



ICAO

International Civil Aviation Organization

**The First Meeting of the South Asia, Indian Ocean and
Southeast Asia ATM Coordination Group (SAIOSEACG/1)**

Video Teleconference, 28 March – 01 April 2022

Agenda Item 5: Implementation of CNS/ATM Systems

SEAMLESS ANS PLAN UPDATE

(Presented by the Secretariat)

SUMMARY

This paper presents the status of the *Asia/Pacific Seamless Air Navigation Services (ANS) Plan* reporting, and the implementation progress of air navigation improvements in the Asia/Pacific Region. Due to the lack of current reporting system, the ICAO Regional Office was not able to update the current implementation status as the reporting portal was not updated to match the 6th Edition of GANP and Version 3.0 of the Seamless ANS Plan. Implementation status in this paper is as of March 2019.

1. INTRODUCTION

1.1 ICAO Doc 9750 *Global Air Navigation Plan (GANP)* contains the vision of an integrated, harmonized, and globally interoperable Air Navigation Services (ANS) system until and beyond 2028. To achieve this objective, the involvement and active participation of States from each of the seven ICAO Regions is essential. To facilitate the adaptation process of global expectations, a regional plan was created.

1.2 The first version of the Asia/Pacific Seamless ATM Plan was published in 2013. In 2014, the APANPIRG/25 Meeting adopted Regional Priorities and Targets for the APAC Region through the following Conclusion:

Conclusion APANPIRG 25/2 – APAC Regional Air Navigation Priorities and Targets

That, the Regional Priorities and Targets contained in Appendix A to this Report on Agenda Item 3.0 be endorsed by APANPIRG.

1.3 After the creation of an ICAO web-based reporting tool, APANPIRG adopted the following:

Conclusion APANPIRG 25/5 – Web-based Seamless ATM Implementation Progress Reporting Process

That, States/Administrations be urged to report on their Seamless ATM implementation progress at least once a year through the ICAO online reporting process from November 2014 onwards.

1.4 The ICAO Regional Office also encouraged APAC States/Administrations to nominate their Points of Contact (POCs) as requested by ICAO State Letter. The POCs are responsible for submitting and updating their respective State's progress of *Seamless ANS Plan* implementation.

1.5 In order to align with the 6th Edition of GANP, APANPIRG reviewed and adopted the *Asia/Pacific Seamless ANS Plan Version 3.0* (renamed from Asia/Pacific Seamless ATM Plan).

APANPIRG Conclusion 30/5- Asia/Pacific Seamless ANS Plan

That, given the urgency and priority of Air Navigation Service (ANS) planning and modernization, and the lack of progress in implementing the Aviation System Block Upgrade (ASBU) Block 0, Asia/Pacific States are urged to:

- (1) review Version 3.0 of the Asia/Pacific Seamless ANS Plan appended as Appendix A to the Report on Agenda Item 3.2; and*
- (2) consider utilising the Asia/Pacific Seamless ANS Plan to develop a National Air Navigation Plan (NANP) after considering the NANP Template at Appendix B to the Report on Agenda Item 3.2, to enable timely implementation of applicable Seamless ANS elements*

1.6 The ICAO Regional Office was previously advised by HQ in January 2019 that a new reporting portal would be available by late 2019. APANPIRG adopted the following:

APANPIRG Conclusion 30/6 - ICAO HQ Support for Regional ANS Implementation

That, ICAO HQ is invited to:

(1) given the greatly increased number and complexity of Aviation System Block Upgrade (ASBU) elements in the draft 6th Edition of the Global Aviation Navigation Plan (GANP), the redefinition of ASBU Block 0 elements that were expected to be completed by 2019, and the need for more detailed and comprehensive guidance provided on the ASBU Portal for each element than is currently provided, consider:

- (i) the consequences for States of different capabilities to ensure that the No Country Left Behind (NCLB) policy is fully considered; and*
 - (ii) the extra resources, tools and training required to enable States to be able to understand, review, determine priorities and costs/benefits, and implement the applicable ASBU elements; and*
- (2) ensure that the redevelopment of the Regional Air Navigation Plan Volume III templates allow the Asia/Pacific Seamless Air Navigation Service (ANS) Plan to be fully incorporated into Vol. III without amendment; and*
- (3) ensure an urgent upgrade of the electronic regional ANS Monitoring and Reporting Scheme to:*
- (i) allow States to electronically submit data related to the Seamless ANS Plan and its subsidiary plans; and*
 - (ii) ensure the ICAO Regional Office can amend online elements, metrics and priorities, consistent with APANPIRG endorsements.*

1.7 ICAO HQ, Air Navigation Bureau, formed a team consisting of focal points from all seven regional offices to develop a more automated system for the implementation of the Regional Dashboards. The Regional Office will keep this meeting updated on the progress of the new reporting tool when it becomes available.

