



ICAO

# INTERNATIONAL CIVIL AVIATION ORGANIZATION

A UN SPECIALIZED AGENCY





## APAC ANSP Committee (AAC)

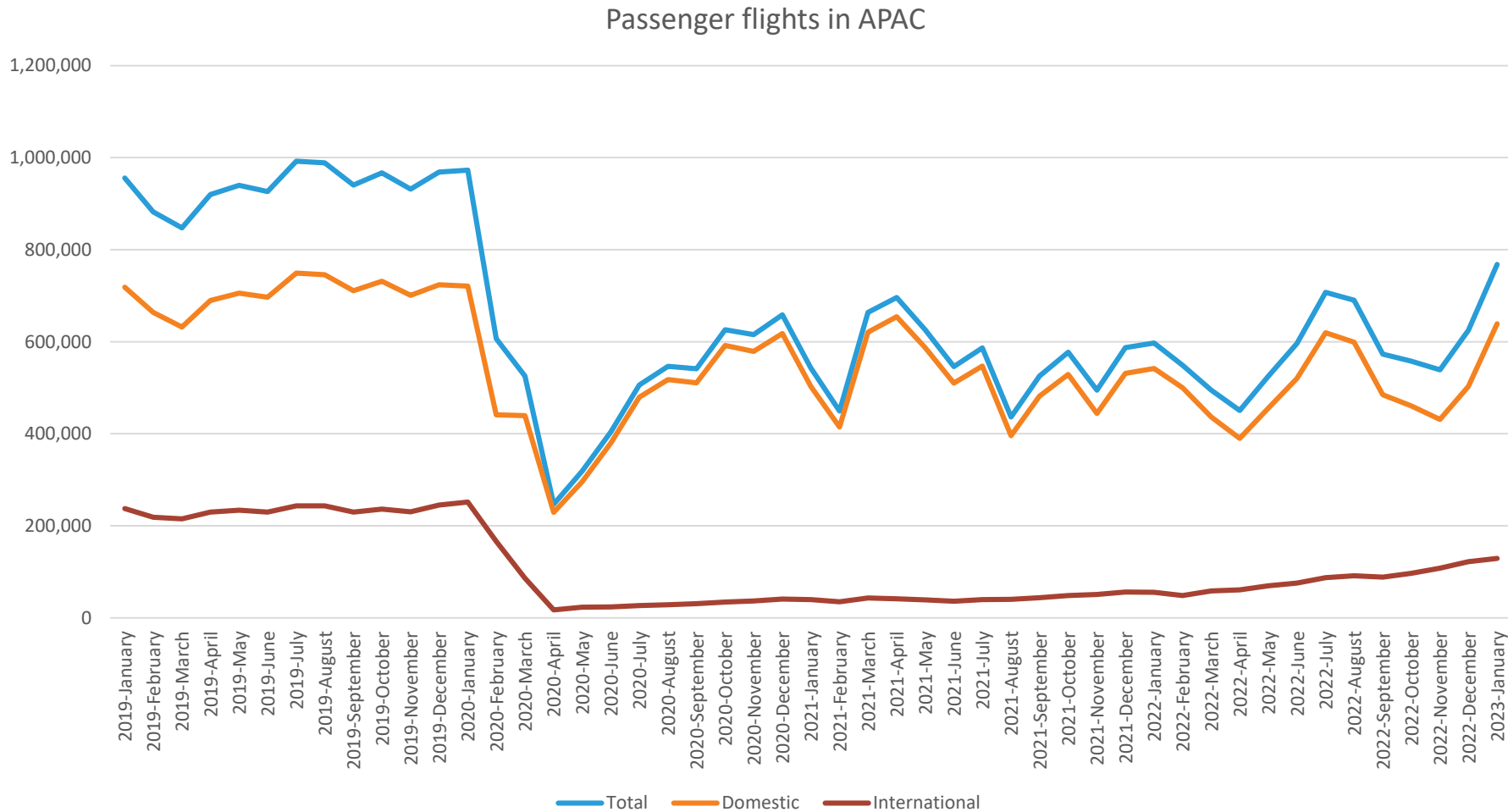
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### Agenda Item 2 : Presentation on the key Air Navigation Services implementation challenges in APAC

First Meeting 17-18 April 2023  
APAC Regional Office, Bangkok, Thailand  
Raphael GUILLET  
Chief of the APAC RSO Office



