INTERNATIONAL CIVIL AVIATION ORGANIZATION

**TWENTY SEVENTH MEETING OF THE ASIA/PACIFIC
AIR NAVIGATION PLANNING AND IMPLEMENTATION
REGIONAL GROUP (APANPIRG/27)**

Bangkok, Thailand, 5 to 8 September 2016

Agenda Item 3:	**Performance Framework for Regional Air Navigation Planning and Implementation**
3.0:	**Regional and National Performance Framework**

**IMPROVEMENTS TO THE REGIONAL AIR NAVIGATION SYSTEM:
PROGRESS AGAINST SEAMLESS ATM PLAN OBJECTIVES**

(Presented by the Secretariat)

SUMMARY

This Paper presents the progress of implementation by APAC States/Administrations of the objectives set forth in the Seamless ATM plan in 2013.

Overall the ten regional targets planned for November 2015 are far from being achieved as of August 2016. Therefore the paper identifies a number of recommendations to complete implementation of phase 1 objectives and address the objectives of phase 2 (Nov. 2019) and phase 3 (Nov. 2022).

Strategic Objectives:
  *A: **Safety** – Enhance global civil aviation safety*
  B: ***Air Navigation Capacity and Efficiency**—Increase the capacity and improve the efficiency of the global aviation system*
  E***: Environmental Protection** — minimize the adverse environment effects of civil aviation activities.*

1.   **INTRODUCTION**

1.1   In 2014, the APANPIRG/25 Meeting adopted Regional Priorities and Targets for the Asia/Pacific (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.*

1.2   Therefore milestones, targets and metrics of each key planning elements for Air Navigation Report Forms (ANRFs) were adopted by APANPIRG, with the exception of B0-OPEL and B0-WAKE:

> ***Conclusion APANPIRG 25/3 – Air Navigation Report Forms (ANRFs) and Responsibility Matrix***
>
> *That, the ANRF regarding the Block 0 ASBUs (except B0-RSEQ, B0-OPFL, and B0-WAKE) provided in the APANPIRG/25/**WP26 Appendices A to P** together with the matrix of responsibilities placed at **Appendices B and C** to the Report on Agenda Item 3.0 be adopted for the APAC Region.*

1.3   After building up the web-based reporting developed by ICAO, the meeting adopted the following Conclusion:

> ***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   ICAO Regional Office also encouraged APAC States/Administrations to nominate their Points of Contact (POC), at least two per State, as requested by ICAO state letter. The Points of Contact are responsible for submitting and updating their respective State's progress of implementing the Seamless ATM Plan. A best practice is that one point of contact be nominated on the regulator's side, and on the service provider's side.

2.   DISCUSSION

2.1   As a follow-up to the Conclusion APANPIRG 25/5, 25 States/Administrations reported on their Seamless ATM implementation progress. The current status of the reporting process as at 1 September 2016 is placed at **Attachment A**. Figure 1 provides an overall picture of reporting.
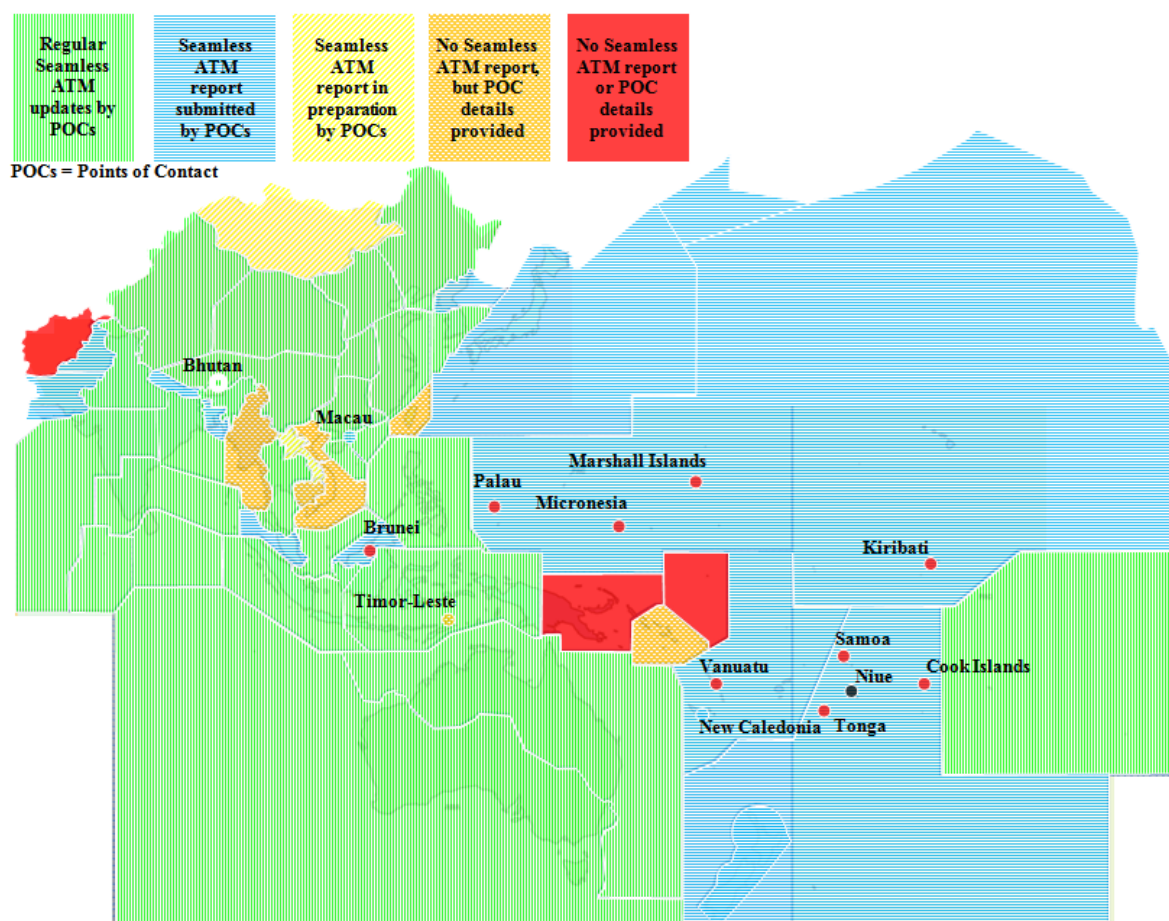
Figure 1: Status of Asia/Pacific Seamless ATM reporting process
as at 1 September 2016

2.2   ICAO urged Asia/Pacific States/Administrations to update their Seamless ATM implementation progress at least once a year. Three States/Administrations had already updated their report at least once and one State/Administration had prepared a further update.

2.3   18 States/Administrations have not submitted any report yet.

Points of Contact and reporting process

2.4   According to Attachment A, 31 States/Administrations (72%) have nominated their Points of Contact.

2.5   A total of 12 States/Administrations still have not reported the nomination of Points of Contact.

2.6   States needing assistance with the reporting process should contact ICAO for such assistance. ICAO notes with gratitude the first report from the Democratic Peoples' Republic of Korea (DPRK), Fiji, Indonesia, Mongolia, Nepal, New Zealand and Pakistan since the last APANPIRG Meeting.

Regional Picture: insufficient progress of the 10 regional priorities

2.7   The Regional Picture provided in **Attachment B** is used to review the progress of implementation in APAC States/Administrations for the GANP (Global Air Navigation Plan) and the 45 Seamless ATM objectives.

2.8   The Regional Picture is updated whenever a new Seamless ATM Reporting was submitted and updated by POCs. The ICAO Regional Office cross-checks the reporting and also provides feedback to the State/Administration as needed.

2.9   The current progress of implementation of the 10 regional priorities is depicted graphically at **Attachment C**:

- Seamless item 110 (Performance-based Navigation Approaches for high density aerodromes with instrument runways serving aeroplanes): linked to B0-APTA of the 24 States that reported, only nine (38%) advised full implementation. Five reports (Bhutan, Macao China, Mongolia, Nepal and the Republic of Korea) indicated 'no data', which required attention from these administrations. The United States indicated 'not applicable' but this is probably not correct, given that the element is applicable to aerodromes such as Honolulu. Overall, the progress in this element for the region had been poor, given that this is a priority element and Assembly Resolution A37-11 required implementation of approach procedures with vertical guidance (APV) (Baro-VNAV and/or augmented GNSS), including LNAV-only minima, for all instrument runway ends, either as the primary approach or as a back-up for precision approaches by 2016.

- Seamless item 80 (ATFM/CDM for high density Flight Information Regions) linked to B0-NOPS: 9 States report full implementation; the region is well behind the implementation target of November 2015, although there are ATFM implementation programmes in China and India due to become operational soon:

    o fully implemented– Japan (Fukuoka), Australia, Mongolia and Republic of Korea (ROK, Incheon) ;

    o 'fully implemented' – Fiji, Indonesia (Jakarta), Philippines (Manila) and Hong Kong, China but this result is to be confirmed as ICAO understands that ATFM/CDM is only implemented for domestic operations in Philippines, and the ATFM/SG has had no information on full implementation (with operational capability, procedures, up-to-date AIP ENR 1.9, and bilateral /multilateral agreements as per seamless ATM plan) of ATFM in Fiji, Hong Kong China and Indonesia;

    o not fully implemented yet – China (Sanya, Beijing, Guangzhou, Kunming, Shanghai, Shenyang, Taibei, Wuhan); India (Delhi, Mumbai); Thailand (Bangkok); Malaysia (Kota Kinabalu); Singapore;

    o not applicable: Bangladesh, Bhutan, French Polynesia and New Caledonia, Macao, and Sri Lanka;

    o not yet analyzed: Maldives, Nepal.

- Seamless item 360 (Implementation of Special Use of Airspace, operated in accordance with FUA principles as applicable) linked to B0-FRTO: of the 24 States that reported 50% of administrations reported implementation of FUA. However several administrations reported this element as 'not applicable', including China (this is not correct as the element is applicable to China, which has had on-going civil/military cooperation problems affecting the region for several years), Bhutan, Fiji, French Polynesia, Macao China, Maldives, Nepal, and New Caledonia. No data was received on this element from Bangladesh and Mongolia. In summary, the result for this element has been an uneven implementation, with progress noted in several airspaces which the element is applicable, and half of Asia/Pacific States overall achieved the target.

- Seamless item 370 (Strategic Civil/Military Coordination) and Seamless item 380 (Tactical Civil/Military Coordination): of the 24 States that reported 14 administrations also reported implementation for both these elements. No data was received from Bangladesh, Bhutan and Mongolia. Several administrations reported this element as 'not applicable' in one of both elements: Fiji, French Polynesia, Macao China, Maldives, Nepal, and New Caledonia. However both elements are applicable to all administrations, whether they have a local military force or not, as any airspace may experience military operations from time to time and thus some form of liaison is necessary. In summary, the Asia/Pacific is well behind the implementation schedule for both these elements.

- Seamless item 220 (ATS Inter-facility Datalink Communications – AIDC) linked to B0-FICE: where it was analyzed as applicable, 13 States/administrations (59%) reported implementation of this high priority element, whereas the following reported as not fully implementing (Indonesia, Maldives, Philippines, Thailand and the United States) or that they had no data (Bhutan, ROK), or had not yet analyzed (Bangladesh). The results for this element have indicated a moderate implementation success, but there remain a significant number of administrations which are behind the regional expectation.

- Seamless item 280 (Automatic Dependent Surveillance and Controller Pilot Datalink Communications, ADS-C and CPDLC) linked to B0-TBO: this element is implemented in all of the applicable FIRs except for New Zealand and the United States (this may be incorrect as the element has been fully implemented within the Auckland Oceanic FIR and it is unclear if the Oakland Oceanic FIR has ADS-C/CPDLC services). The Philippines has indicated 100% implementation but there is evidence to the contrary so this also needs to be clarified. Overall, this element has been successfully implemented.

- Seamless item 300 (Aeronautical Information Management) linked to B0-DATM: this element has been the weakest area of Asia/Pacific implementation, with only two States (India and Singapore reporting Phase 1 and 2 completion (although Mongolia recently also reported completion at the recent AAITF meeting) and 4 States reporting more that 50% of elements of phase 1 and 2 implemented. However, the information provided to the AAITF meeting was that India had not completed Phase 1 and 2. The overall summary is that the Asia/Pacific Region's poor progress represented a major lack of prioritization by decision-makers on AIM.

- Seamless item 180 (ADS-B Category S and T airspace supporting high density aerodromes) linked to B0-ASUR: where this element was applicable, only 9 of the 21 administrations reported having advised implementation. Indonesia provided no data, though it is known that ADS-B is available within the Jakarta FIR, and neither did the ROK. This element and B0-DATM were the two worst performing areas in the 10 priority elements.

- Seamless item 270 (ATS surveillance with data integration) linked to B0-ASUR: 58% of administrations reported completion, with Hong Kong China, Mongolia and the Philippines advising partial implementation. Bangladesh, Bhutan, and Indonesia did not analyze this item yet. Nepal did not provide data, whereas the United States indicated 'not applicable' to the element when it is applicable to Honolulu ACC.

Conclusions

2.10   For air traffic to operate efficiently and seamlessly through the APAC Region, all States' active participation is required. The 10 priority elements should be reported upon at least once a year, but ICAO only received reports so far from 58% of the APAC States/Administrations, so drawing conclusions on incomplete data is difficult.

2.11   Nevertheless, of the ten priority elements, only one (B0-TBO) can be confirmed as being appropriately implemented, with seven having only partial implementation and two very poor implementation (B0-DATM and B0-ASUR). In addition, States that have reported needed to review their inputs as many appeared to have submitted out-of-date or incorrect information.