2. DISCUSSION

Reporting Status

2.1 As a follow-up to Conclusion APANPIRG 25/5, a number of States/Administrations had reported on their Seamless ATM implementation progress. The status of the reporting process as at March 2019 is depicted in **Figure 1**.

Important note: the Regional Seamless reporting tool (accessible via the Regional Office website at <https://www.icao.int/APAC/Pages/ATMReport.aspx>) has not yet been updated by ICAO HQ to take into account the changes to the latest version of the Global Air Navigation Plan and what is now called the Asia/Pacific Seamless ANS Plan, so the reporting status information should be treated with caution. The last data update of the current system was in March 2019.

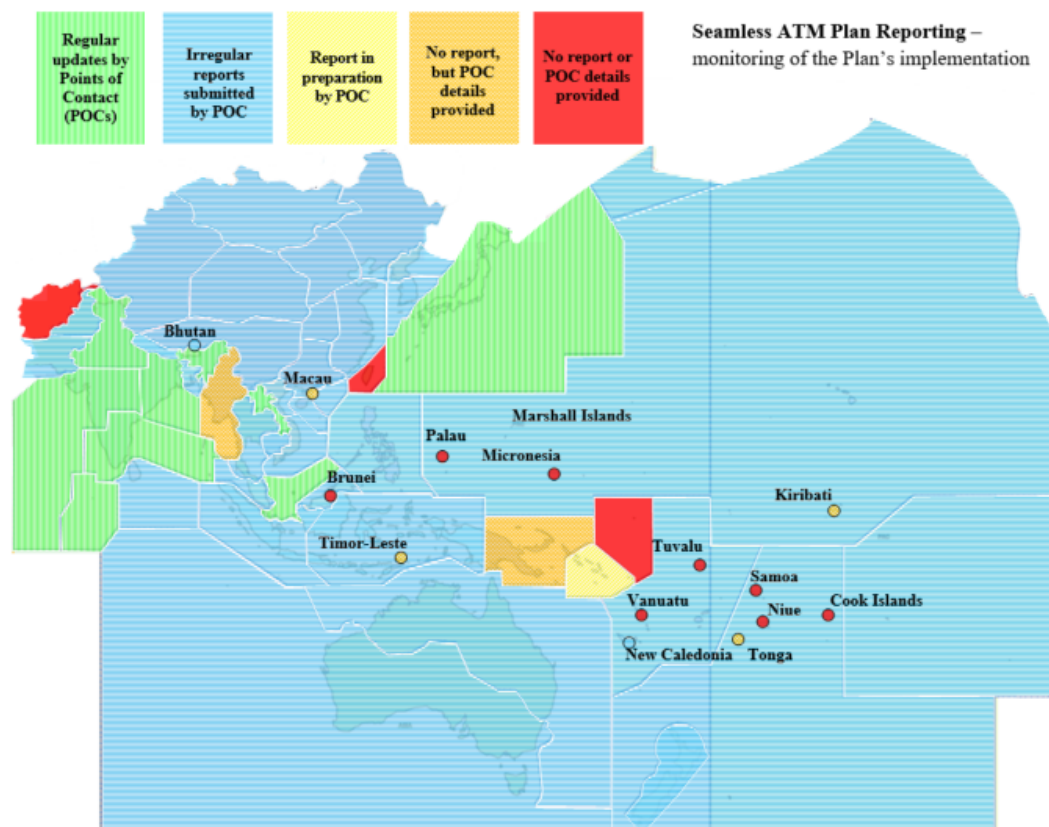


Figure 1: Seamless ATM Reporting

2.2 A total of **28** States/Administrations, i.e. 63.6% of the APAC States/Administrations, have submitted one or more report(s) on the ICAO Seamless ATM Reporting Portal (accessible through the ICAO Secure Portal). Among those 28 States/Administrations, only six States have submitted at least four reports from 2014 to 2018 (note: 'regular reporting' is measured over the past three years).