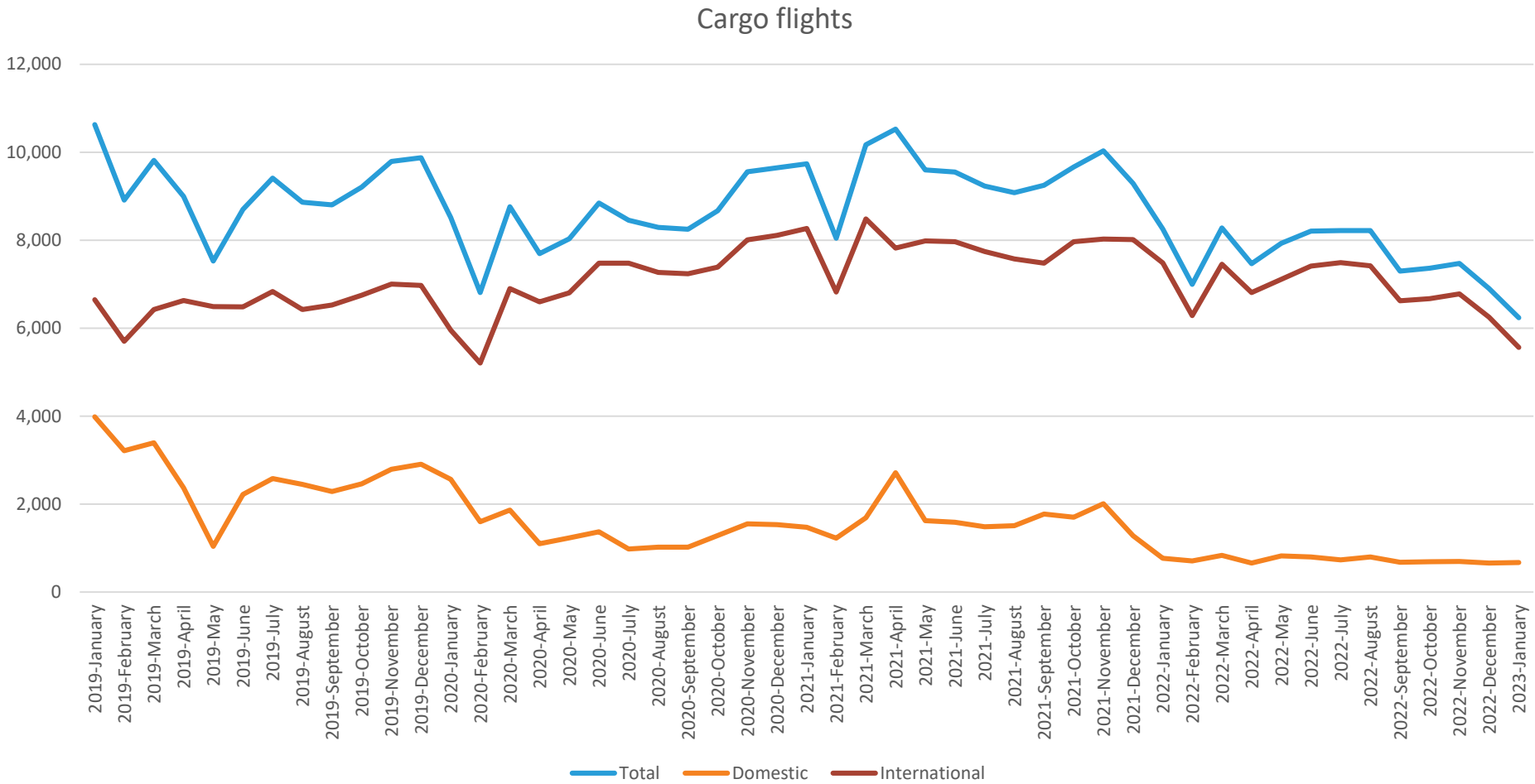
# Traffic recovery in APAC



Source : ICAO data solution



# Traffic recovery in APAC



Source : ICAO data solution



## Presentation overview



ANS bodies in the APAC region

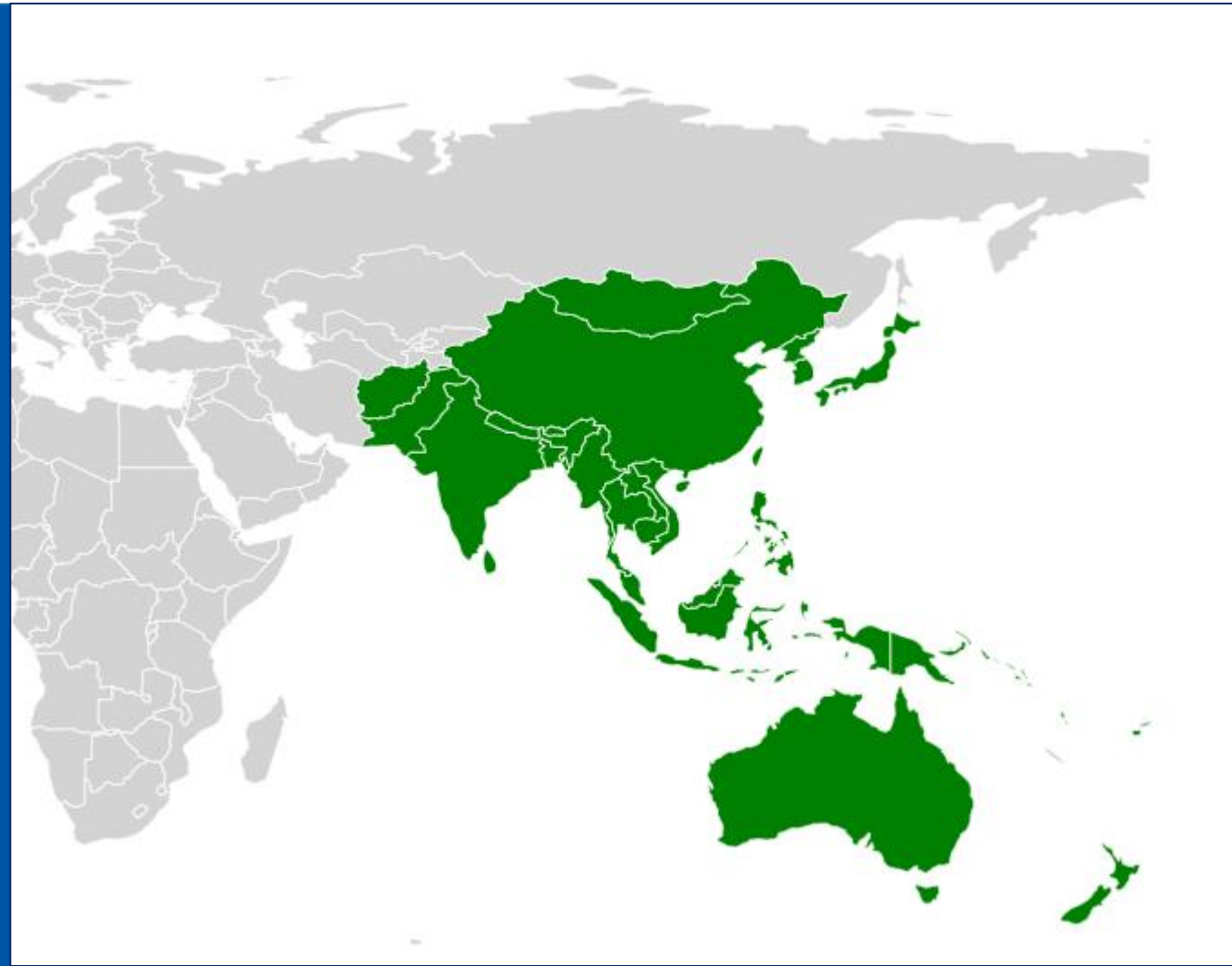
Methodology

ANS commitments' implementation status

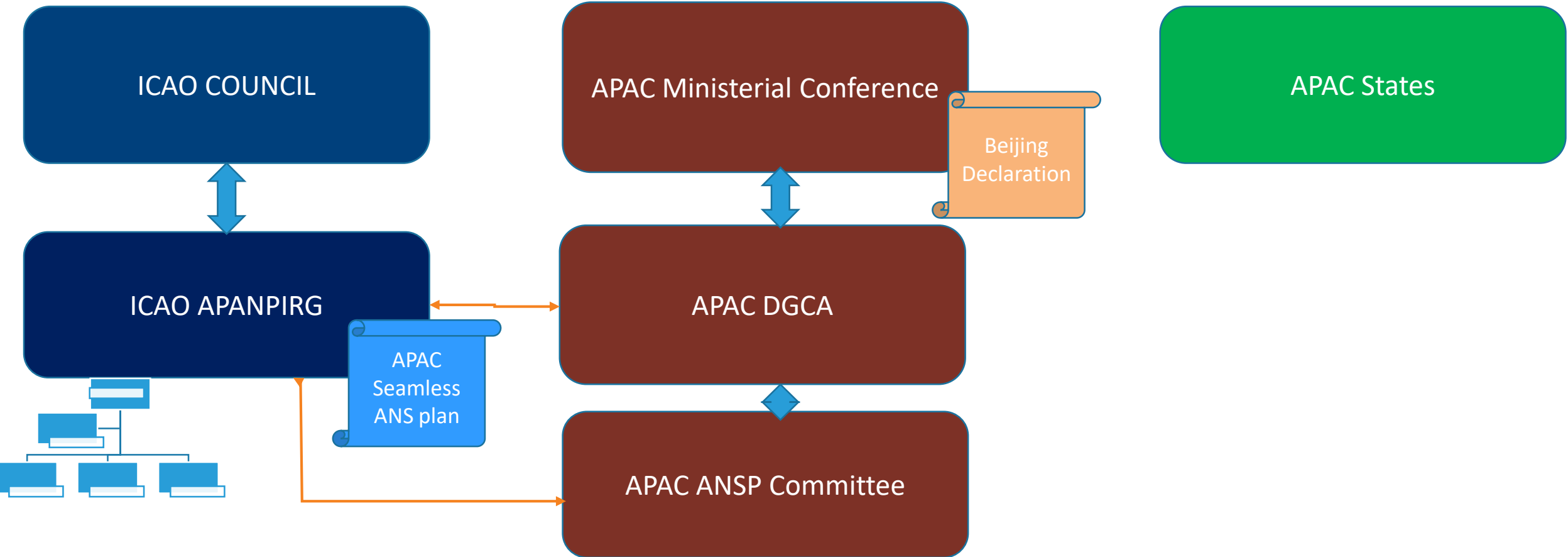
Key ANS implementation challenges

Conclusion

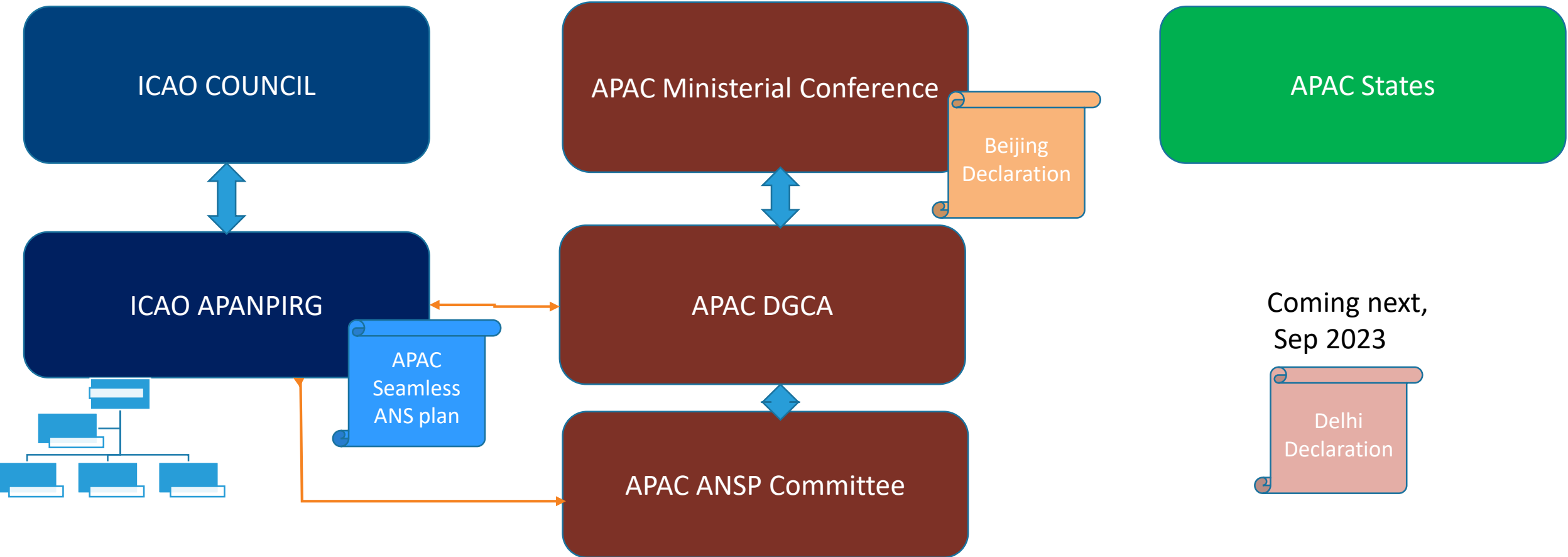
01  
ANS bodies in  
the APAC  
region



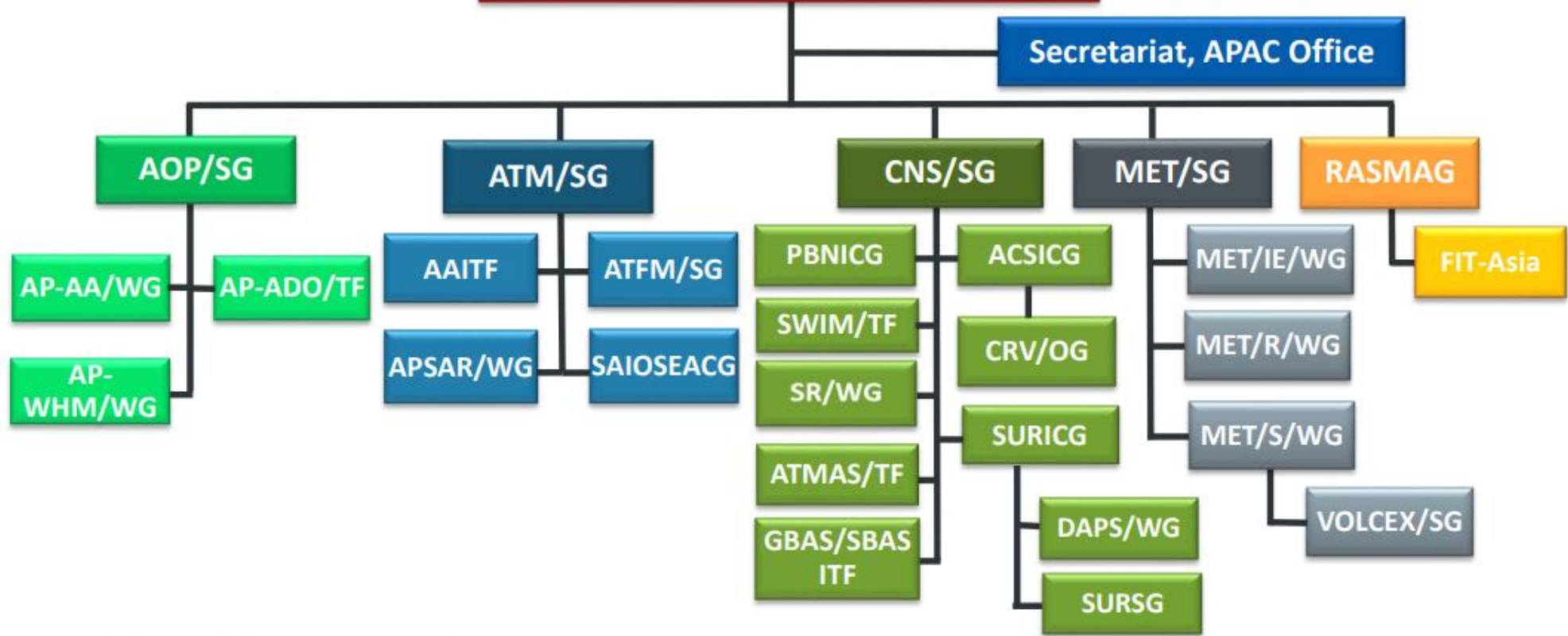
# ANS bodies in the APAC region



# ANS bodies in the APAC region



# APANPIRG



**AOP/SG** - Aerodrome Operations and Planning Sub Group  
**AP-AA/WG** - APAC Aerodrome Assistance Working Group  
**AP-ADO/TF** - APAC Aerodrome Design and Operations Task Force  
**AP-WHM/WG** - APAC Wildlife Hazard Management Working Group

**ATM/SG** - ATM Sub Group  
**AAITF** - AIS - AIM Implementation Task Force  
**APSAR/WG** - APAC Search and Rescue Working Group  
**ATFM/SG** - ATFM Steering Group  
**SAIOSEACG** - South Asia Indian Ocean and South East Asia ATM Coordination Group

**CNS/SG** - CNS Sub Group  
**PBNICG** - PBN Implementation Coordination Group  
**SWIM/TF** - System-Wide Information Management Task Force  
**SR/WG** - Spectrum Review Working Group  
**ATMAS/TF** - ATM Automation System Task Force  
**GBAS/SBAS ITF** - GBAS/SBAS Implementation Task Force  
**ACSICG** - Aeronautical Communication Services Implementation Coordination Group  
 • **CRV/OG** - Common Regional Virtual Private Network (VPN) Operations Group  
**SURICG** - Surveillance Implementation Coordination Group  
 • **DAPS/WG** - Mode S Downlinked Aircraft Parameters Working Group  
 • **SURSG** - Surveillance Study Group

