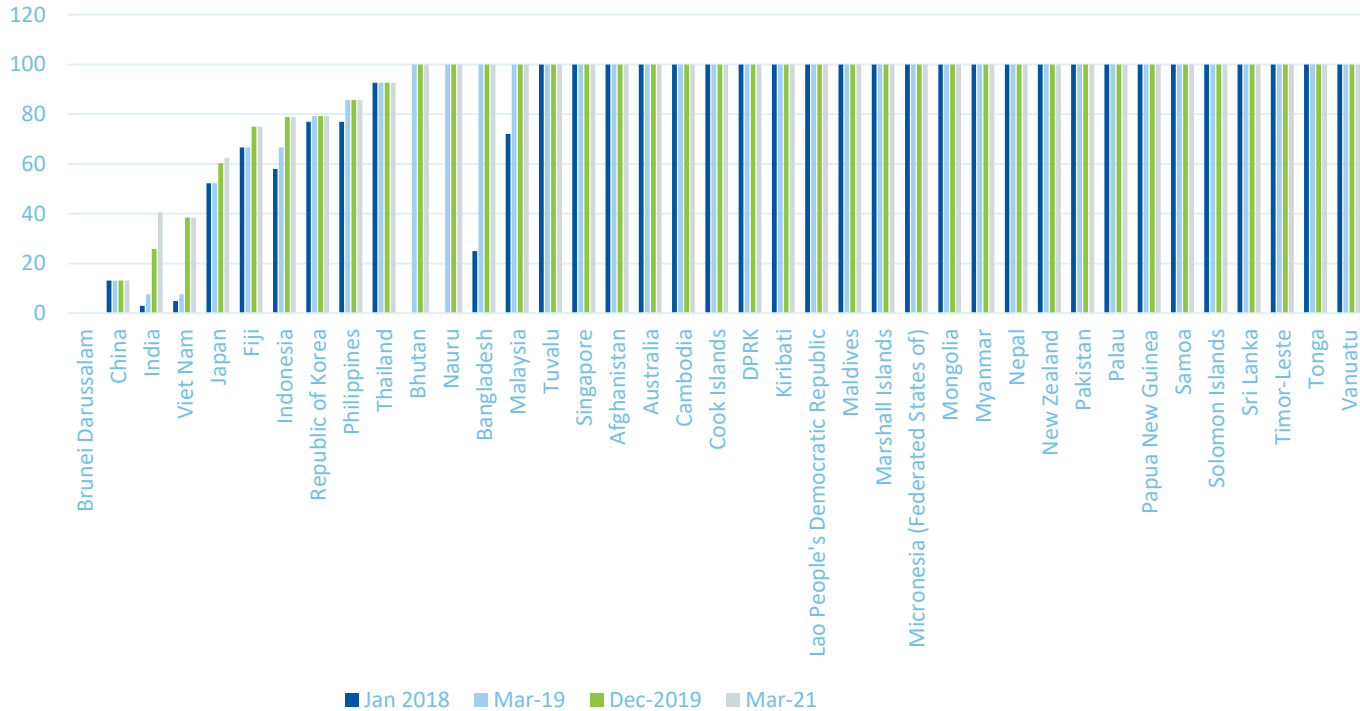
## ICAO Assembly Resolution A37-11 Implementation Status

Dec 2019	LNAV	APV		PBN SID	PBN STAR
		LNAV/VNAV	LPV		
Global (%)	74.8	56.5	34.1	47.8	43.9
Asia/Pacific (%)	62.6	43.5	0	70	67.8

March 2021	LNAV	APV		PBN SID	PBN STAR
		LNAV/VNAV	LPV		
Global (%)	71.4	59.4	34.4	49.4	44.8
Asia/Pacific (%)	57.5	47.1	0	71.6	68.8



# PBN Update(March 2021) –APAC-as per iSTARS 3.0





## Activities related to PBN in APAC post PBNICG/7

Report of PBNICG/7 was reviewed in CNS SG/24 held from 30 Nov–4 Dec 2020 and APANPIRG/31 held from 14 -16 December 2020 though VTC and following points were highlighted in APANPRID/31:-

- States' PBN Implementation Progress
- Discussion on CDO/CCO Implementation by China and India
- List of Action Items from previous PBNICG meetings and those 6 out of 7 items were closed after discussion.
- Discrepancy about the list of International Airports in iSTARS and ANP.



## Activities related to PBN in APAC post PBNICG/7

- RSO discussed the issue about the discrepancy in the list of International Airports in iSTARS and ANP with ICAO HQ.
- It was agreed that ANP to be used as reference for Number of International Airport.
- In order to have updated information about International Airports, States have been urged to update the list in ANP Vol-I and Vol-II as per Para 3.1.4 of the APANPIRG/31 report.



THANK YOU!