2.3 It should be noted that Seamless ATM data is used to support an iSTARS tool intended to illustrate ANS planning and implementation (<https://portal.icao.int/space/Pages/Catalogue.aspx>).

2.4 A total of **16** States/Administrations have not prepared Seamless ATM reports:
Afghanistan, Brunei Darussalam, Cook Islands, Kiribati, Marshall Islands, Micronesia (Federated State of), Myanmar, Nauru, Palau, Papua New Guinea, Samoa, Solomon Islands, Democratic Republic of Timor-Leste, Tonga, Tuvalu and Vanuatu.

2.5 Details of the reporting status of each State is provided in **Attachment A**. Table 1 provides an indication of the year-by-year reporting of States, indicating that apart from India, Japan and Singapore, no APAC State or Administration had institutionalized Seamless ATM reporting, despite this being agreed at APANPIRG.

2013	2014	2015	2016	2017	2018
Nil*	Australia French Polynesia Hong Kong China India Japan Macao, China Republic of Korea Singapore Sri Lanka Thailand	Australia Bangladesh Bhutan China Fiji French Polynesia Hong Kong China India Indonesia Japan Macao China Malaysia Maldives New Caledonia, Fr. New Zealand Philippines Republic of Korea Singapore Sri Lanka Thailand	Australia Bangladesh Bhutan Cambodia China DPRK Fiji French Polynesia Hong Kong China India Indonesia Japan Lao PDR Macao China Malaysia Maldives Mongolia Nepal New Caledonia, Fr. New Zealand Philippines Republic of Korea Singapore Sri Lanka Thailand Viet Nam	Australia Bangladesh Bhutan Cambodia China DPRK Fiji French Polynesia Hong Kong China India Indonesia Japan Lao PDR Macao China Malaysia Maldives Mongolia Nepal New Caledonia, Fr. New Zealand Pakistan Philippines Republic of Korea Singapore Sri Lanka Thailand United States Viet Nam	Australia Bangladesh Bhutan Cambodia China DPRK Fiji French Polynesia Hong Kong China India Indonesia Japan Lao PDR Macao China Malaysia Maldives Mongolia Nepal New Caledonia, Fr. New Zealand Pakistan Philippines Republic of Korea Singapore Sri Lanka Thailand United States Viet Nam
0	10 (22.7%)	20 (45.4%)	26 (59%)	28 (63.6%)	28 (63.6%)

Table 1: States that have reported Seamless ATM implementation status

Points of Contact

2.6 As per **Attachment A** to this paper, a total of **35** States/Administrations (79.5%) had nominated a Point of Contact (POC). A total of **nine** States had not nominated any POC:

Afghanistan, Cook Islands, Marshall Islands, Micronesia (Federated state of), Nauru, Palau, Samoa, Tuvalu and Vanuatu.

Relationship with the e-ANP

2.7 The introduction of the APAC e-ANP (Electronic Air Navigation Plan) took place at the end of 2015. The approved eANP Volume I, Volume II and Volume III are available at: <http://www.icao.int/APAC/Pages/APAC-eANP.aspx>.

2.8 All regional priorities and targets adopted through **Conclusion APANPIRG 25/2** were included in the e-ANP Volume 3. All Seamless ANS objectives were also incorporated in the e-ANP Volume 3, which contained all priorities, targets, metrics and supporting documents within the APAC main planning table in accordance with the e-ANP template adopted by the Council.

Regional Picture

2.9 The purpose of monitoring implementation progress is to identify difficulties and issues, and take corrective actions at APANPIRG, Sub Group, and/or Task Force levels as appropriate.

2.10 The Regional Picture depicts the progress of States/Administrations against the GANP and e-ANP Volume III objectives. This picture is to be used as a tool by the different APANPIRG bodies (as per the Responsibility Matrix) to steer their action and take corrective actions as needed to ensure full implementation of the objectives. In order to improve the quality and accuracy of the data reported, the ICAO APAC Office interacted with POCs on an ongoing basis and cross-checked the information available from other sources of collection.