2.12   This trend regarding the 10 objectives selected as priorities by APANPIRG in 2014 can be generalized to the total of the 45 objectives planned by the Seamless ATM plan, although it is not detailed in this paper.

2.13   Overall the ten regional targets planned for completion in November 2015 are far from being achieved as of August 2016. As a result, concerned States/Administrations were called by the Conference to give the concerned improvements higher priority in their national strategy, and mobilize human and financial resources, both in CAA and ANSP organizations to complete the implementation of phase 1 objectives.

2.14   Considering the extension of ASBU Block 0 to 2019 and the low implementation of phases 1 and 2, the target date of phase 2 was changed from Nov. 18 to Nov.19 in the draft version 2 of the seamless ATM plan, planned to be adopted by APANPIRG in September 2016.

2.15   As the second cycle of the Seamless ATM planning is starting, this mobilization should be recorded in a national seamless plan, making a gap analysis between the current baseline of the national air navigation system and the projected objectives of phase 2 (Nov. 2019) and phase 3 (Nov. 2022). This national plan is not necessarily a stand-alone document, but can link to the various existing national plans consistently prioritized.

Action by DGCA Conference

2.16   The 53rd DGCA conference held in Colombo, Sri Lanka : 1 to 5 August 2016 reviewed the implementation progress of the 10 priorities set forth in the Discussion Paper 3.3/29 and took the following Action Item:

DP/3.3/29	Action Item 53/9	**Seamless ATM Plan Objectives**
		Noting that the implementation of regional priorities for Air Navigation System are far from being achieved as of mid-2016 and as the second cycle of the seamless ATM planning is starting, the Conference urged
		a) concerned States/Administrations to give highest priority to the implementation of the regional priorities and to provide human/financial resources, both in CAA and ANSP to complete phase 1 implementation; and
		b) APAC States/Administrations to mobilize human / financial resources to improve their air navigation system (personnel, equipment and procedures) and align their strategy with the objectives of phase 2 (November 2019) and phase 3 (November 2022) assessed as relevant by their national gap analysis.

3.   ACTION BY THE MEETING

3.1   The meeting is invited to:

a) Note that points of contact are missing in some States/Administrations and that the quality of reporting should be improved, and urge the concerned States/Administrations to make necessary arrangements;

And, noting the Action Item 53/9 from the DGCA Conference:

b) Urge the concerned States/Administrations to give the highest priority to the implementation of the regional priorities and to provide human/financial resources, both in CAA and ANSP to complete phase 1 implementation; and

c) Urge the APAC States/Administrations to mobilize human / financial resources to improve their air navigation system (personnel, equipment and procedures) and align their strategy with the objectives of phase 2 (November 2019) and phase 3 (November 2022) assessed as relevant by their national gap analysis.

— — — — — — — —

Status of the Seamless ATM reporting process (01 Sep. 2016)

State/Administration	Points of contact nominated	Reports	Latest submission
Australia	Yes	Submitted Regular updates	Q 2016-3
Bangladesh	Yes	Submitted	Q 2015-2
Bhutan	Yes	Submitted Regular updates	Q 2015-2
China	Yes	Submitted Regular updates	Q 2015-3
Democratic People's Republic of Korea	Yes	Submitted	Q 2016-2
Fiji	Yes	Submitted	Q 2015-3
French Polynesia, France	Yes	Submitted Regular updates	Q 2015-3
Hong Kong, China	Yes	Submitted Regular updates	Q 2016-3
India	Yes	Submitted Regular updates	Q 2015-4
Indonesia	Yes	Submitted Regular updates	Q 2016-3
Japan	Yes	Submitted	Q 2014-4
Macao, China	Yes	Submitted	Q 2014-4
Malaysia	Yes	Submitted	Q 2015-4
Maldives	Yes	Submitted Regular updates	Q 2016-1
Mongolia	Yes	Submitted	Q 2016-1
Nepal	Yes	Submitted	Q 2016-1
New Caledonia, France	Yes	Submitted	Q 2015-2

State/Administration	Points of contact nominated	Reports	Latest submission
New Zealand	Yes	Submitted	Q 2016-1
Pakistan	Yes	Submitted	Q 2016-3
Philippines	Yes	Submitted Regular updates	Q 2016-1
Republic of Korea	Yes	Submitted Regular updates	Q 2015-3
Singapore	Yes	Submitted Regular updates	Q 2016-3
Sri Lanka	Yes	Submitted Regular updates	Q 2015-4
Thailand	Yes	Submitted Regular updates	Q 2015-4
United States	Yes	Submitted	Q 2015-1
Lao People's Democratic Republic	Yes	In preparation	Q 2016-1
Afghanistan	No	No report	-
Brunei Darussalam	No	No report	-
Cambodia	Yes	No report	-
Cook Islands	No	No report	-
Kiribati	No	No report	-
Marshall Islands	No	No report	-
Micronesia (Federated States of)	No	No report	-
Myanmar	Yes	No report	-
Nauru	No	No report	-
Palau	No	No report	-
Papua New Guinea	No	No report	-
Samoa	No	No report	-
Solomon Islands	Yes	No report	-
Democratic Republic of Timor-Leste	Yes	No report	-

State/Administration	Points of contact nominated	Reports	Latest submission
Tonga	No	No report	-
Vanuatu	No	No report	-
Vietnam	Yes	No report	-

ANS implementation in Asia-Pacific: Regional Picture as of 23 August 2016

This document presents:
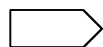
> the ten Asia-Pacific Regional Priorities adopted by APANPIRG/25, 2014
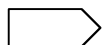
> the implementation status of those ten Regional Priorities
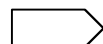
> the ASBU B0 modules and APAC Seamless ATM items acting as safety barriers to CFIT, RS and LOC-I occurrences
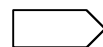
> the implementation status of ASBU B0 modules and APAC Seamless ATM items as safety barriers to CFIT, RS and LOC-I occurrences
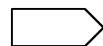
> the implementation status of the 45 objectives of the Seamless ATM plan v1 (phase 1: Nov. 15, phase 2: Nov. 18)

APAC States/Administrations are presented in alphabetical order. The date of the latest report submitted is given in the second column to indicate the freshness of information (format Year-Quarter).

No data   No data means that no data was provided by the reporting State/Administration about their progress.

Not yet analyzed   Not yet analyzed means that the applicability of this specific seamless ATM item in the national context was not yet analyzed by the reporting State/Administration.

N/A   N/A means that the reporting State/Administration found this item N/A in its national plans, as a result of its gap analysis.

Green colour reflects a change in the information submitted to ICAO since the previous version of the regional picture.
Example: **2016-1**

Seamless Item	Related ASBU module	Target
80 - Air Traffic Flow Management / Collaborative Decision-Making (ATFM/CDM)	B0-NOPS	1. **All High Density FIRs** supporting the busiest Asia/Pacific traffic flows and high-density aerodromes should implement ATFM incorporating CDM using operational ATFM platform/s. *Note: High Density FIRs are defined as:* *a) South Asia: Delhi, Mumbai;* *b) Southeast Asia: Bangkok, Hanoi, Ho Chi Minh, Jakarta, Kota Kinabalu, Manila, Sanya, Singapore, Vientiane; and* *c) East Asia: Beijing, Fukuoka, Guangzhou, Hong Kong, Kunming, Incheon, Shanghai, Shenyang, Taibei, Wuhan.* *[APANPIRG Conclusion 22/8 and 23/5 refer]*
110 - PBN Approach	B0-APTA	2. <u>Approach</u>: Where practicable, **all high- density aerodromes** with instrument runways serving aeroplanes should have precision approaches or APV or LNAV. *Note 1: High density aerodrome is defined by Asia-Pacific Seamless ATM Plan as aerodromes with scheduled operations in excess of 100,000/year.* *Note 2: the Asia/Pacific PBN Plan Version 3 required RNP APCH with Baro-VNAV or APV in 100% of instrument runways by 2016*
180 - ATS Surveillance	B0-ASUR	3. All Category S upper controlled airspace and Category T airspace supporting high density aerodromes should be designated as non-exclusive or exclusive as appropriate ADS-B airspace requiring operation of ADS-B.
270 - ATS surveillance with data integrated	B0-ASUR	4. ADS-B or MLAT or radar surveillance systems should be used to provide coverage of all Category S-capable airspace as far as practicable, with data integrated into operational ATC aircraft situation displays.
280 - ADS-C and CPDLC	B0-TBO	5. Within Category R airspace, ADS-C surveillance and CPDLC should be enabled to support PBN-based separations.
220 - ATS Inter-facility Data-link Communications (AIDC)	B0-FICE	6. All States between ATC units where transfers of control are conducted have implemented the messages ABI, EST, ACP, TOC, AOC as far as practicable.
300 - Aeronautical Information Management	B0-DATM	7. ATM systems should be supported by digitally-based AIM systems through implementation of **Phase 1 and 2 of the AIS-AIM Roadmap**.
360 - Civil Military use of SUA	B0-FRTO	8. Enhanced En-Route Trajectories: 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.
370 - Strategic Civil Military coordination	Strategic Civil Military coordination (Regional)	9. Enhanced En-Route Trajectories: All States should ensure that a national civil/military body coordinating strategic civil-military activities is established.
380 - Tactical Civil Military coordination	Tactical Civil Military coordination (Regional)	10. Enhanced En-Route Trajectories: All States should ensure that formal civil military liaison for tactical response is established.

		Air Traffic Flow Management/ Collaborative Decision-Making (ATFM/CDM)	Performance-based Navigation (PBN) Approach	Civil Military use of SUA	Strategic Civil Military coordination	Tactical Civil Military coordination	ATS Inter-facility Data-link Communications (AIDC)	ADS-C and CPDLC	Aeronautical Information Management	ADS-B airspace	ATS surveillance with data integrated
Seamless Item		80	110	360	370	380	220	280	300	180	270
ASBU		B0-NOPS	B0-APTA	B0-FRTO	Regional	Regional	B0-FICE	B0-TBO	B0-DATM	B0-ASUR	B0-ASUR
PRIORITY		THE 10 ASIA-PACIFIC REGIONAL PRIORITIES (APANPIRG/25, 2014)									
Australia	2016 - 3	100%	100%	100%	100%	100%	100%	100%	76.90%	100%	100%
Bangladesh	2015 - 2	N/A	30%	No data	No data	100%	Not yet analysed	N/A	61.50%	N/A	Not yet analysed
Bhutan	2015 - 3	N/A	10%	N/A	No data	No data	No data	N/A	23%	N/A	Not yet analysed
China	2015 - 3	77.70%	100%	N/A	100%	100%	100%	N/A	38.50%	11.10%	100%
Democratic People's Republic of Korea	2016 - 2	100%	N/A	100%	100%	100%	100%	N/A	No data	100%	100%
Fiji	2015 - 3	100%	70%	N/A	N/A	N/A	100%	100%	7.70%	100%	100%
French Polynesia, France	2015 - 3	N/A	100%	N/A	No data	N/A	100%	100%	7.70%	100%	100%
Hong Kong, China	2016 - 3	100%	100%	100%	100%	100%	100%	N/A	69%	100%	90%
India	2015 - 4	0%	100%	100%	100%	100%	100%	100%	100%	0%	100%
Indonesia	2015 - 4	100%	40%	0%	0%	0%	50%	100%	No data	No data	Not yet analysed
Japan	2014 - 4	100%	0%	100%	100%	100%	100%	100%	No data	0%	100%
Macao, China	2014 - 4	N/A	No data	N/A	N/A	N/A	N/A	N/A	38.50%	N/A	N/A
Malaysia	2015 - 4	50%	0%	100%	100%	100%	100%	50%	76.90%	0%	100%
Maldives	2016 - 1	Not yet analysed	100%	N/A	N/A	N/A	0%	0%	0%	0%	100%
Mongolia	2016 - 1	100%	N/A	Not yet analysed	Not yet analysed	Not yet analysed	100%	No data	No data	100%	40%
Nepal	2016 - 1	Not yet analysed	No data	N/A	N/A	N/A	100%	N/A	Not yet analysed	100%	No data
New Caledonia, France	2015 - 2	N/A	0%	N/A	N/A	N/A	N/A	N/A	Not yet analysed	N/A	N/A
New Zealand	2015 - 2	50%	100%	100%	100%	100%	100%	50%	No data	No data	100%
Philippines	2016 - 1	100%	100%	100%	100%	0%	0%	100%	46.20%	0%	50%
Republic of Korea	2015 - 3	100%	No data	100%	100%	100%	No data	N/A	84.60%	No data	100%
Singapore	2015 - 3	0%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Sri Lanka	2015 - 4	N/A	50%	0%	100%	100%	100%	100%	46.20%	100%	100%
Thailand	2015 - 4	0%	80%	100%	100%	100%	0%	N/A	15.40%	0%	100%
United States	2015 - 1	50%	N/A	100%	100%	100%	50%	50%	No data	50%	N/A
Indicator		% of High Density FIRs supporting the busiest Asia/Pacific traffic flows and high density aerodromes using operational ATFM platforms incorporating CDM	% of high density aerodromes with precision approaches or APV or LNAV (High density aerodrome is defined by Asia-Pacific Seamless ATM Plan as aerodromes with scheduled operations in excess of 100,000/year)	% of FIRs in which FUA is implemented	Have you established a national civil/military body that performs strategic civil-military coordination?	Have you established a formal civil military liaison for tactical response?	% of FIRs within which all applicable ACCs have implemented at least one interface to use AIDC / OLDI with neighbouring ACCs	% of FIRs utilising data link en-route in applicable airspace	% of Phase 1 and 2 AIS-AIM elements completed (0-13)	% of of FIRs where Category S airspace and Category T airspace supporting high density aerodromes are designated as ADS-B airspace?	% of ACCs with ATS Surveillance using ADS-B, MLAT or radar in Category S airspace, and having data integrated into the ATC system situation display