**MET/SG** - Meteorology Sub Group  
**MET/IE/WG** - Meteorological Information Exchange Working Group  
**MET/R/WG** - Meteorological Requirements Working Group  
**MET/S/WG** - Meteorological Services Working Group  
 • **VOLCEX/SG** - (APAC) Volcanic Ash Exercises Steering Group

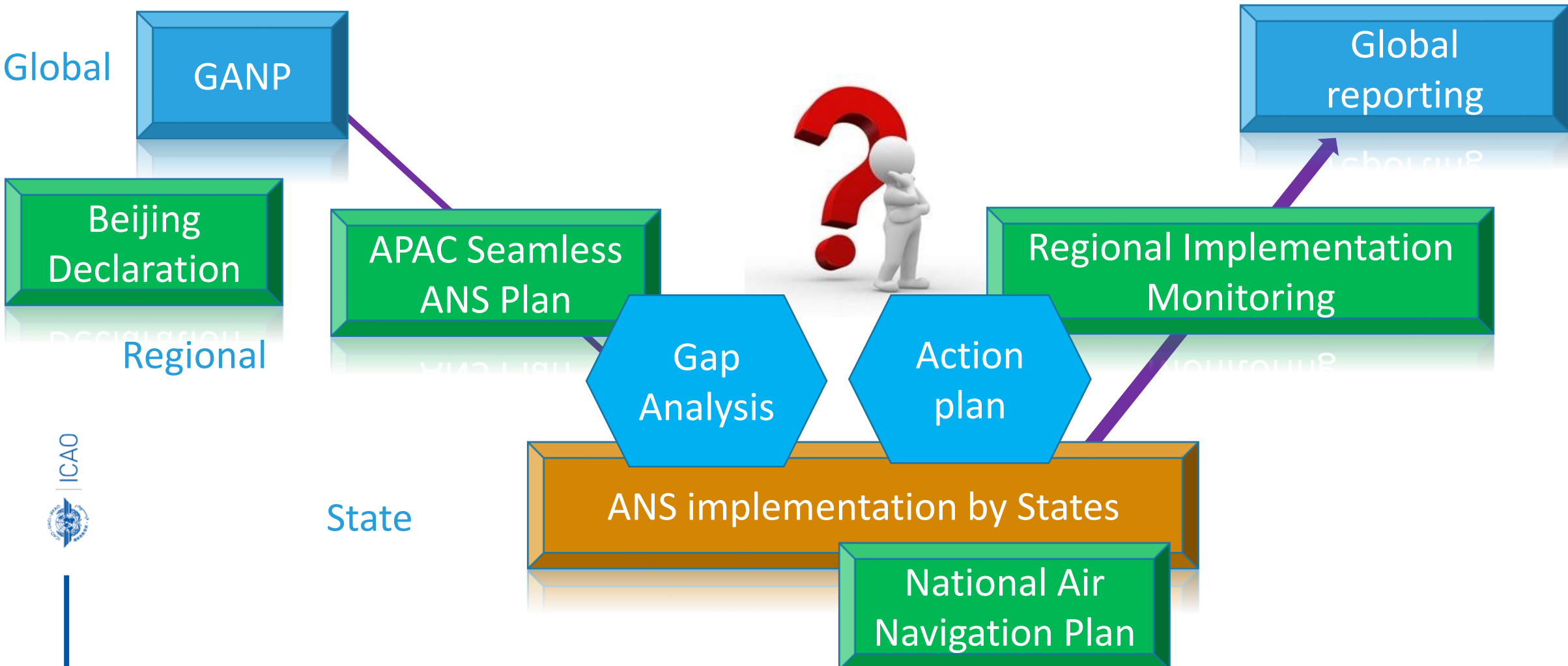
**RASMAG** - Regional Airspace Safety Monitoring Advisory Group  
 • **FIT-ASIA** - FANS Implementation Team – Asia

02

# Methodology



# Methodology



## USOAP CMA Protocol Questions related to ANS

- a total of 122 Protocol Questions
- The USOAP CMA activities in the area of ANS address legislative and regulatory provisions, including operational and oversight activities, in seven fields, namely:

- 1) Air Traffic Management (ATM),
- 2) Procedures for Air Navigation Services: Aircraft Operations (PANS-OPS),
- 3) Aeronautical Information Services (AIS),
- 4) Aeronautical Charts (Chart),
- 5) Communications, Navigation and Surveillance (CNS),
- 6) Aeronautical Meteorology (MET), and
- 7) Search and Rescue (SAR).



03  
ANS  
commitments'  
implementation  
status



# Air Navigation Services

## a) Aeronautical Information Management (AIM) (1/3)



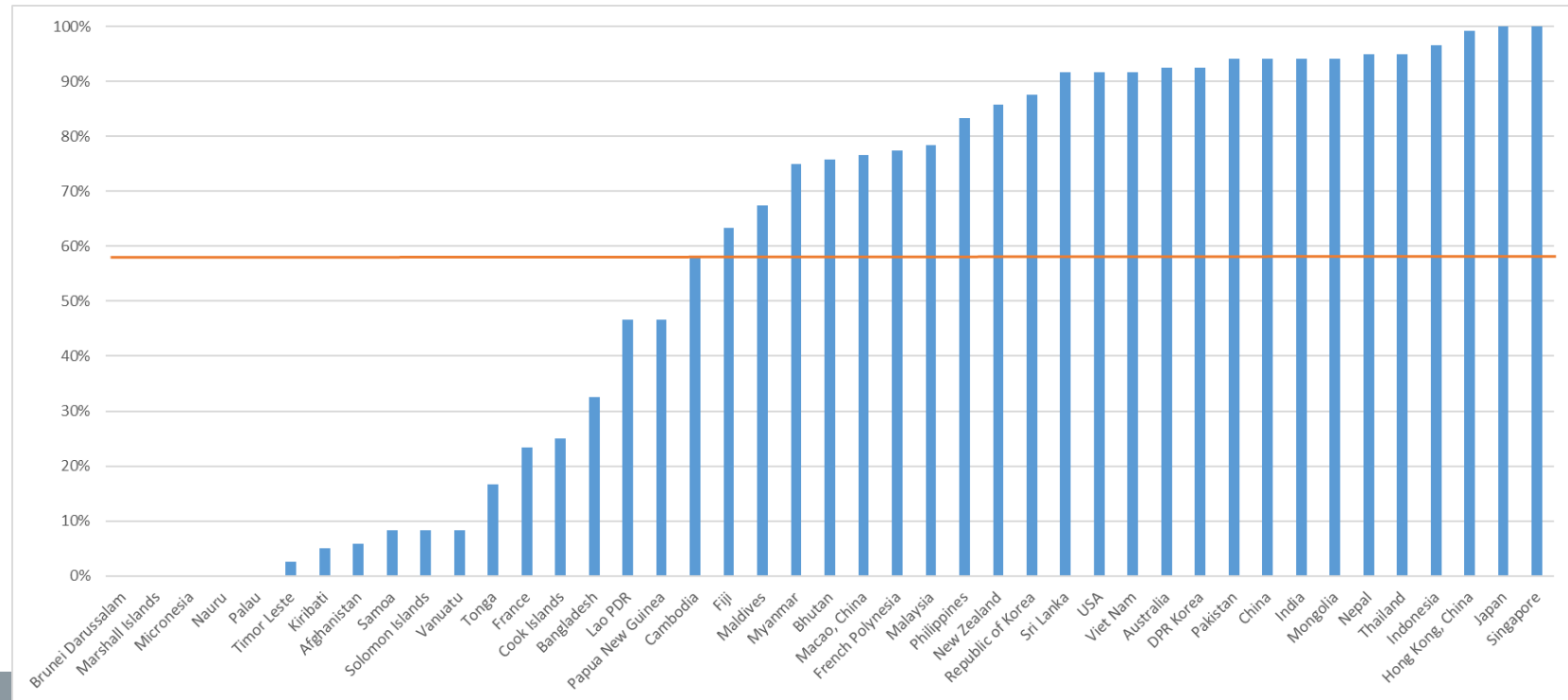
Transitioning from  
AIS to AIM  
by 2022  
( Phase I and II )