2.11 The Regional Picture was presented to the APANPIRG/27 meeting to review the progress of implementation of the 45 Seamless ATM elements. The implementation progress by States and Administrations as at March 2019 is illustrated in **Figure 2**:

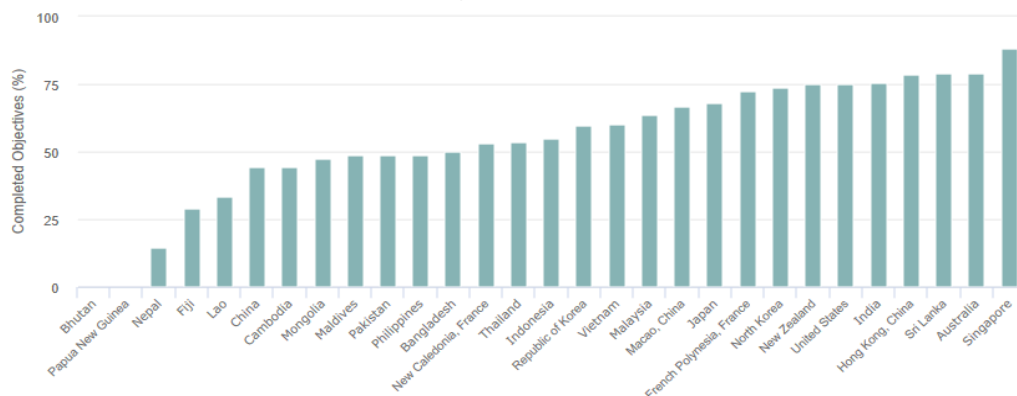


Figure 2: Percentage of completed Seamless ATM elements by States

2.12 States were urged by APANPIRG/27 to give higher priority both at CAA and Air Navigation Service Provider (ANSP) levels, and to mobilize human and financial resources to complete the implementation of Phase 1 objectives. Notwithstanding this, Phase 1 was far from being implemented, even three years after the initial target date. Moreover, the meeting noted that in 2019, States were expected to start implementing Phase II elements, which were aligned with the Global Air Navigation Plan (GANP) Aviation System Block Upgrade (ASBU) Block 1.

2.13 **Figure 3** provides an illustration of the overall regional implementation, by Seamless ATM elements.

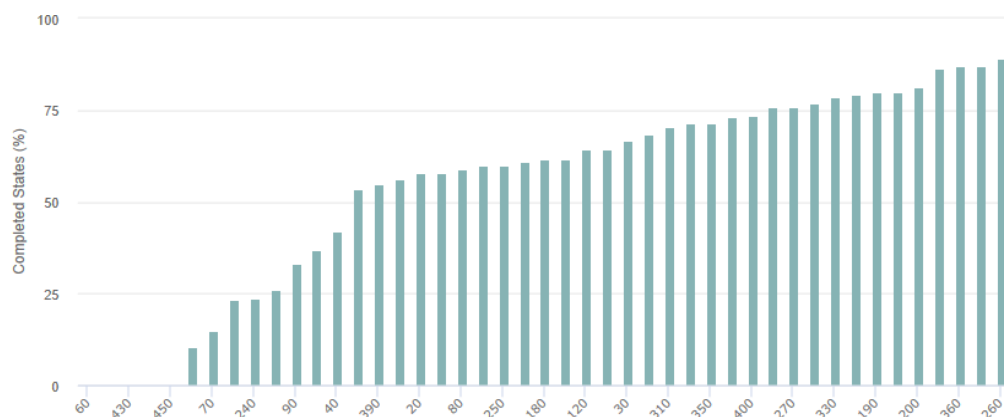


Figure 3: APAC Regional Percentage of Completed Seamless ATM Elements

2.14 In general, the priority regional targets planned for Phase I (November 2015- November 2019) had not yet been achieved (**Table 2**).

Acceptable Implementation	
ADS-C, CPDLC	B0-TBO
Partial Implementation	
Strategic Civil Military coordination	Regional
Tactical Civil Military coordination	Regional
ADS-B airspace	B0-ASUR

ATS surveillance with data integrated	B0-ASUR
ATS Inter-facility Data-link Communications (AIDC)	B0-FICE
Civil Military use of Special Use of Airspace (SUA)	B0-FRTO
Partial and Slow Implementation	
Approaches, including PBN	B0-APTA
Air Traffic Flow Management/Collaborative Decision-Making (ATFM/CDM)	B0-NOPS
Unacceptable Implementation Progress	
Aeronautical Information Management (AIM)	B0-DATM