N/A: Not Applicable

Implementation status of the 10 Regional Priorities (APANPIRG)
23-Aug-16

	CFIT	RS	LOC-I
ASBU Modules (B0)	**B0-APTA** **Optimization of Approach Procedures**		**B0-ACAS** **Collision Avoidance Systems**
	B0-SNET Safety Nets	**B0-SURF Surface Operations**	**- Nil -**
	B0-AMET - Advanced Meteorological Information [1]		
APAC Seamless ATM items (Seamless ATM Plan v1)	**170 - Airborne Safety Systems (TAWS)**	**10 - Apron Management**	**170 - Airborne Safety Systems (TCAS 7.1)**
	- Nil -	**350 - ATM Operators' Performance**	**- Nil -**
	340 - Safety Assessment of Changes		

[1] Specifically for Runway safety: Aerodrome warnings

		Apron Management	Safety and Efficiency of Surface Operations	Performance-based Navigation (PBN) Approach	Safety assessment of changes	ATM Operators' performance	Meteorological Information	Safety Nets	Airborne Safety Systems	
Seamless Item		10	40	**110**	340	350	310	160	170	
ASBU		Regional	B0-SURF	**B0-APTA**	Regional	Regional	B0-AMET	B0-SNET	B0-ACAS - TCAS 7.1	Regional - TAWS
PRIORITY		Runway Safety	Runway Safety	**PRIORITY CFIT and RS**	CFIT, RS and LOC-I	Runway Safety	CFIT, RS and LOC-I	CFIT	LOC-I	CFIT
Australia	2016 - 3	100%	100%	100%	100%	100%	100%	100%	100%	100%
Bangladesh	2015 - 2	10%	N/A	30%	Not yet analysed	Not yet analysed	30%	100%	0%	No data
Bhutan	2015 - 3	N/A	N/A	10%	No data	No data	0%	N/A	No data	No data
China	2015 - 3	100%	100%	100%	No data	100%	80%	100%	100%	No data
Democratic People's Republic of Korea	2016 - 2	N/A	N/A	N/A	100%	100%	100%	100%	100%	100%
Fiji	2015 - 3	60%	Not yet analysed	70%	Not yet analysed	Not yet analysed	Not yet analysed	Not yet analysed	Not yet analysed	Not yet analysed
French Polynesia, France	2015 - 3	N/A	N/A	100%	100%	100%	N/A	100%	100%	No data
Hong Kong, China	2016 - 3	100%	90%	100%	100%	100%	100%	100%	0%	0%
India	2015 - 4	100%	100%	100%	100%	100%	100%	100%	100%	100%
Indonesia	2015 - 4	Not yet analysed	Not yet analysed	40%	No data	No data	100%	100%	Not yet analysed	Not yet analysed
Japan	2014 - 4	100%	50%	0%	100%	100%	100%	No data	100%	100%
Macao, China	2014 - 4	N/A	N/A	No data	0%	100%	100%	N/A	N/A	N/A
Malaysia	2015 - 4	100%	100%	0%	100%	100%	100%	100%	100%	No data
Maldives	2016 - 1	Not yet analysed	Not yet analysed	100%	100%	0%	Not yet analysed	100%	100%	100%
Mongolia	2016 - 1	N/A	No data	N/A	100%	100%	90%	100%	N/A	N/A
Nepal	2016 - 1	N/A	N/A	No data	Not yet analysed	Not yet analysed	No data	No data	100%	No data
New Caledonia, France	2015 - 2	N/A	Not yet analysed	0%	100%	100%	100%	N/A	Not yet analysed	Not yet analysed
New Zealand	2015 - 2	100%	100%	100%	100%	100%	100%	100%	100%	No data
Philippines	2016 - 1	100%	Not yet analysed	100%	100%	100%	100%	100%	Not yet analysed	Not yet analysed
Republic of Korea	2015 - 3	100%	100%	No data	100%	100%	100%	N/A	100%	100%
Singapore	2015 - 3	100%	100%	100%	100%	100%	No data	100%	100%	100%
Sri Lanka	2015 - 4	N/A	N/A	50%	100%	100%	100%	100%	100%	100%
Thailand	2015 - 4	100%	50%	80%	100%	100%	100%	100%	0%	0%
United States	2015 - 1	N/A	N/A	N/A	100%	100%	100%	100%	No data	100%

Indicator	% of high density international aerodromes (100,000 scheduled movements per annum or more) providing an appropriate apron management service	% of applicable international aerodromes having implemented A-SMGCS Level 2	% of high density aerodromes with precision approaches or APV or LNAV (High density aerodrome is defined by Asia-Pacific Seamless ATM Plan as aerodromes with scheduled operations in excess of 100,000/year)	Do you have safety teams comprising multidisciplinary operational staff and managers which review safety performance and assess significant proposals for change to ATM systems?	Do you have human performance-based training and procedures for staff providing ATS?	% of high density aerodromes providing meteorological forecasts, aerodrome warnings and alerts	Does your State implement ground-based safety-nets (STCA, APW, MSAW, etc.)?	Does your State/Administration require the carriage of ACAS (with TCAS 7.1 evolution) ?	Does your State/Administration require the carriage of TAWS?

N/A: Not Applicable

Implementation status of ASBU B0 modules and APAC Seamless ATM items as safety barriers to CFIT, RS and LOC-I occurrences
23-Aug-16

		Air Traffic Flow Management/ Collaborative Decision-Making (ATFM/CDM)	Apron Management	Aerodrome capacity	Safety and Efficiency of Surface Operations	ATM-Aerodrome Coordination	Airport Collaborative Decision-Making (ACDM)	Arrival Manager/Departure Management (AMAN/DMAN)	ATC Horizontal separation	ATC Sector Capacity	Automated Transfer of Control in an ATSU	Optimized wake turbulence separation	Performance-based Navigation (PBN) Approach	Performance-based Navigation (PBN) Routes
Seamless Item		80	10	30	40	20	70		260	60	230	440	110	140
ASBU		B0-NOPS	Regional	Regional	B0-SURF	Regional	B0-ACDM	B0-RSEQ	Regional	Regional	Regional	B0-WAKE	B0-APTA	B0-FRTO
PRIORITY		PRIORITY 1											PRIORITY 1	

Nov. 2015

	Year-Priority	ATFM/CDM	Apron	Aerodrome cap	Safety/Surface	ATM-Aero	ACDM	AMAN/DMAN	ATC Horiz sep	ATC Sector Cap	Auto Transfer	Opt wake	PBN Approach	PBN Routes
Australia	2016 - 3	100%	100%	100%	100%	100%	100%	50%	100%		100%		100%	100%
Bangladesh	2015 - 2	N/A	10%	Not yet analysed	N/A	50%	N/A	N/A	100%		N/A		30%	10%
Bhutan	2015 - 3	N/A	N/A	N/A	N/A	0%	N/A	N/A	Not yet analysed				10%	10%
China	2015 - 3	77.70%	100%	100%	100%	100%	100%	50%	100%		100%		100%	N/A
Democratic People's Republic of Korea	2016 - 2	100%	100%	100%	100%	N/A	N/A	100%	100%		100%		N/A	N/A
Fiji	2015 - 3	100%	60%	Not yet analysed	Not yet analysed	No data	Not yet analysed	Not yet analysed	Not yet analysed		Not yet analysed		70%	Not yet analysed
French Polynesia, France	2015 - 3	N/A	N/A	N/A	N/A	N/A	N/A	10%	N/A		100%		100%	80%
Hong Kong, China	2016 - 3	100%	100%	100%	90%	100%	70%	100%	100%		80%		100%	100%
India	2015 - 4	0%	100%	100%	100%	100%	100%	50%	70%		100%		100%	60%
Indonesia	2015 - 4	100%	Not yet analysed	40%	Not yet analysed	80%	Not yet analysed	0%	Not yet analysed		50%		40%	40%
Japan	2014 - 4	100%	100%	40%	50%	100%	0%	0%	N/A		100%		0%	100%
Macao, China	2014 - 4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		N/A		No data	
Malaysia	2015 - 4	50%	100%	100%	100%	90%	10%	20%	100%		60%		0%	40%
Maldives	2016 - 1	Not yet analysed	Not yet analysed	Not yet analysed	Not yet analysed	Not yet analysed	Not yet analysed	N/A	100%		100%		60%	60%
Mongolia	2016 - 1	100%	N/A	N/A	No data	N/A	0%	N/A	100%		No data		N/A	0%
Nepal	2016 - 1	Not yet analysed	N/A	N/A	N/A	N/A	N/A	N/A	Not yet analysed		Not yet analysed		No data	20%
New Caledonia, France	2015 - 2	N/A	N/A	N/A	Not yet analysed	N/A	N/A	N/A	N/A		N/A		0%	Not yet analysed
New Zealand	2015 - 2	50%	100%	100%	100%	100%	80%	100%	100%		100%		100%	100%
Philippines	2016 - 1	100%	100%	100%	Not yet analysed	100%	0%	0%	100%		50%		100%	30%
Republic of Korea	2015 - 3	100%	100%	100%	100%	100%	No data	No data	100%		100%		No data	70%
Singapore	2015 - 3	0%	100%	100%	100%	100%	0%	100%	100%		100%		100%	0%
Sri Lanka	2015 - 4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	100%		100%		50%	100%
Thailand	2015 - 4	0%	100%	100%	50%	100%	0%	0%	100%		0%		80%	20%
United States	2015 - 1	50%	N/A	N/A	N/A	N/A	N/A	N/A	100%		100%		N/A	100%

Indicator (Nov. 2015):
- ATFM/CDM: % of High Density FIRs supporting the busiest Asia/Pacific traffic flows and high density aerodromes using operational ATFM platforms incorporating CDM
- Apron Management: % of high density international aerodromes (100,000 scheduled movements per annum or more) providing an appropriate apron management service
- Aerodrome capacity: % of high density international aerodromes having declared capacity in accordance with the Seamless ATM Plan Phase 1
- Safety and Efficiency of Surface Operations: % of applicable international aerodromes having implemented A-SMGCS Level 2
- ATM-Aerodrome Coordination: % of high density international aerodromes having appropriate ATM coordination in accordance with the Seamless ATM Plan
- ACDM: % of applicable international aerodromes having implemented improved airport operations through airport-CDM (applicable=high density)
- AMAN/DMAN: % of applicable international aerodromes having implemented AMAN / DMAN (applicable = high density)
- ATC Horizontal separation: Does your AIP authorise the use of the horizontal separation minima stated in ICAO Doc 4444 (PANS ATM), or as close to the separation minima as practicable?
- Automated Transfer of Control in an ATSU: % of ATC sectors with automated hand-off procedures in accordance with Seamless ATM Plan Phase 1
- PBN Approach: % of high density aerodromes with precision approaches or APV or LNAV (High density aerodrome is defined by Asia-Pacific Seamless ATM Plan as aerodromes with scheduled operations in excess of 100,000/year)
- PBN Routes: % of ATS routes designated as PBN routes in accordance with Seamless ATM Phase 1

Nov. 2018

	Year-Priority	ATFM/CDM	Aerodrome capacity	AMAN/DMAN	ATC Sector Capacity	Automated Transfer	Optimized wake	PBN Routes
Australia	2016 - 3	100.00%	100.00%	20%	70%	100%	Not yet analysed	100%
Bangladesh	2015 - 2	N/A	Not yet analysed	N/A	N/A			40%
Bhutan	2015 - 3	N/A	No data	N/A	Not yet analysed	Not yet analysed	N/A	0%
China	2015 - 3	77.70%	No data	0%	100%	No data	Not yet analysed	N/A
Democratic People's Republic of Korea	2016 - 2	100%	N/A	100%	50%	100%	Not yet analysed	N/A
Fiji	2015 - 3	100%	Not yet analysed	Not yet analysed	Not yet analysed	Not yet analysed	Not yet analysed	Not yet analysed
French Polynesia, France	2015 - 3	N/A	N/A	N/A	N/A	70%	N/A	100%
Hong Kong, China	2016 - 3	No data	No data	No data	100%	0%	Not yet analysed	No data
India	2015 - 4	100%	100%	100%	100%	100%	No data	100%
Indonesia	2015 - 4	No data	No data	No data	No data	No data	No data	No data
Japan	2014 - 4	100%	100%	N/A	100%	100%	Not yet analysed	0%
Macao, China	2014 - 4	N/A	N/A	N/A	N/A	N/A	Not yet analysed	N/A
Malaysia	2015 - 4	100%	No data	100%	100%	90%	Not yet analysed	100%
Maldives	2016 - 1	Not yet analysed	Not yet analysed	N/A	Not yet analysed	0%	Not yet analysed	100%
Mongolia	2016 - 1	No data	N/A	N/A	N/A	No data	0%	No data
Nepal	2016 - 1	Not yet analysed	N/A	N/A	N/A	N/A		Not yet analysed
New Caledonia, France	2015 - 2	N/A	N/A	N/A	N/A	N/A	100%	Not yet analysed
New Zealand	2015 - 2	100%	50%	80%	30%	100%	Not yet analysed	100%
Philippines	2016 - 1	100%	100%	0%	0%	0%	Not yet analysed	0%
Republic of Korea	2015 - 3	100%	100%	No data	No data	No data	Not yet analysed	No data
Singapore	2015 - 3	0%	100%	100%	0%	No data	Not yet analysed	0%
Sri Lanka	2015 - 4	60%	N/A		60%	100%	0%	100%
Thailand	2015 - 4	0%	100%	0%	0%	0%	Not yet analysed	0%
United States	2015 - 1	50%	N/A	N/A	100%	No data	N/A	No data