Regional AIM Plan  
Monitoring and Reporting

### ✈ Phase I (Consolidation existing SARPS)

- immediate implementation
- current status = 58 % ( 55% in 2022)



# Air Navigation Services

## a) Aeronautical Information Management (AIM) (2/3)

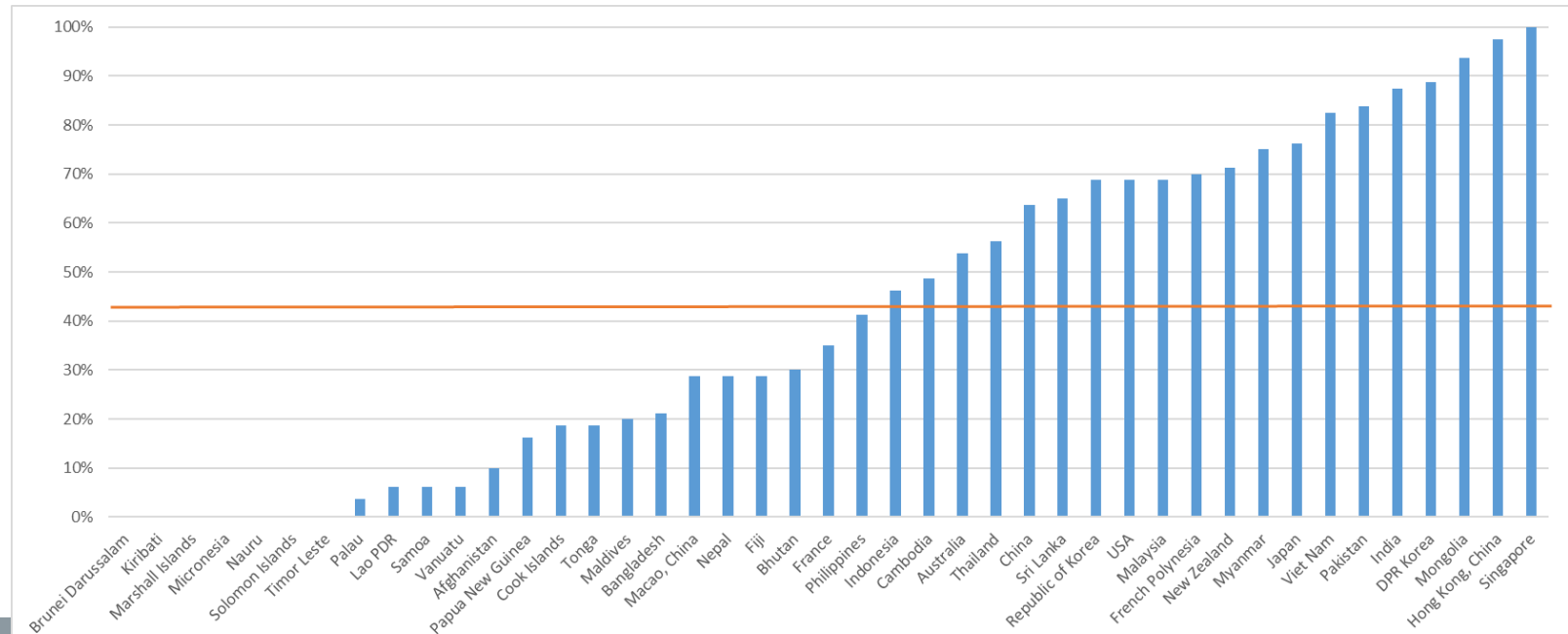


Transitioning from  
AIS to AIM  
by 2022  
( Phase I and II )



Regional AIM Plan  
Monitoring and Reporting

- ✈ Phase II (Going Digital)
  - target November 2019
  - current status = 42% (40% in 2022)
- ✈ Overall Phase 1 & 2 = 51% (49% in 2022)



# Air Navigation Services

## a) Aeronautical Information Management (AIM) (3/3)



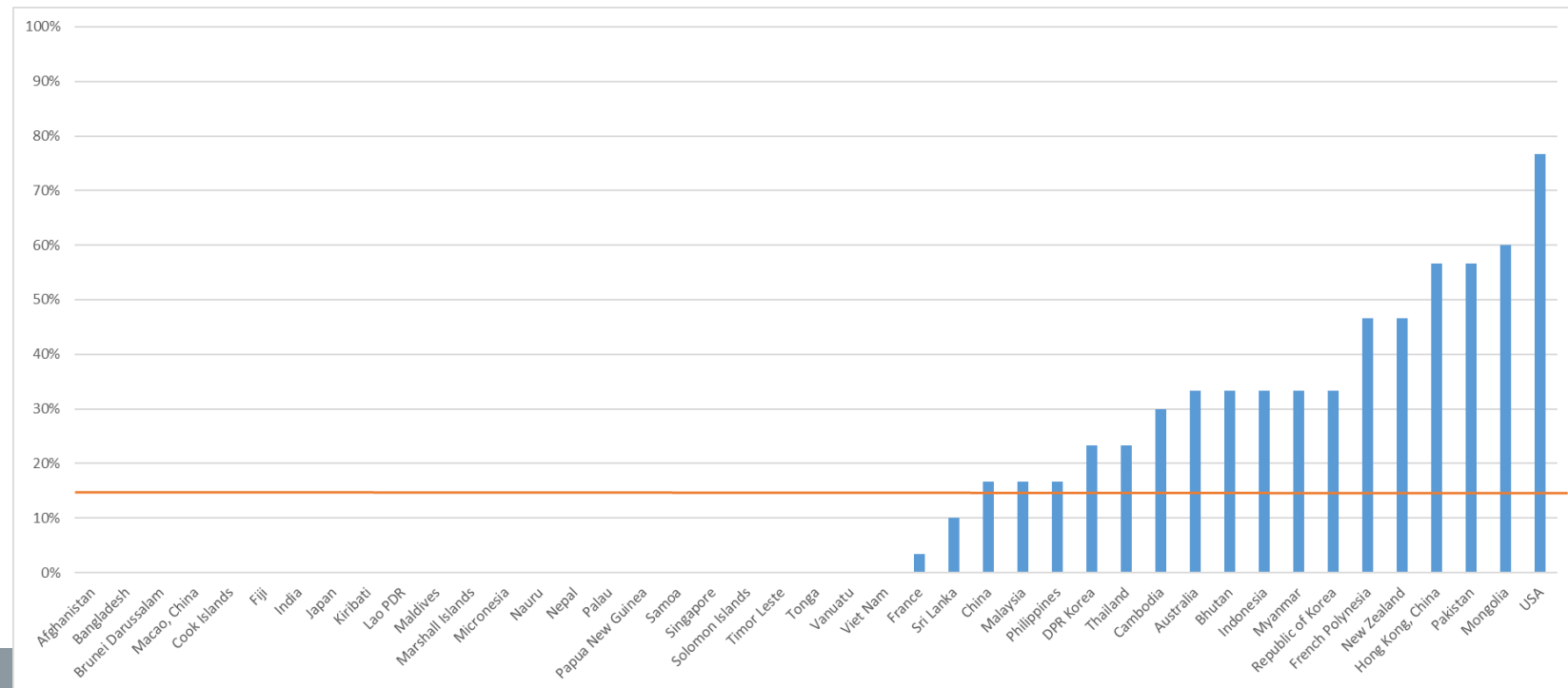
Transitioning from  
AIS to AIM  
by 2022  
( Phase I and II )