Table 2: Summary of Priority Elements

2.15 There are now 16 Priority 1 Elements [ASBU Block 0 and 1, and and Regional Elements] as follows:

- a) Aeronautical Meteorology: AMET-B0/1 – 4;
- b) Aeronautical Information Management: DAIM-B1/1 – 6*;
- c) Airport CDM: ACDM-B0/1 – 2;
- d) ANSP human and simulator performance (Regional);
- e) ATS Inter-facility Datalink Communications: FICE-B0/1;
- f) Ballistic launches/space re-entry management (Regional);
- g) Civil-Military Special Use Airspace (SUA) management (Regional);
- h) Civil-Military strategic and tactical coordination (Regional);
- i) Core data communications: VDL Mode O/A and AMHS COMI-B0/3, 7;
- j) Direct and Free Route Operations: FRTO-B0/1 – 4;
- k) Enhanced SAR systems (Regional);
- l) Ground-based Surveillance: ASUR-B0/1 – 4;
- m) Network Operations: NOPS-B0/1 – 5;
- n) Performance-based Navigation Approach Procedures: APTA-B0/1 – 2;
- o) Runway Sequencing: RSEQ-B0/1 – 2; and
- p) Safety Nets SNET-B0/1 – 4.

*Note: DAIM-B1/7 is placed within PASL Phase III

Seamless ANS Plan

2.16 The ASBU framework that supports the regional plan can be accessed via the HQ website <https://www4.icao.int/ganpportal/ASBU>. The Asia/Pacific Seamless ATM Plan, updated in 2019 and adopted by APANPIRG/30 as the new Asia/Pacific Seamless ANS Plan Version 3.0, is available at:

<https://www.icao.int/APAC/Documents/edocs/Asia%20Pacific%20Seamless%20ATM%20Plan%20V%203.0.pdf>

2.17 A critical part of the effort to effectively implement the Asia/Pacific Seamless ANS Plan was the need for States to develop a National Air Navigation Plan (NANP) – as detailed in Section 9 of the Asia/Pacific Seamless ANS Plan. The following regional expectations for the NANP’s Basic Planning Elements (BPEs) are copied from the Regional Air Navigation Plan Vol. II:

Background

A brief introduction aimed at high-level decision-makers that describes the need for the plan with benefits and costs, including the necessity for global and regional harmonization and interoperability:

- a) general (not necessary quantitative) description of the Plan’s benefits;
- b) general description of the costs*; and
- c) details of how the State Plan connects to the global and regional planning hierarchy.

**Note 1: this is a matter for the State to determine, and could be in terms of quantitative, qualitative, cost of implementing or cost of not implementing.*

**Note 2: ICAO do not require details of costs from States, as this is for State’s benefit.*

Stakeholder Consultation

High-level descriptions and statements:

- a) of the process used to consult stakeholders, including military; and
- b) from key stakeholders (such as Heads of CAAs, ANSPs, military organisations, etc.) endorsing the State Plan.

Analysis

Information on the State’s analysis of:

- a) all ASBU and regional elements deemed to be applicable, including a statement on the State’s priorities* for implementation; and
- b) elements that are deemed to be not applicable, and how these were determined.

**Note: this assessment should be guided by the priorities determined by APANPIRG.*

Planning

Descriptions of:

- a) the implementation process, such as how the different stakeholders will work together, design systems and provide feedback on implementation: and
- b) each applicable global and regional element's implementation managers (those responsible for execution of the implementation) and timelines.

Progress

Details in the State Plan as to the progress of implementation against timelines.

Note: this also provides an indication that the Plan is a 'living document' subject to periodic review and update.

2.18 A template for the development of a NANP can be accessed from the ICAO website at <https://www.icao.int/APAC/Documents/edocs/National%20Air%20Navigation%20Template%20V6>.

2.19 The Asia/Pacific ANP Volume II paragraph 3.1 states, with reference to NANPs and applicable global and regional planning elements:

States shall report their implementation progress and status of the applicable global and regional air navigation planning elements at least once each year (preferably prior to 01 April) to support:

- *global and regional plans (including the Seamless Air Traffic Management Plan and the Regional Air Navigation Plan Volume III); and*
- *specific plans for aerodromes, Aeronautical Information Management (AIM), Air Traffic Flow Management (ATFM), Air Traffic Management (ATM) contingency and Search and Rescue (SAR)*

Future Plans

2.20 A significant effort has been made by the ICAO APAC Regional Office to increase the number of points of contact, reporting States/Administrations and provide assistance as required. The different bodies under APANPIRG and their participants should also ensure that the data reported through the reporting system are consistently accurate.