Indicator (Nov. 2018):
- ATFM/CDM: % of FIRs supporting Major Traffic Flows should implement ATFM incorporating CDM to enhance capacity, using bi-lateral and multi-lateral agreements
- Aerodrome capacity: % of high density aerodromes having declared capacity in accordance with the Seamless ATM Plan Phase 2
- AMAN/DMAN: % of applicable international aerodromes having implemented AMAN / DMAN (applicable = high density)
- ATC Sector Capacity: % of ATC sectors with capacity figures in accordance with Seamless ATM Phase 2
- Automated Transfer: % of ATC sectors with automated hand-off procedures in accordance with Seamless ATM Plan Phase 2
- Optimized wake: % of applicable international aerodromes having implemented increased runway throughput through optimized wake turbulence separation
- PBN Routes: % of ATS routes designated as PBN routes in accordance with Seamless ATM Phase 2

N/A: Not Applicable

Implementation status of Seamless ATM items relating to Optimal capacity
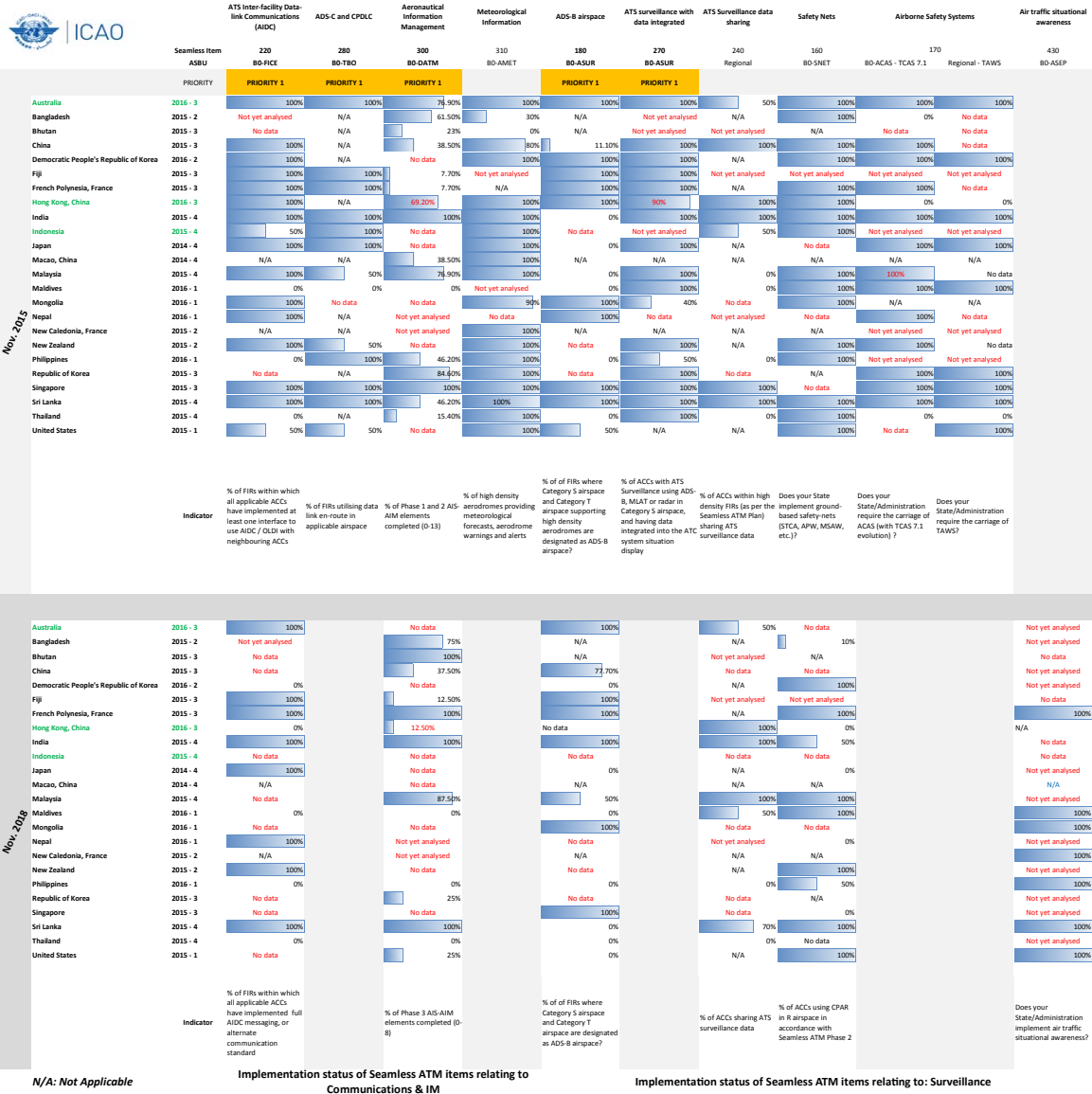
23-Aug-16

		Performance-based Navigation (PBN) Airspace	Continuous Descent Operations (CDO)	Continuous Climb Operations (CCO)	Standard Instrument Departures (SID)	Standard Terminal Arrivals (STAR)	PBN Visual Departure and Arrival Procedures	ATM systems enabling optimal PBN/ATC operations	UPR and DARP	In-trail procedures
Seamless Item		150	90	100	120		130	250	290	450
ASBU		Regional	B0-CDO	B0-CCO	B0-CCO/B0-CDO		Regional	B0-APTA	B0-FRTO	B0-OPFL
PRIORITY										

Nov. 2015

Country	Priority	PBN	CDO	CCO	SID	STAR	PBN Visual	ATM systems	UPR/DARP	In-trail
Australia	2016 - 3	100%	N/A	N/A	100%	100%		90%	100%	
Bangladesh	2015 - 2	N/A	N/A	N/A	50%	0%		Not yet analysed	N/A	
Bhutan	2015 - 3	Not yet analysed	N/A	N/A	Not yet analysed	Not yet analysed		N/A	N/A	
China	2015 - 3	100%	0%	0%	No data	100%		100%	N/A	
Democratic People's Republic of Korea	2016 - 2	N/A	100%	100%	100%	100%		100%		
Fiji	2015 - 3	Not yet analysed	Not yet analysed	Not yet analysed	Not yet analysed	Not yet analysed		Not yet analysed	Not yet analysed	
French Polynesia, France	2015 - 3	N/A	Not yet analysed	Not yet analysed	100%	80%		100%	100%	
Hong Kong, China	2016 - 3	0%	100%	Not yet analysed	100%	100%		100%	N/A	
India	2015 - 4	0%	100%	100%	100%	100%		100%	25%	
Indonesia	2015 - 4	100%	20%	60%	No data	20%		Not yet analysed	0%	
Japan	2014 - 4	100%	30%	Not yet analysed	100%	100%		100%	100%	
Macao, China	2014 - 4	N/A	N/A	N/A	No data	No data		N/A	N/A	
Malaysia	2015 - 4	100%	100%	100%	No data	100%		100%	N/A	
Maldives	2016 - 1	Not yet analysed	100%	100%	100%	100%		100%	100%	
Mongolia	2016 - 1	N/A	10%	10%	0%	0%		10%	100%	
Nepal	2016 - 1	Not yet analysed	Not yet analysed	N/A	N/A	N/A		20%	N/A	
New Caledonia, France	2015 - 2	Not yet analysed	N/A	N/A	No data	100%		N/A	N/A	
New Zealand	2015 - 2	100%	100%	100%	100%	100%		100%	50%	
Philippines	2016 - 1	0%	50%	50%	30%	100%		20%	0%	
Republic of Korea	2015 - 3	No data	30%	0%	No data	No data		100%	N/A	
Singapore	2015 - 3	100%	100%	0%	No data	100%		0%	N/A	
Sri Lanka	2015 - 4	N/A	70%	70%	70%	70%		100%	100%	
Thailand	2015 - 4	0%	20%	20%	40%	50%		100%	N/A	
United States	2015 - 1	100%	N/A	N/A	N/A	N/A		100%	50%	
Indicator		Are all your Category R and S upper controlled airspace, and Category T airspace supporting high density aerodromes designated as non-exclusive or exclusive PBN airspace as appropriate.? (1- yes, 0-no)	% of international aerodromes/TMA where CDO is implemented	% of international aerodromes where CCO is implemented	% of international aerodromes / TMAs with PBN SID implemented	% of international aerodromes / TMAs with PBN STAR implemented		% of ATC units with ATM systems enabling optimal PBN operations	% of FIRs using UPR and DARP within R airspace	

Nov. 2018

Country	Priority	PBN Visual	ATM systems	In-trail
Australia	2016 - 3	30%	90%	Not yet analysed
Bangladesh	2015 - 2	N/A	Not yet analysed	Not yet analysed
Bhutan	2015 - 3	Not yet analysed	N/A	N/A
China	2015 - 3	Not yet analysed	No data	N/A
Democratic People's Republic of Korea	2016 - 2	100%	100%	Not yet analysed
Fiji	2015 - 3	Not yet analysed	Not yet analysed	Not yet analysed
French Polynesia, France	2015 - 3	N/A	No data	N/A
Hong Kong, China	2016 - 3	N/A	No data	N/A
India	2015 - 4	No data	100%	25%
Indonesia	2015 - 4	No data	Not yet analysed	No data
Japan	2014 - 4	0%	100%	Not yet analysed
Macao, China	2014 - 4	N/A	N/A	N/A
Malaysia	2015 - 4	100%	No data	Not yet analysed
Maldives	2016 - 1	N/A	100%	N/A
Mongolia	2016 - 1	0%	No data	100%
Nepal	2016 - 1	Not yet analysed	No data	Not yet analysed
New Caledonia, France	2015 - 2	N/A	N/A	N/A
New Zealand	2015 - 2	100%	100%	Not yet analysed
Philippines	2016 - 1	Not yet analysed	0%	Not yet analysed
Republic of Korea	2015 - 3	No data	100%	Not yet analysed
Singapore	2015 - 3	0%	No data	Not yet analysed
Sri Lanka	2015 - 4	100%	100%	0%
Thailand	2015 - 4	Not yet analysed	0%	Not yet analysed
United States	2015 - 1	N/A	100%	50%
Indicator		% of high density aerodromes with PBN procedures that overlay visual arrival and departure procedures	% of ATC units with ATM systems supporting optimal aerodrome capacity and using electronic fight progress strips	% of FIRs having implemented in-trail procedures

N/A: Not Applicable

Implementation status of Seamless ATM items relating to Optimal trajectories

23-Aug-16

ICAO

		Airspace classification	Flight Level Orientation Schemes (FLOS)	Flight Level Allocation Schemes (FLAS)	Civil Military use of SUA	Strategic Civil Military coordination	Tactical Civil Military coordination	Civil Military system integration	Civil Military navaids joint provision	Civil Military common training	Civil Military common procedures	ATM Managers' Performance	ATC simulators performance	Safety assessment of changes	ATM Operators' performance
Seamless Item		190	200	210	360	370	380	390	400	410	420	320	330	340	350
ASBU		Regional	Regional	Regional	B0-FRTO	Regional	Regional	Regional	Regional	Regional	Regional	Regional	Regional	Regional	Regional
PRIORITY					PRIORITY 1	PRIORITY 1	PRIORITY 1								

Nov. 2015

State	Priority	190	200	210	360	370	380	390	400	410	420	320	330	340	350
Australia	2016 - 3	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Bangladesh	2015 - 2	N/A	100%	N/A	No data	No data	100%	Not yet analysed	100%	No data	100%	Not yet analysed	N/A	Not yet analysed	Not yet analysed
Bhutan	2015 - 3	N/A	N/A	N/A	N/A	No data	No data	Not yet analysed	Not yet analysed	Not yet analysed	No data	No data	N/A	No data	No data
China	2015 - 3	0%	N/A	No data	N/A	100%	100%	N/A	Not yet analysed	No data	N/A	100%	100%	No data	100%
Democratic People's Republic of Korea	2016 - 2	No data	No data	No data	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Fiji	2015 - 3	Not yet analysed	Not yet analysed	Not yet analysed	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not yet analysed	Not yet analysed	Not yet analysed	Not yet analysed
French Polynesia, France	2015 - 3	100%	100%	N/A	N/A	No data	N/A	N/A	N/A	N/A	100%	100%	100%	100%	100%
Hong Kong, China	2016 - 3	100%	100%	100%	100%	100%	100%	100%	N/A	N/A	N/A	100%	100%	100%	100%
India	2015 - 4	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Indonesia	2015 - 4	100%	100%	0%	0%	100%	0%	0%	100%	N/A	100%	Not yet analysed	100%	No data	No data
Japan	2014 - 4	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Macao, China	2014 - 4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0%	0%	0%	100%
Malaysia	2015 - 4	100%	100%	No data	100%	100%	100%	N/A	100%	N/A	100%	100%	100%	100%	100%
Maldives	2016 - 1	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	100%	100%	0%
Mongolia	2016 - 1	100%	Not yet analysed	100%	Not yet analysed	Not yet analysed	Not yet analysed	No data	Not yet analysed	No data	No data	No data	100%	100%	100%
Nepal	2016 - 1	N/A	100%	Not yet analysed	N/A	N/A	N/A	N/A	N/A	N/A	Not yet analysed	Not yet analysed	Not yet analysed	Not yet analysed	Not yet analysed
New Caledonia, France	2015 - 2	100%	100%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	100%	100%	100%	100%
New Zealand	2015 - 2	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Philippines	2016 - 1	100%	100%	100%	100%	100%	0%	Not yet analysed	100%	100%	100%	Not yet analysed	100%	100%	100%
Republic of Korea	2015 - 3	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	100%	100%	100%
Singapore	2015 - 3	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Sri Lanka	2015 - 4	100%	100%	N/A	0%	100%	100%	0%	0%	0%	0%	100%	100%	100%	100%
Thailand	2015 - 4	100%	100%	0%	100%	100%	100%	0%	100%	0%	0%	100%	100%	100%	100%
United States	2015 - 1	N/A	100%	N/A	100%	100%	100%	100%	N/A	N/A	N/A	100%	100%	100%	100%

Indicator

Item	Indicator
190	Has your State/Administration harmonized the upper airspace classification as follows: a) Category R controlled airspace—Class A; and b) Category S controlled airspace—Class A, or if there are high level general aviation or military VFR operations: Class B or C.?
200	Does your State/Administration use the ICAO Table of Cruising Levels based on feet as contained in Appendix 3a to Annex 2 ?
210	Does your Operations Manual give priority for FLAS level allocations to higher density ATS routes over lower density ATS routes, and a lower priority to any aircraft that does not meet specified equipage ?
360	% of FIRs in which FUA is implemented
370	Have you established a national civil/military body that performs strategic civil-military coordination?
380	Have you established a formal civil military liaison for tactical response?
390	Are civil ATS and military systems integrated?
400	Are there joint civil and military navigation aids?
410	Is Civil Military common training conducted in areas of common interest?
420	Are there common procedures for Civil Military operations where appropriate?
320	Does your Operations Manual require the human performance training for all ANSP managers?
330	Do you have a programme for enhancement and improved application of ATC simulators ?
340	Do you have safety teams comprising multidisciplinary operational staff and managers which review safety performance and assess significant proposals for change to ATM systems?
350	Do you have human performance-based training and procedures for staff providing ATS?