Regional AIM Plan  
Monitoring and Reporting

### ✈ Phase III (including SWIM-dependent AIM)

- Target November 2025
- current status = 15 % ( 13% in 2022)



# Air Navigation Services

## a) Aeronautical Information Management (AIM) (3/3)

Poor implementation of AIM across the APAC Region.

ICAO Regional Office remains very concerned by the widespread lack of State and ANSP organizational understanding of the safety-critical need for robust, quality-managed AIS/AIM implementation.

# Air Navigation Services

## b) Performance Based Navigation (PBN)

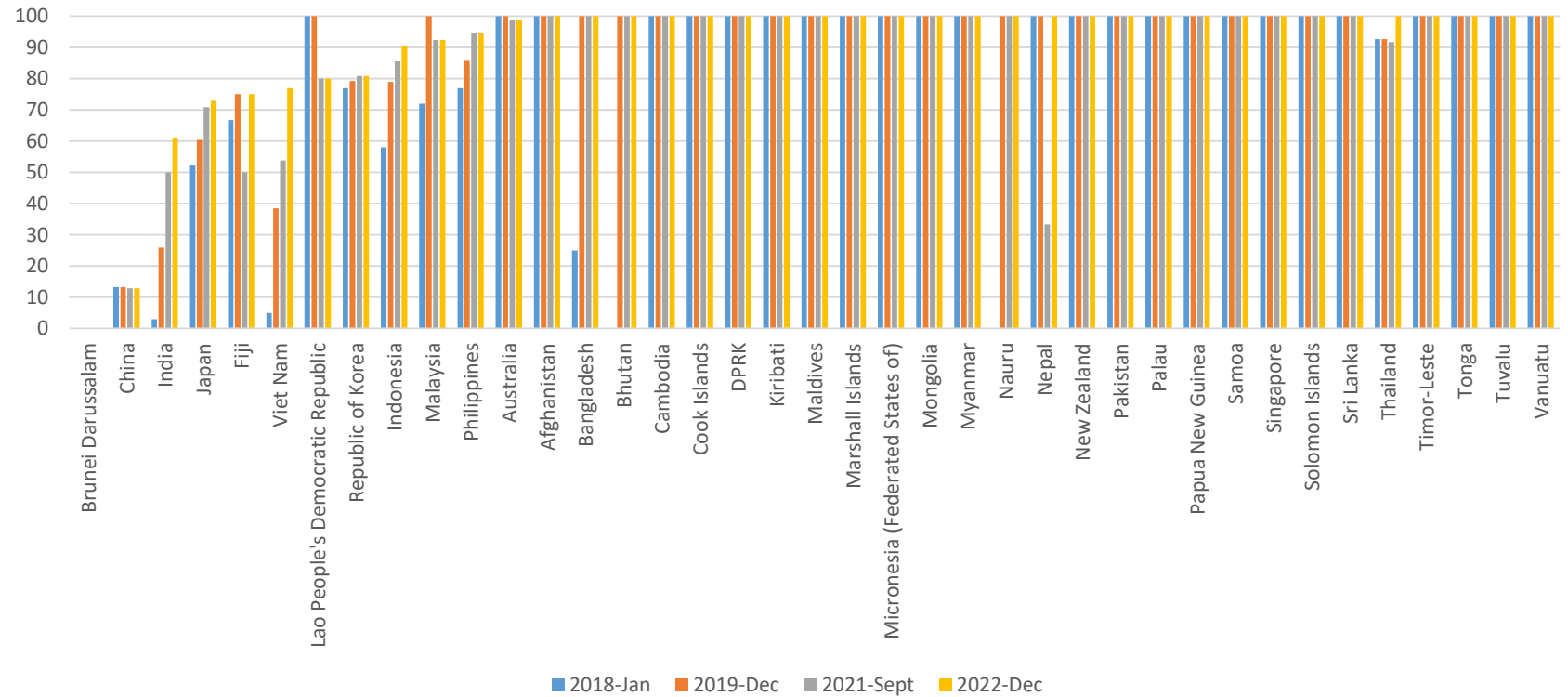


PBN implementation by 2022



% PBN and %SID/STAR at intl runway ends iSTARS and Jeppesen

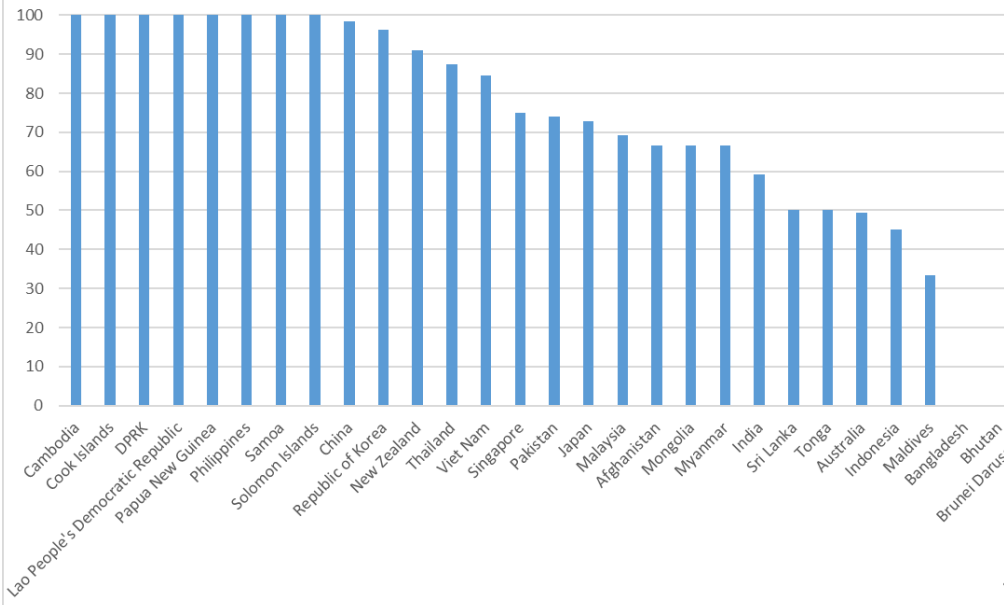
PBN Approach Procedure Implementation at International Airports