2.21 At present, the Seamless ANS Plan has several important ATM-related subsidiary plans, namely the:

- *Asia/Pacific Search and Rescue Plan;*
- *Asia/Pacific Region ATM Contingency Plan;*
- *Asia/Pacific Framework for Collaborative ATFM;*
- *Asia/Pacific Plan for Collaborative AIM; and*
- *Asia/Pacific Airport Collaborative Decision Making Implementation Plan.*

2.22 The intention to develop these implementation monitoring systems is to enhance the current electronic Seamless ANS Monitoring and Reporting Scheme with assistance from ICAO HQ to include the ability to report on the subsidiary plan elements, and allow the Region to input its priorities, metrics and targets.

2.23 Ultimately, the Asia/Pacific Seamless ANS Plan is expected to be fully incorporated into Volume III of the Regional Air Navigation Plan, when this becomes fully web-based. **Figure 4** provides an overview of the current relationship of the Asia/Pacific Seamless ANS Plan and the Regional Air Navigation Plan.

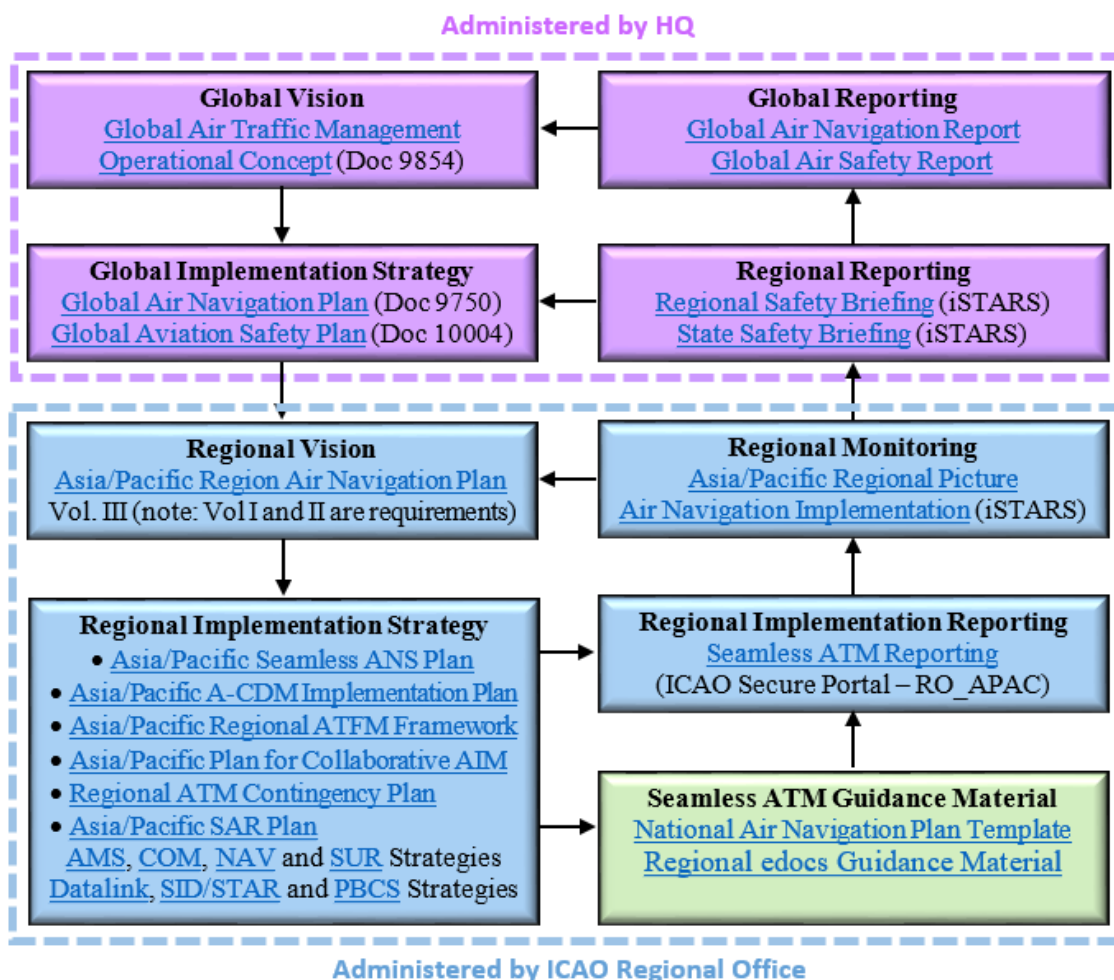


Figure 4: Air Navigation Planning and Reporting Structure

Review of the Asia/Pacific Seamless ANS Plan

2.24 The Seamless ANS Plan States, under *Plan Review*:

1.9 *The Plan needs to be updated to take into account ASBU Block 1, 2 and 3 modules, when these modules and their associated technology become mature.*