Nov. 2018

State	Priority	Value
Australia	2016 - 3	100%
Bangladesh	2015 - 2	Not yet analysed
Bhutan	2015 - 3	No data
China	2015 - 3	No data
Democratic People's Republic of Korea	2016 - 2	No data
Fiji	2015 - 3	Not yet analysed
French Polynesia, France	2015 - 3	0%
Hong Kong, China	2016 - 3	0%
India	2015 - 4	100%
Indonesia	2015 - 4	Not yet analysed
Japan	2014 - 4	100%
Macao, China	2014 - 4	100%
Malaysia	2015 - 4	No data
Maldives	2016 - 1	No data
Mongolia	2016 - 1	No data
Nepal	2016 - 1	Not yet analysed
New Caledonia, France	2015 - 2	No data
New Zealand	2015 - 2	100%
Philippines	2016 - 1	Not yet analysed
Republic of Korea	2015 - 3	0%
Singapore	2015 - 3	No data
Sri Lanka	2015 - 4	100%
Thailand	2015 - 4	0%
United States	2015 - 1	No data

Indicator: Is the prevention of fatigue systems established to support human performance in the delivery of your ATM services?

N/A: Not Applicable

Implementation status of Seamless ATM items relating to Airspace

Implementation status of Seamless ATM items relating to Civil/Military integration

Implementation status of Seamless ATM items relating to: Performing safely

23-Aug-16

Implementation status of Seamless ATM items — ICAO

Nov. 2015

State	Priority	AIDC (220) BO-FICE PRIORITY 1	ADS-C and CPDLC (280) BO-TBO PRIORITY 1	AIM (300) BO-DATM PRIORITY 1	Met Info (310) BO-AMET	ADS-B airspace (180) BO-ASUR PRIORITY 1	ATS surv. data integrated (270) BO-ASUR PRIORITY 1	ATS Surv. data sharing (240) Regional	Safety Nets (160) BO-SNET	Airborne Safety (170) BO-ACAS TCAS 7.1	Regional TAWS	Air traffic situational awareness (430) BO-ASEP
Australia	2016 - 3	100%	100%	76.90%		100%	100%	50%	100%	100%		100%
Bangladesh	2015 - 2	Not yet analysed	N/A	61.50%	30%	N/A	Not yet analysed	N/A	100%	0%		No data
Bhutan	2015 - 3	No data	N/A	23%	0%	N/A	Not yet analysed	Not yet analysed	N/A	No data		No data
China	2015 - 3	100%	N/A	38.50%	80%	11.10%	100%	100%	100%	100%		No data
Democratic People's Republic of Korea	2016 - 2	100%	N/A	No data	100%	100%	100%	100%	100%	100%		100%
Fiji	2015 - 3	100%	100%	7.70%	Not yet analysed	100%	100%	Not yet analysed	Not yet analysed	Not yet analysed		Not yet analysed
French Polynesia, France	2015 - 3	100%	100%	7.70%	N/A	100%	100%	N/A	100%	0%		No data
Hong Kong, China	2016 - 3	100%	N/A	69.20%	100%	100%	90%	100%	100%	0%		0%
India	2015 - 4	100%	100%	100%	100%	0%	100%	100%	100%	100%		100%
Indonesia	2015 - 4	50%	100%	No data	100%	No data	Not yet analysed	50%	100%	Not yet analysed		Not yet analysed
Japan	2014 - 4	100%	N/A	No data	100%	0%	100%	N/A	No data	100%		100%
Macao, China	2014 - 4	N/A	N/A	38.50%	100%	N/A	100%	N/A	N/A	N/A		N/A
Malaysia	2015 - 4	100%	50%	76.90%	100%	0%	100%	0%	100%	100%		No data
Maldives	2016 - 1	0%	0%	0%	Not yet analysed	0%	100%	0%	100%	100%		100%
Mongolia	2016 - 1	100%	No data	No data	90%	100%	40%	No data	100%	N/A		N/A
Nepal	2016 - 1	100%	N/A	Not yet analysed	No data	100%	No data	Not yet analysed	No data	100%		No data
New Caledonia, France	2015 - 2	N/A	N/A	Not yet analysed	100%	N/A	100%	N/A	N/A	Not yet analysed		Not yet analysed
New Zealand	2015 - 2	100%	50%	No data	100%	No data	100%	N/A	100%	100%		No data
Philippines	2016 - 1	0%	100%	46.20%	100%	0%	50%	0%	100%	Not yet analysed		Not yet analysed
Republic of Korea	2015 - 3	No data	N/A	84.40%	100%	No data	100%	No data	100%	100%		100%
Singapore	2015 - 3	100%	100%	100%	100%	100%	100%	100%	No data	100%		100%
Sri Lanka	2015 - 4	100%	100%	46.20%	100%	100%	100%	100%	100%	100%		100%
Thailand	2015 - 4	0%	N/A	15.40%	100%	0%	100%	100%	100%	0%		0%
United States	2015 - 1	50%	50%	No data	100%	50%	N/A	N/A	100%	No data		100%

Indicators (Nov. 2015)

Column	Indicator
AIDC	% of FIRs within which all applicable ACCs have implemented at least one interface to use AIDC / OLDI with neighbouring ACCs
ADS-C and CPDLC	% of FIRs utilising data link en-route in applicable airspace
AIM	% of Phase 1 and 2 AIS-AIM elements completed (0-13)
Meteorological Information	% of high density aerodromes providing meteorological forecasts, aerodrome warnings and alerts
ADS-B airspace	% of FIRs where Category S airspace and Category T airspace supporting high density aerodromes are designated as ADS-B airspace?
ATS surveillance with data integrated	% of ACCs with ATS Surveillance using ADS-B, MLAT or radar in Category S airspace, and having data integrated into the ATC system situation display
ATS Surveillance data sharing	% of ACCs within high density FIRs (as per the Seamless ATM Plan) sharing ATS surveillance data
Safety Nets	Does your State implement ground-based safety-nets (STCA, APW, MSAW, etc.)?
Airborne Safety Systems	Does your State/Administration require the carriage of ACAS (with TCAS 7.1 evolution)?
Regional - TAWS	Does your State/Administration require the carriage of TAWS?

Nov. 2018

State	Priority	AIDC (full)	AIM (Phase 3)	ADS-B (Cat S/T)	ATS sharing	CPAR	Air traffic situational awareness
Australia	2016 - 3	100%	No data	100%	50%	No data	Not yet analysed
Bangladesh	2015 - 2	Not yet analysed	75%	N/A	N/A	10%	Not yet analysed
Bhutan	2015 - 3	No data	100%	N/A	Not yet analysed	N/A	No data
China	2015 - 3	No data	37.50%	73.70%	No data	100%	Not yet analysed
Democratic People's Republic of Korea	2016 - 2	0%	No data	0%	N/A	N/A	Not yet analysed
Fiji	2015 - 3	100%	12.50%	100%	Not yet analysed	Not yet analysed	No data
French Polynesia, France	2015 - 3	100%	100%	100%	N/A	100%	100%
Hong Kong, China	2016 - 3	0%	12.50%	No data	100%	0%	N/A
India	2015 - 4	100%	100%	100%	100%	50%	No data
Indonesia	2015 - 4	No data	No data	No data	No data	No data	No data
Japan	2014 - 4	100%	No data	0%	0%		N/A
Macao, China	2014 - 4	N/A	No data	N/A	N/A	N/A	N/A
Malaysia	2015 - 4	No data	87.50%	50%	100%	100%	Not yet analysed
Maldives	2016 - 1	0%	0%	0%	50%	100%	100%
Mongolia	2016 - 1	No data	No data	100%	No data	No data	100%
Nepal	2016 - 1	100%	Not yet analysed	No data	Not yet analysed	0%	Not yet analysed
New Caledonia, France	2015 - 2	N/A	Not yet analysed	N/A	N/A	N/A	100%
New Zealand	2015 - 2	100%	No data	No data	N/A	100%	Not yet analysed
Philippines	2016 - 1	0%	0%	0%	0%	50%	100%
Republic of Korea	2015 - 3	No data	25%	No data	No data	0%	Not yet analysed
Singapore	2015 - 3	No data	No data	100%	No data	0%	Not yet analysed
Sri Lanka	2015 - 4	100%	100%	0%	70%	100%	Not yet analysed
Thailand	2015 - 4	0%	0%	0%	0%	No data	Not yet analysed
United States	2015 - 1	No data	25%	0%	N/A	100%	100%

Indicators (Nov. 2018)

Column	Indicator
AIDC	% of FIRs within which all applicable ACCs have implemented full AIDC messaging, or alternate communication standard
AIM	% of Phase 3 AIS-AIM elements completed (0-8)
ADS-B	% of FIRs where Category S airspace and Category T airspace are designated as ADS-B airspace
ATS sharing	% of ACCs sharing ATS surveillance data
CPAR	% of ACCs using CPAR in R airspace in accordance with Seamless ATM Phase 2
Air traffic situational awareness	Does your State/Administration implement air traffic situational awareness?

N/A: Not Applicable

Implementation status of Seamless ATM items relating to Communications & IM

Implementation status of Seamless ATM items relating to: Surveillance

23-Aug-16

ICAO UNITING AVIATION

PROGRESS AGAINST THE 10 REGIONAL PRIORITIES: REGIONAL PICTURE

Outline

- **APANPIRG's 10 regional priorities**

- **Regional picture**

- **Actions for the meeting**

APANPIRG'S 10 REGIONAL PRIORITIES

APANPIRG's 10 regional priorities

Specification title	Module
Air Traffic Flow Management/Collaborative Decision-Making (ATFM/CDM)	B0-NOPS
Strategic Civil Military coordination	Regional
Tactical Civil Military coordination	Regional
Civil Military use of Special Use of Airspace (SUA)	B0-FRTO
Approaches, including PBN	B0-APTA
ADS-B airspace	B0-ASUR
ATS surveillance with data integrated	B0-ASUR
ADS-C, CPDLC	B0-TBO
ATS Inter-facility Data-link Communications (AIDC)	B0-FICE
Aeronautical Information Management (AIM)	B0-DATM

REGIONAL PICTURE

Regional picture: how?