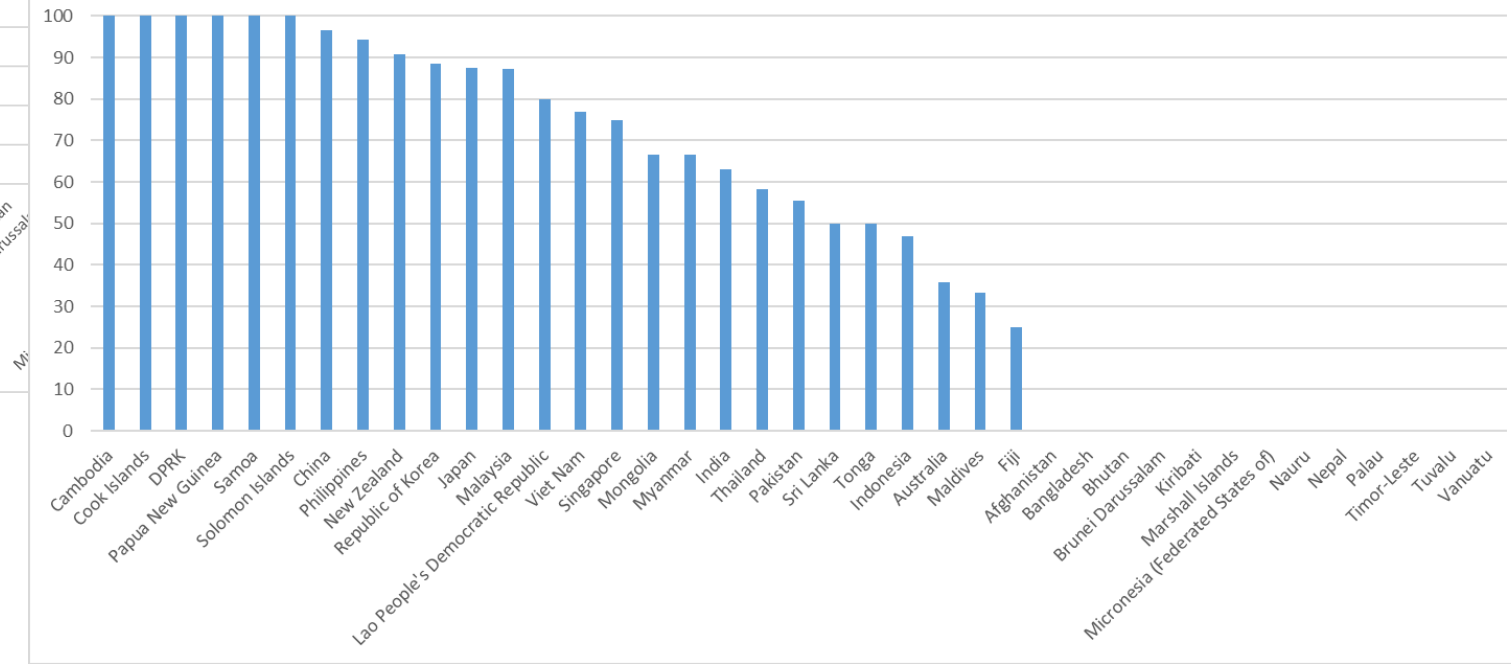
# Air Navigation Services

## b) Performance Based Navigation (PBN)

PBN SID implementation at international aerodromes



PBN STAR implementation at international aerodromes



# Air Navigation Services

## c) Ground telecommunication infrastructure



Common ground/ground telecommunication infrastructure to support ANS applications by 2022



CNS Meetings

- ✈️ **16 States/Administrations** (compared to 14 last year) have joined Common aeRonautical VPN (**CRV**) and implemented operations: Australia, Bhutan, China, Fiji, Hong Kong China, India, Indonesia, Japan, Malaysia, New Zealand, Philippines, PNG, Republic of Korea, Singapore, Thailand, and USA;
- ✈️ **Additional 3 States** (Nepal, Mongolia, and Vietnam) have joined CRV, while installation is in progress

# Air Navigation Services

## c) Ground telecommunication infrastructure



Common ground/ground telecommunication infrastructure to support ANS applications by 2022



CNS Meetings

- ✈ Aeronautical Message Handling System (AMHS) with File Transfer Body Parts (FTBP) function for IWXXM data
- ✈ 28 States/Administrations have implemented AMHS



# Air Navigation Services

## e) Surveillance capability



Enhanced surveillance capability including ADS-B technology by 2022



CNS meetings

**31 States/Administrations** (30 last year) installed ADS-B ground stations and

**12 States** (same) issued ADS-B mandate

**8 States** (same) used ADS-B for separation and others for awareness, gap filling and redundancy.

# Air Navigation Services

## f) Air Traffic Flow Management (ATFM) / Collaborative Decision Making (CDM)



ATFM/CDM  
implementation for high  
density airports by 2022



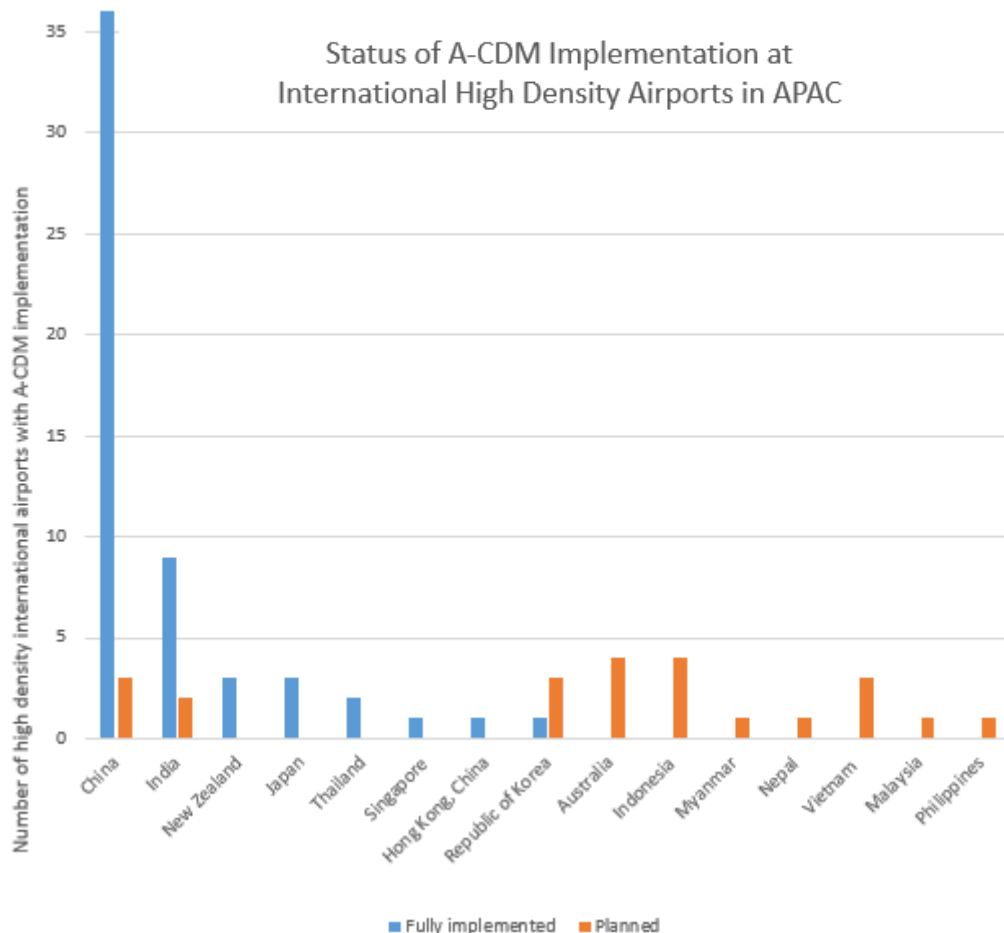
Regional ATFM Plan  
Monitoring and Reporting,  
APAC A-CDM Implementation  
Survey and APA-CDM/TF/6  
Meeting