1.10 *Periodic updates to the Plan are also required in respect of the economic information contained therein.*

1.11 *As an iterative process, the Plan requires regular updating to keep current with aviation system changes. It is intended that APANPIRG and its contributory bodies conduct a complete review every three years (or a shorter period determined by APANPIRG) of the Plan to align with the review cycle of the GANP. The Plan and its subsequent revisions should be endorsed by APANPIRG.*

1.12 *Review of the Navigation and Surveillance strategies needs to result in the update to the Seamless ANS Plan to ensure consistency.*

1.13 *The review of the Plan during 2019 deletes reference Phase I as Phase II commenced in November 2019, although the uncompleted elements from Phase I were moved to Phase II. The implementation dates of Phase II PARS and PASL items align with the GANP Block 1 implementation, whereas Phase III is a mid-Block update scheduled for 2022.*

1.14 *The 2019 update of the Plan introduces new ASBU Block 1 modules. Phase III and Phase IV of the PARS and PASL implementation framework will also be referenced.*

2.25 The intended three-yearly review of the Plan falls due in 2022. Noting that there is currently no known planning for mid-term changes to the Global Air Navigation Plan and its ASBUs, it is proposed that a 2022 review of the Seamless ANS Plan should be editorial only, except where significant issues have been identified by relevant ICAO APAC technical bodies.

2.26 APAC Administrations wishing to participate in any review are invited to nominate a single point of contact by email to apac@icao.int.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) note the information contained in this paper;
- b) nominate a single point of contact for participation in any review of the APAC Seamless ANS Plan; and
- c) discuss any relevant matters as appropriate.

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State/administration	Points of contact nominated?	Reporting Form submitted?	Regular updates?	Latest update
Afghanistan	No			
Australia	Yes	Yes	No	2016 - 3
Bangladesh	Yes	Yes	No	2018 - 3
Bhutan	Yes	Yes	Yes	2018 - 2
Brunei Darussalam	Yes	No	No	
Cambodia	Yes	Yes	No	2019 - 1
China	Yes	Yes	No	2018 - 1
Cook Islands	No			
Democratic People's Republic of Korea	Yes	Yes	NO	2016 - 2
Fiji	Yes	Yes	No	2017 - 4
French Polynesia, France	Yes	Yes	Yes	2017 - 4
Hong Kong, China	Yes	Yes	Yes	2018 - 2
India	Yes	Yes	Yes	2018 - 3
Indonesia	Yes	Yes	No	2018 - 3
Japan	Yes	Yes	Yes	2018 - 4
Kiribati	Yes	No	No	
Lao People's Democratic Republic	Yes	Yes	Yes	2018 - 2
Macao, China	Yes	Yes	No	2017 - 1
Malaysia	Yes	Yes	No	2019 - 1
Maldives	Yes	Yes	Yes	2018 - 4
Marshall Islands	No			
Micronesia (Federated States of)	No			
Mongolia	Yes	Yes	No	2019 - 2
Myanmar	Yes	No	No	
Nauru	No			
Nepal	Yes	Yes	No	2016 - 1
New Caledonia, France	Yes	Yes	No	2015 - 2
New Zealand	Yes	Yes	No	2016 - 3
Pakistan	Yes	Yes	No	2017 - 3
Palau	No			
Papua New Guinea	Yes	No	No	
Philippines	Yes	Yes	No	2016 - 4
Republic of Korea	Yes	Yes	No	2016 - 3
Samoa	No			
Singapore	Yes	Yes	Yes	2018 - 4
Solomon Islands	Yes	No	No	
Sri Lanka	Yes	Yes	Yes	2018 - 3
Thailand	Yes	Yes	Yes	2018 - 1
Timor Leste	Yes			
Tonga	Yes			
Tuvalu	No			
United States	Yes	Yes	No	2017 - 2
Vanuatu	No			
Viet Nam	Yes	Yes	Yes	2018 - 4

Updated 21 June 2019