- **Based on**
  - the latest of the submitted reports only
  - PBN approaches: additional source

- **Only the 10 regional priorities presented**
  - but 45 objectives monitored

- **Progress presented State by State**
  - colour codes

Points of contact

- **66 points of contact for 31 States/Administrations**
- **12 missing States/Administrations:**
  - Afghanistan
  - Brunei Darussalam
  - Cook Islands
  - Kiribati
  - Marshall Islands
  - Micronesia (Federated States of)
  - Nauru
  - Palau
  - Papua New Guinea
  - Samoa
  - Tonga
  - Vanuatu

Reports

- **25 States/Administrations have submitted reports:**

  – Bangladesh
  – Bhutan
  – China
  – DPR Korea
  – Hong Kong, China
  – India
  – Indonesia
  – Japan
  – Macao, China
  – Malaysia

  – Maldives
  – Mongolia
  – Nepal
  – Pakistan
  – Philippines
  – Republic of Korea
  – Singapore
  – Sri Lanka
  – Thailand
  – United States

  – Australia
  – Fiji
  – French Polynesia, France
  – New Caledonia, France
  – New Zealand

Reports

- ## 18 missing States/Administrations

- **Afghanistan**

- **Brunei Darussalam**

- **Cambodia**

- **Lao People's Democratic Republic**

- **Myanmar**

- **Vietnam**

- **Cook Islands**

- **Kiribati**

- **Marshall Islands**

- **Micronesia (Federated States of)**

- **Nauru**

- **Palau**

- **Papua New Guinea**

- **Samoa**

- **Solomon Islands**

- **Democratic Republic of Timor-Leste**

- **Tonga**

- **Vanuatu**

Since the last APANPIRG

- **First submitted report from:**
  - Democratic Peoples' Republic of Korea
  - Fiji
  - Indonesia
  - Mongolia
  - Nepal
  - New Zealand
  - Pakistan (1st report, not yet in the regional picture)
- **Updates**
  - Australia
  - Hong Kong China
  - India
  - Indonesia (2nd report submitted Q3 2016, not yet in the regional picture)
  - Philippines
  - Singapore (4th report submitted Q3 2016, not yet in the regional picture)
  - Sri Lanka
- **In preparation:**
  - Lao (1st report)
  - Malaysia (3rd report)
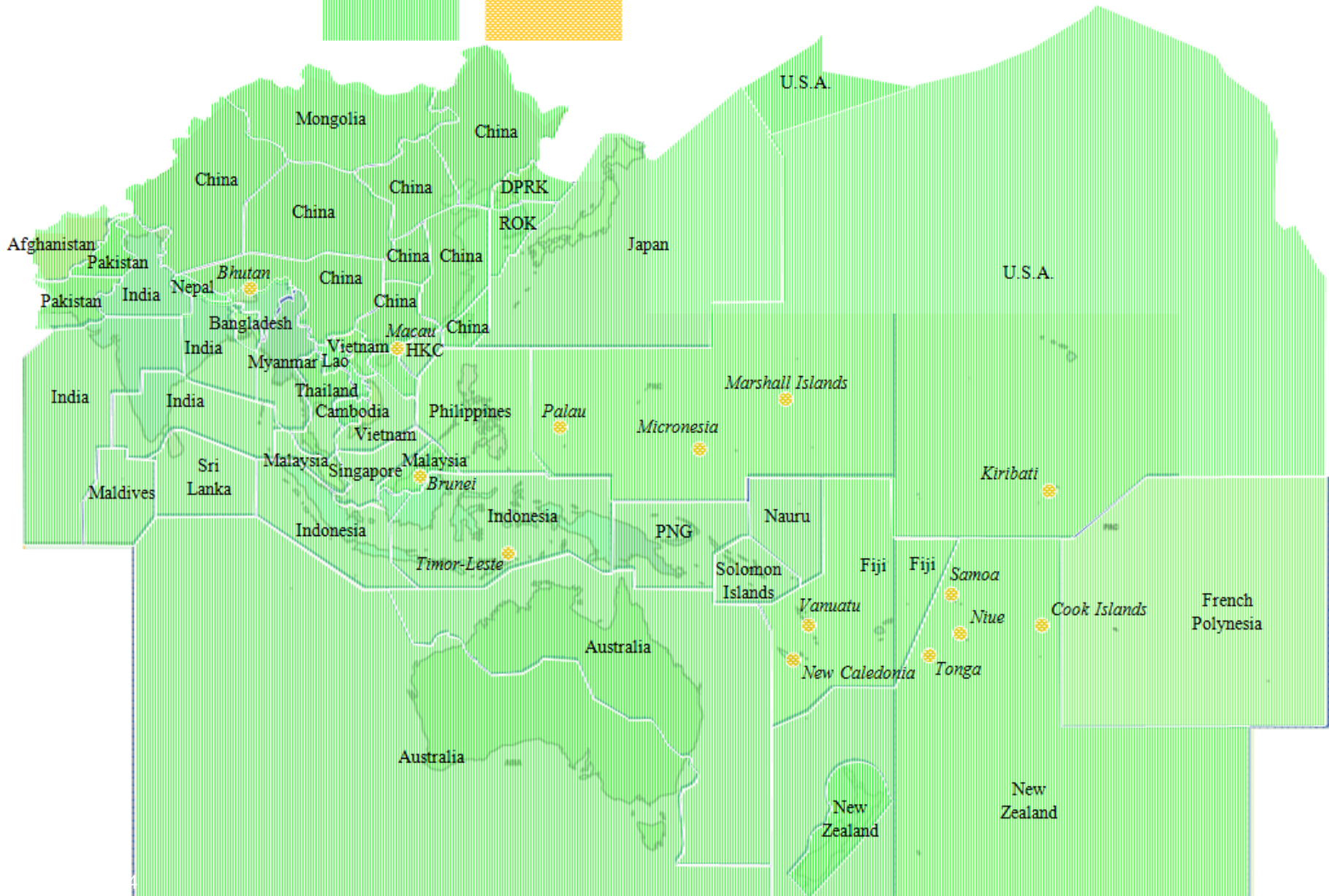
Orientation map

Seamless item 80: ATFM/CDM
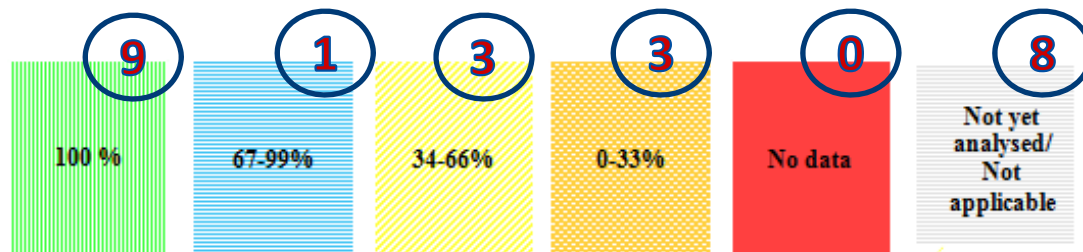
9	1	3	3	0	8
100 %	67-99%	34-66%	0-33%	No data	Not yet analysed/ Not applicable

% of High Density FIRs supporting the busiest Asia/Pacific traffic flows and high density aerodromes using operational ATFM platforms incorporating CDM.

Bhutan

Macau

Marshall Islands

Palau

Micronesia

Brunei

Kiribati

Timor-Leste

Samoa

Vanuatu

Niue

Cook Islands

New Caledonia

Tonga

23 August 2016

Seamless item 370: Strategic Civil Military coordination

Has the State established a national civil/military body that performs strategic civil-military coordination?

14 YES

1 NO

3 No data

6 Not yet analysed/ Not applicable

Bhutan

Macau

Marshall Islands

Palau

Micronesia

Brunei

Kiribati

Timor-Leste

Samoa

Vanuatu

Niue

Cook Islands

New Caledonia

Tonga

23 August 2016

Seamless item 380: Tactical Civil Military coordination

Has the State established a formal civil/military liaison for tactical response?

14 YES

2 NO

1 No data

7 Not yet analysed/ Not applicable

Bhutan

Macau

Marshall Islands

Palau

Micronesia

Brunei

Kiribati

Timor-Leste

Samoa

Vanuatu

Niue

Cook Islands

New Caledonia

Tonga
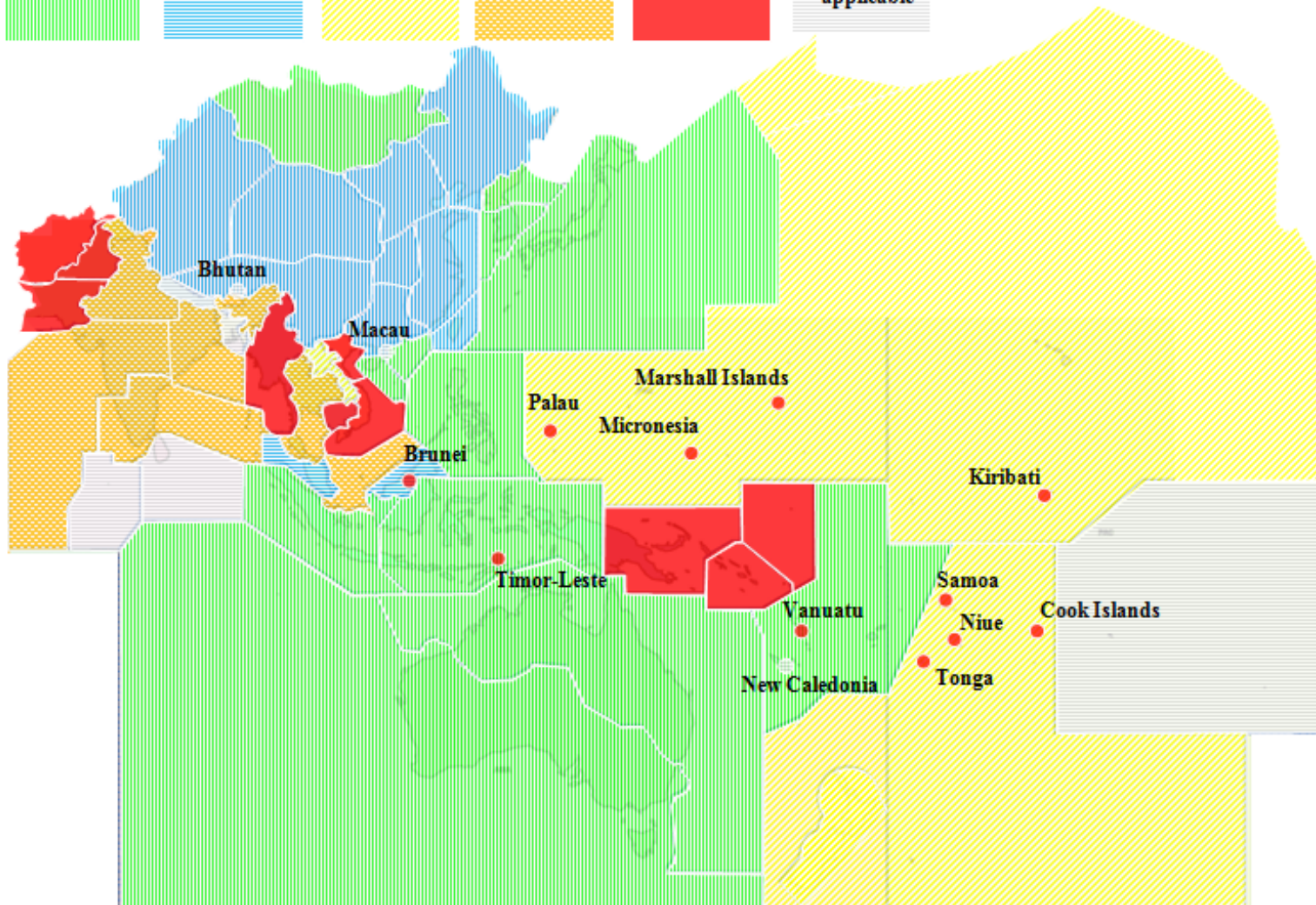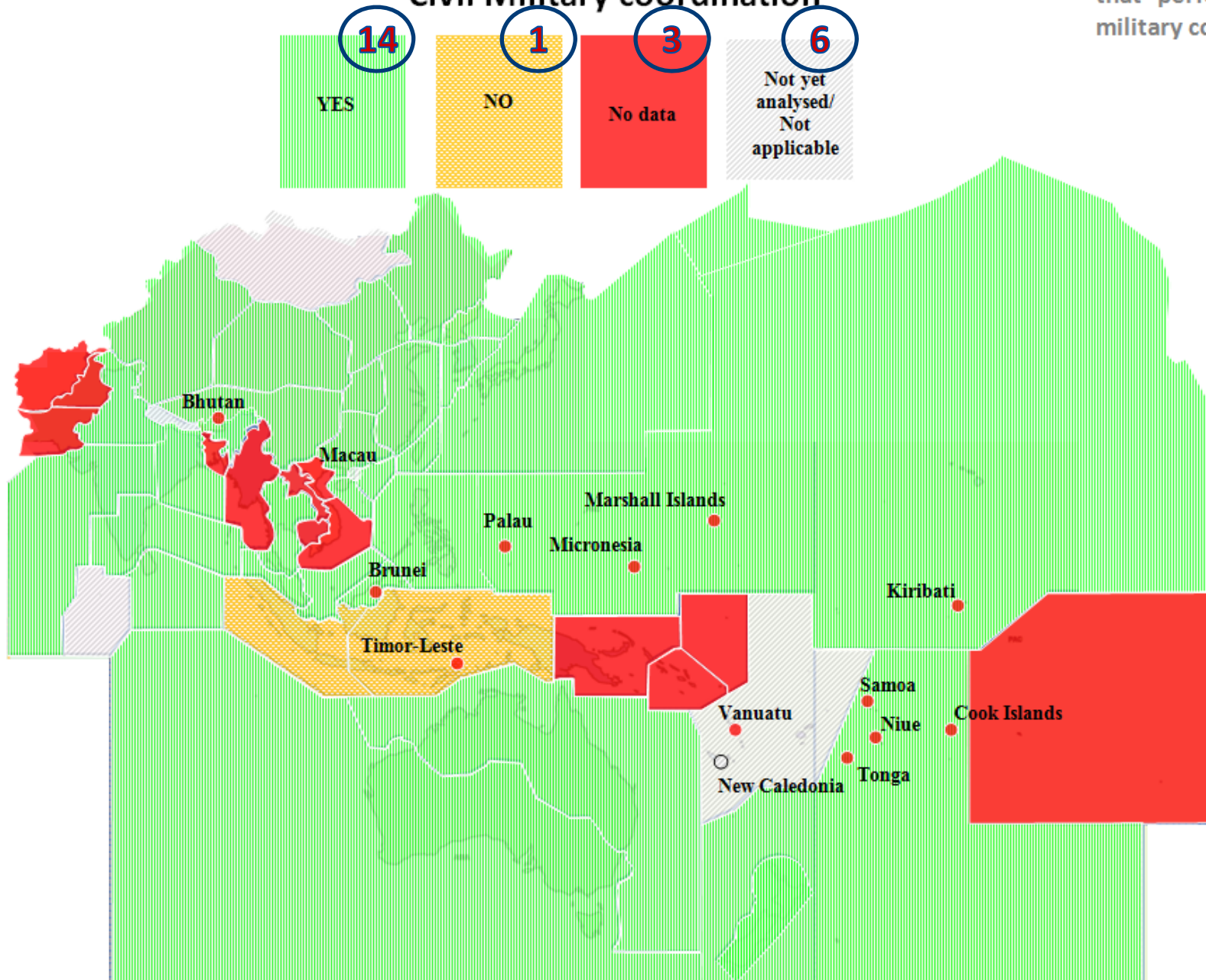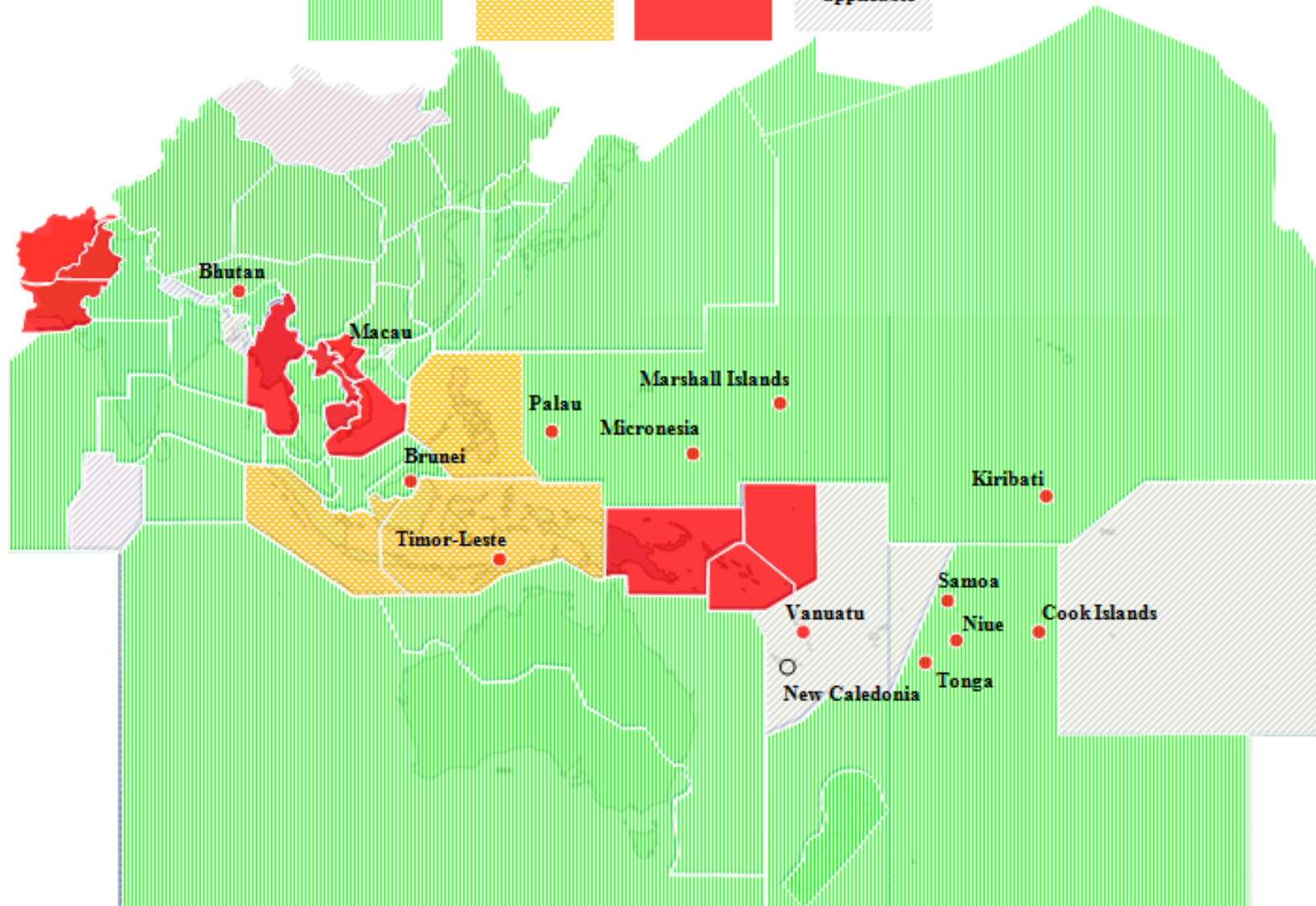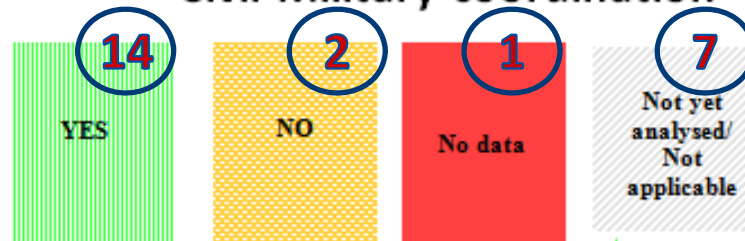
23 August 2016