Two indicators have been selected:

- Number of international high density airports with Airport-CDM implemented, and
- High density FIRs and FIRs supporting Major Traffic Flows and high density aerodromes with ATFM/CDM implemented
  - High density airport = airport with 100,000 scheduled movement per annum or more (APAC Seamless ANS Plan)

# Air Navigation Services

## f) Air Traffic Flow Management (ATFM) / Collaborative Decision Making (CDM)



Total number of international high density airports = **73** (pre COVID-19)

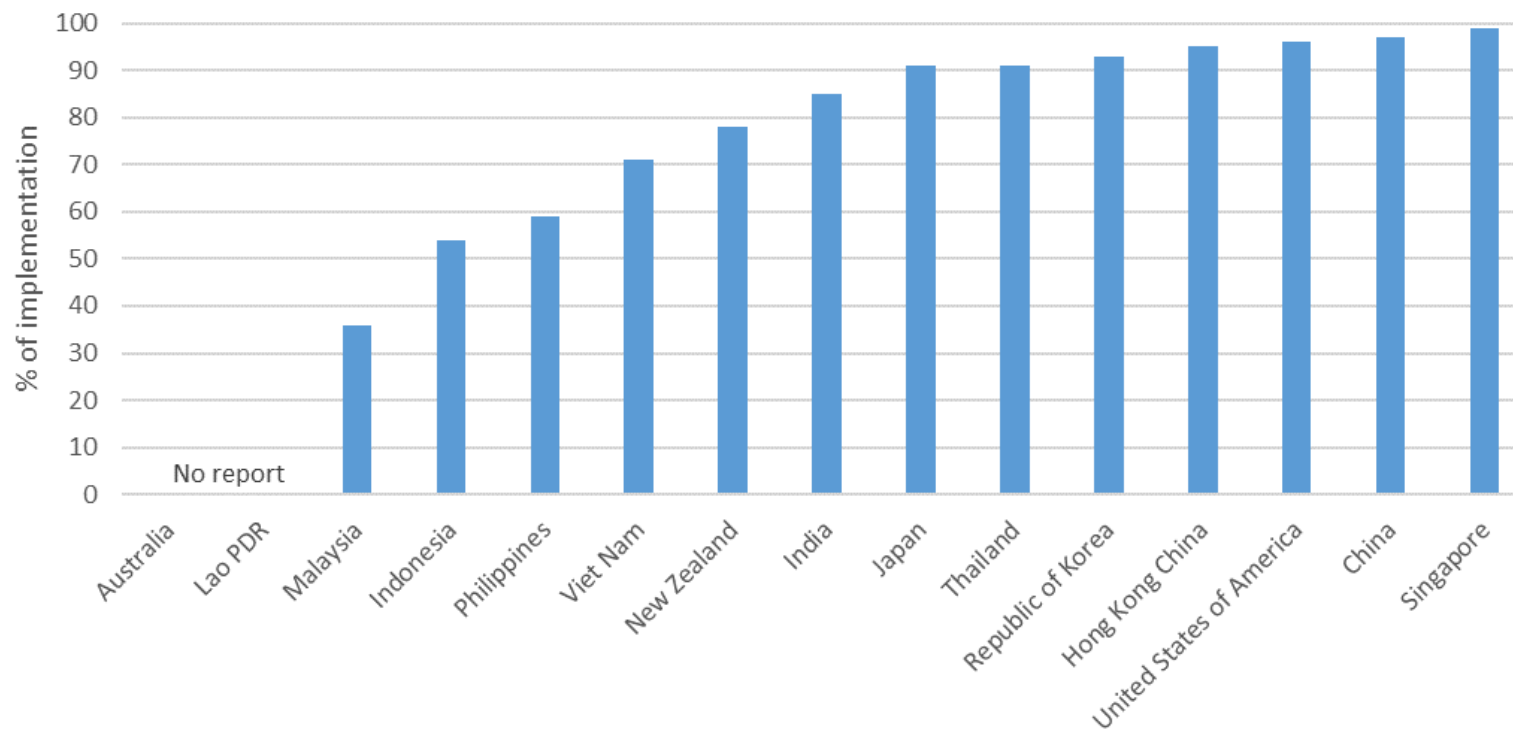
**56** of them (55 international + 1 domestic) had implemented A-CDM (49 last year)

**23** have planned to implement A-CDM.

# Air Navigation Services

## f) Air Traffic Flow Management (ATFM) / Collaborative Decision Making (CDM)

% of High Density FIRs supporting busiest APAC flows  
and high density aerodromes using ATFM/CDM



# Air Navigation Services

## g) National Air Navigation Plan



Include air navigation in national planning frameworks such as National Development Plans (NDPs) supported by National Air Navigation Plans by 2022

Few States have reported to the Regional Office having developed or commenced a National Air Navigation Plan (NANP)

- ❖ A template is now available on APAC eDocuments web-page, under the ATM section (Seamless ANS Plan sub-section).
- ❖ No common NANP reporting form due to one State's disagreement



Number of States reporting National Air Navigation Plan (NANP)

# 04

## Key ANS implementation challenges



# Key ANS implementation challenges



Inappropriate  
separation  
minimums



Fragmented  
airspace



Airspace capacity

# Key ANS implementation challenges



Aeronautical  
Information  
Services

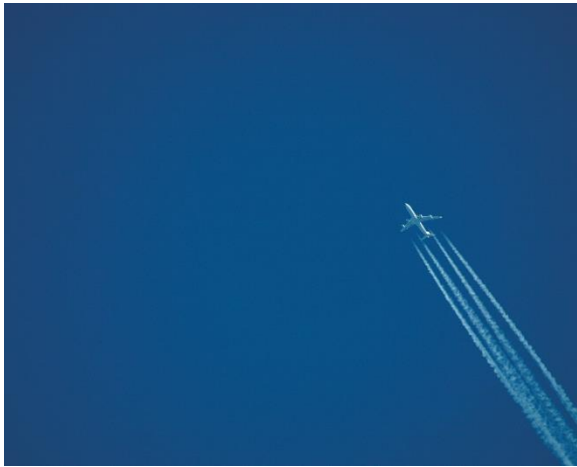


ATM Contingency  
Operations



Space vehicle  
launch and re-  
entry

## Key ANS implementation challenges



Lack of  
Civil/Military  
cooperation



ATM change  
safety  
assessment

# 05 Conclusion



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## Conclusion

- After the recovery, the APAC region is expecting a strong air traffic growth but the air navigation infrastructure may not be strong enough to sustain this growth.
- APANPIRG is defining the ANS roadmap for the APAC region.
- The APAC ANSP Committee could be a forum to develop collaboration among APAC ANSP to expedite the modernization of ANS in the region.
- ICAO will ensure coordination between APANPIRG and APAC ANSP Committee.
- Opportunity to add, in the coming Delhi Declaration for September, some commitments from Ministers in charge of civil aviation about ANSP.

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# Thank You