Seamless item 360: Civil Military use of SUA

% of FIRs in which FUA is implemented

12	**0**	**0**	**2**	**1**	**9**
100 %	67-99%	34-66%	0-33%	No data	Not yet analysed/ Not applicable

Bhutan

Macau

Marshall Islands

Palau

Micronesia

Brunei

Kiribati

Timor-Leste

Samoa

Vanuatu

Niue

Cook Islands

Tonga

New Caledonia
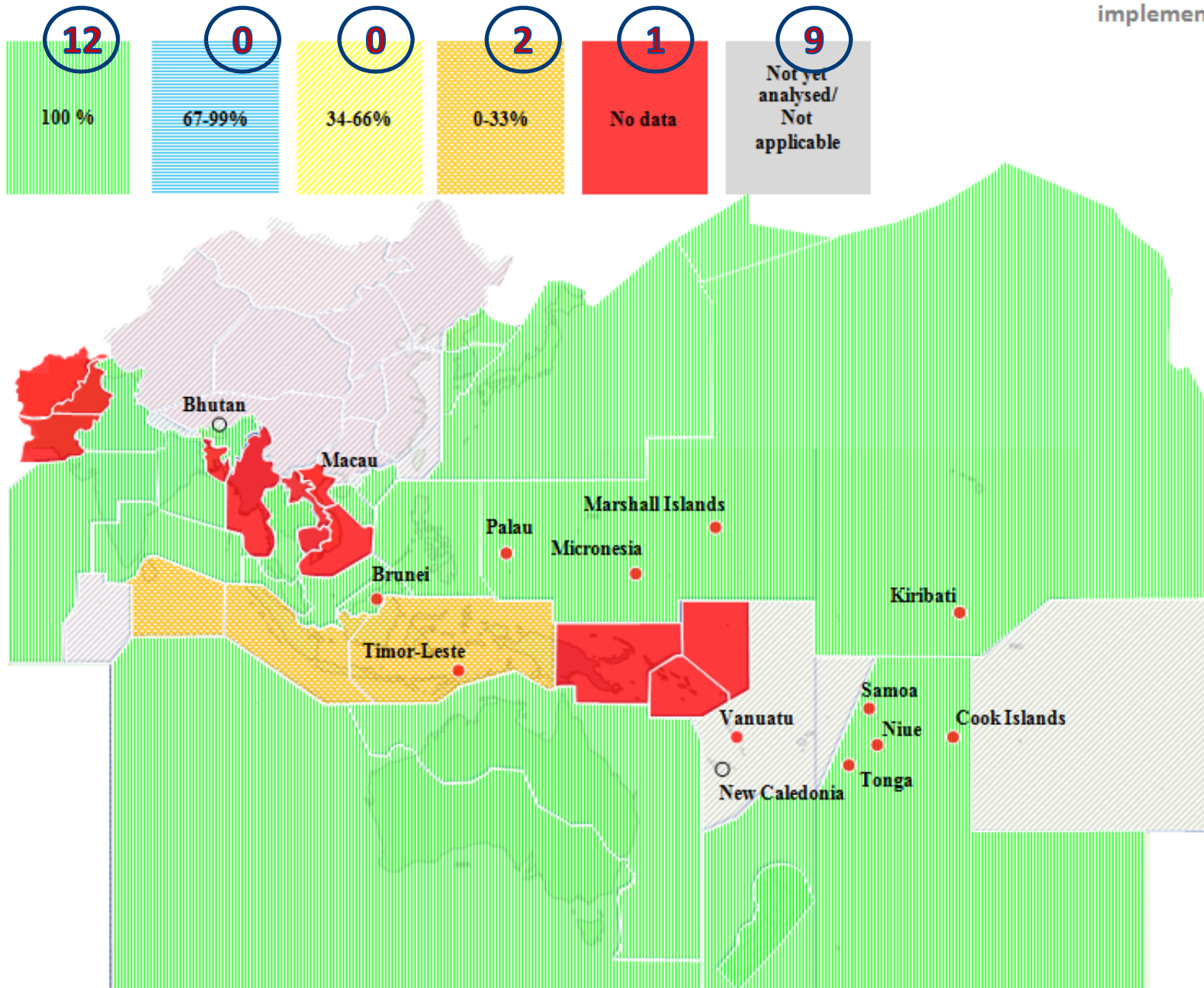
23 August 2016

Seamless item 110: Approaches
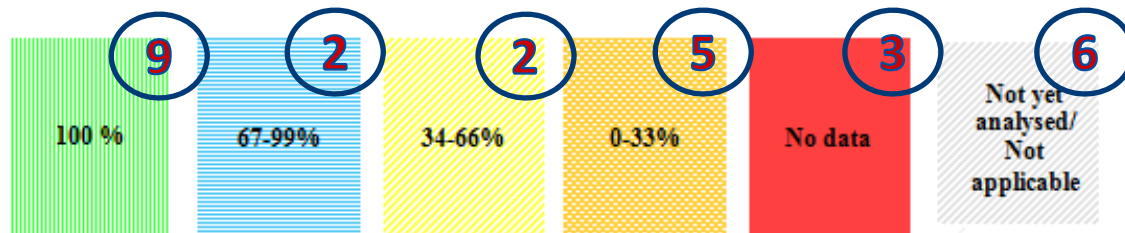
% of high density aerodromes with precision approaches or APV or LNAV (High density aerodrome is defined by Asia-Pacific Seamless ATM Plan as aerodromes with scheduled operations in excess of 100,000/year)

Note: APV/LNAV approaches as per Regional Performance dashboard not accounted for

9	**2**	**2**	**5**	**3**	**6**
100 %	67-99%	34-66%	0-33%	No data	Not yet analysed/ Not applicable

Bhutan

Macau

Brunei

Timor-Leste

Palau

Marshall Islands

Micronesia

Kiribati

Samoa

Niue

Cook Islands

Vanuatu

Tonga

New Caledonia
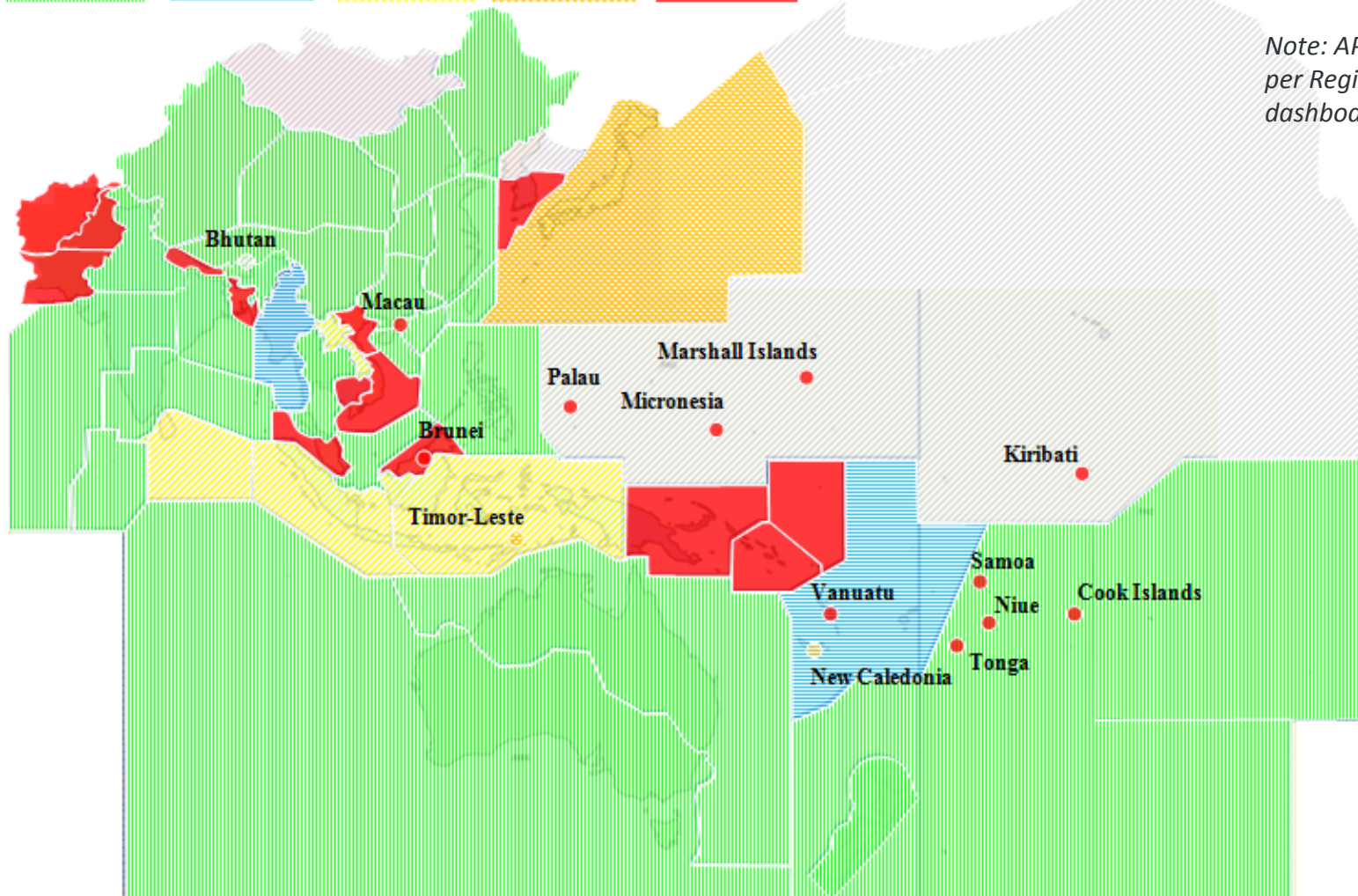
23 August 2016

Seamless item 110: PBN Approaches
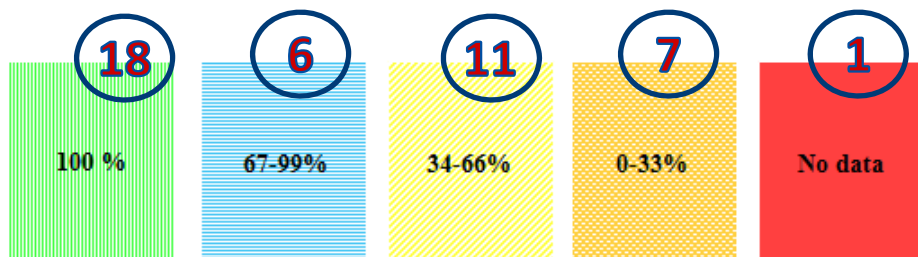
% of instrument runways at international aerodromes with APV or LNAV-only procedures

Sources:
- Regional Performance dashboard
- PBNICG reports

18 | 100 %
6 | 67-99%
11 | 34-66%
7 | 0-33%
1 | No data

Bhutan

Macau

Marshall Islands

Palau

Micronesia

Brunei

Kiribati

Timor-Leste

Samoa

Vanuatu

Niue

Cook Islands

New Caledonia

Tonga
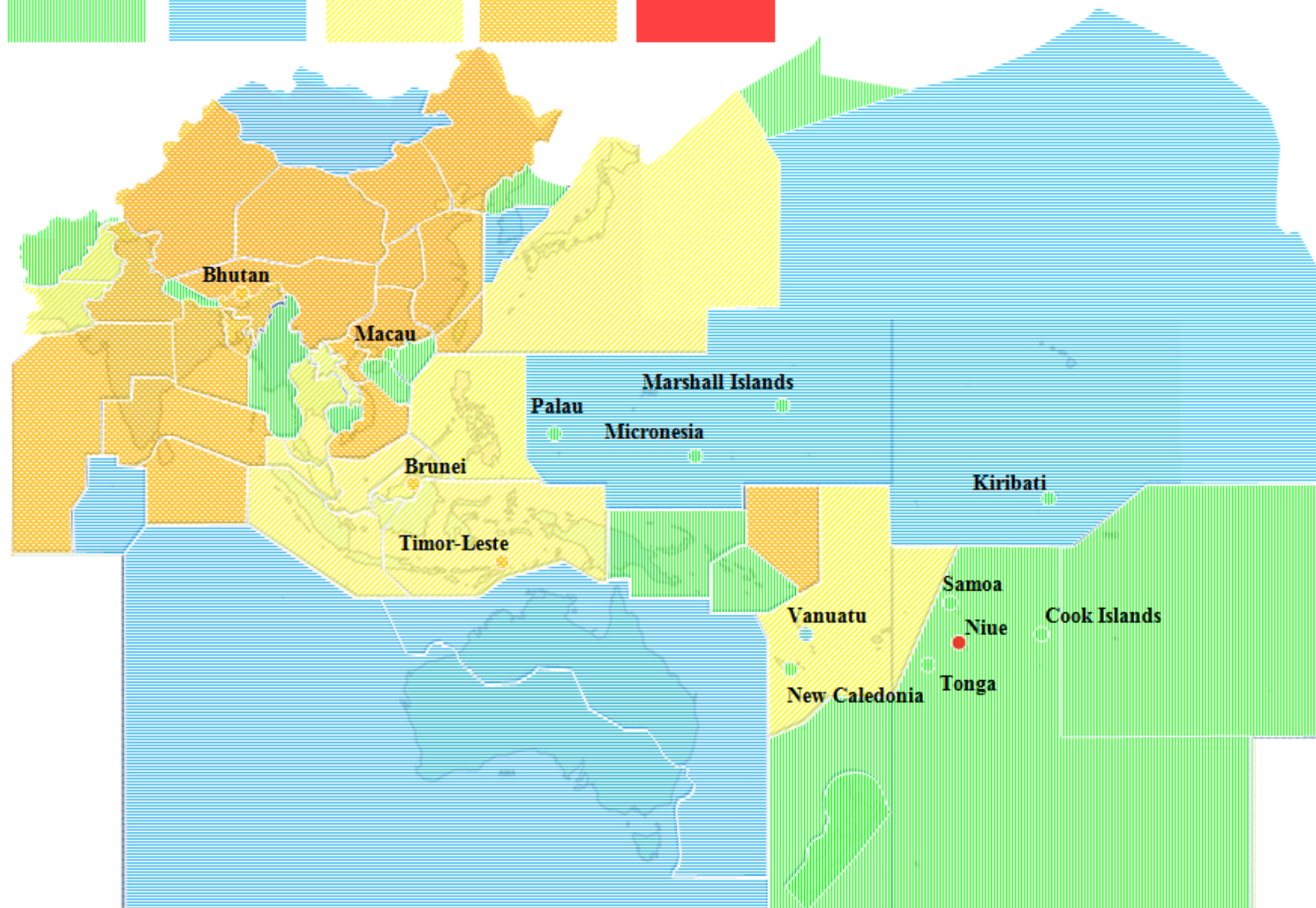
23 August 2016

Seamless item 180: ADS-B airspace
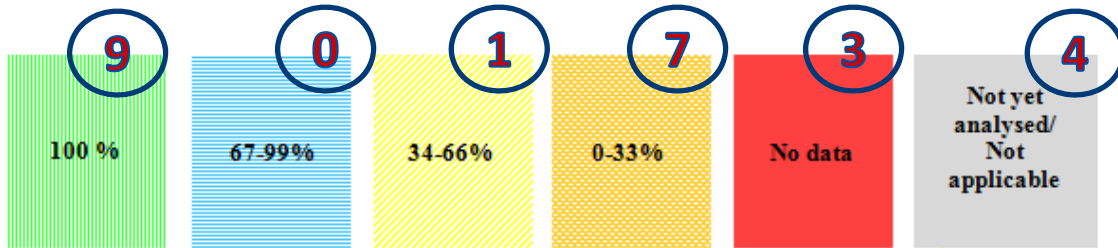
(9)	(0)	(1)	(7)	(3)	(4)
100 %	67-99%	34-66%	0-33%	No data	Not yet analysed/ Not applicable

% of FIRs where Category S airspace and Category T airspace supporting high density aerodromes are designated as ADS-B airspace

Bhutan

Macau

Palau

Marshall Islands

Micronesia

Brunei

Timor-Leste

Kiribati

Vanuatu

Samoa

Niue

Cook Islands

Tonga

New Caledonia

23 August 2016

Seamless item 270: ATS Surveillance with data Integrated

% of ACCs with ATS Surveillance using ADS-B, MLAT or radar in Category S airspace, and having data integrated into the ATC system situation display

(14) 100 %	(1) 67-99%	(2) 34-66%	(0) 0-33%	(1) No data	(6) Not yet analysed/ Not applicable

Bhutan

Macau

Marshall Islands

Palau

Micronesia

Brunei

Kiribati

Timor-Leste

Samoa

Vanuatu

Niue

Cook Islands

Tonga

New Caledonia
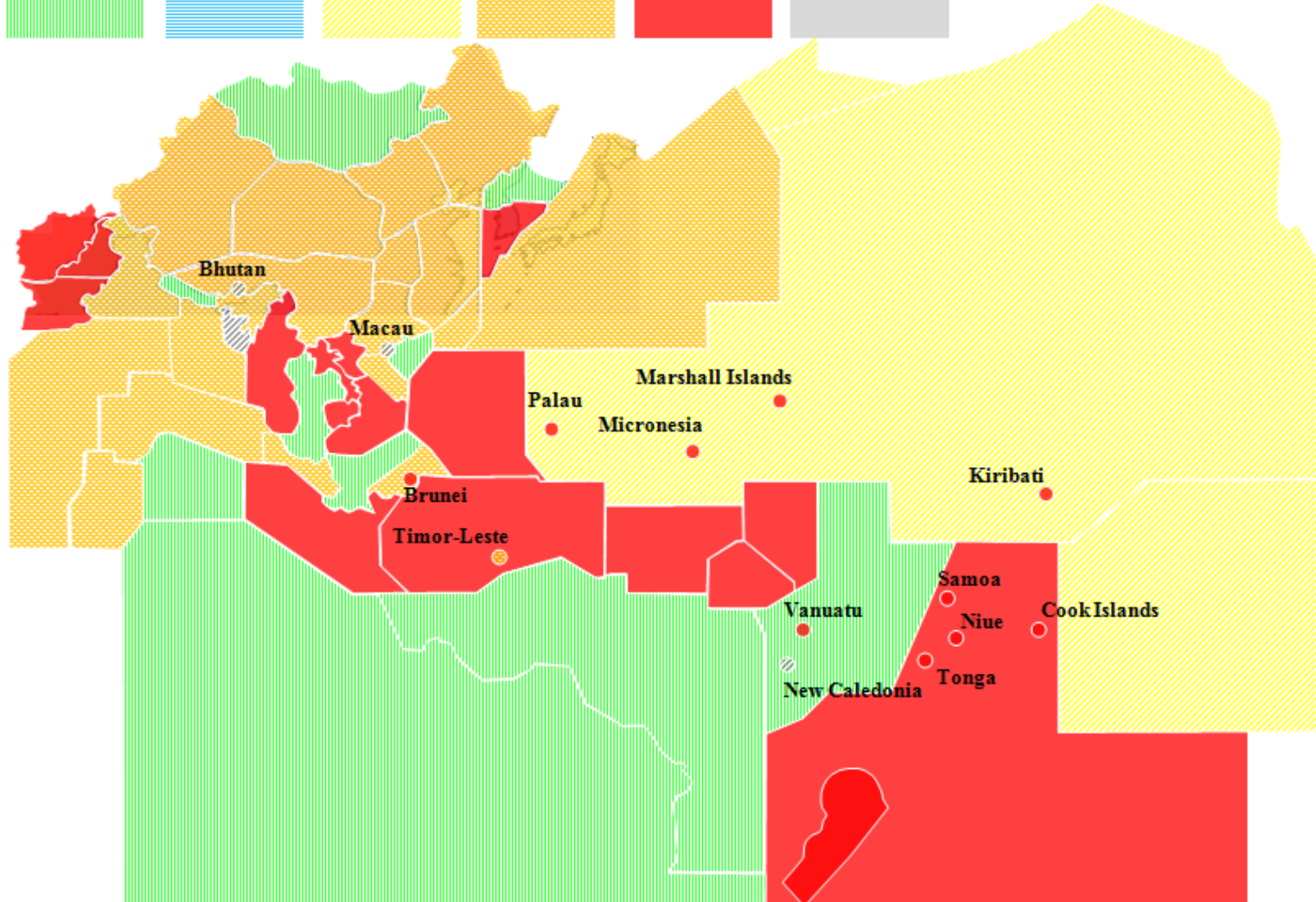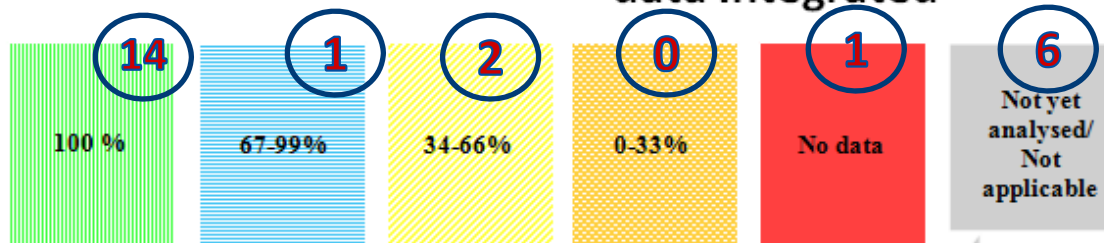
23 August 2016

Seamless item 280: ADS-C and CPDLC

9	0	3	1	1	10
100 %	67-99%	34-66%	0-33%	No data	Not yet analysed/ Not applicable

% of FIRs utilising data link en-route in applicable airspace

Bhutan

Macau

Palau

Marshall Islands

Micronesia

Brunei

Timor-Leste

Kiribati

Samoa

Vanuatu

Niue

Cook Islands

New Caledonia

Tonga

23 August 2016

Seamless item 220: AIDC

% of FIRs within which all applicable ACCs have implemented at least one interface to use AIDC / OLDI with neighbouring ACCs

14	**0**	**2**	**3**	**2**	**3**
100 %	67-99%	34-66%	0-33%	No data	Not yet analysed/ Not applicable

Bhutan

Macau

Palau

Marshall Islands

Micronesia

Brunei

Kiribati

Timor-Leste

Samoa

Vanuatu

Niue

Cook Islands

New Caledonia

Tonga

23 August 2016

Seamless item 300: Aeronautical Information Management

% of Phase 1 and 2 AIS-AIM elements completed

2	**4**	**5**	**5**	**6**	**2**
100 %	67-99%	34-66%	0-33%	No data	Not yet analysed/ Not applicable

Bhutan

Macau

Brunei

Timor-Leste

Palau

Micronesia

Marshall Islands

Kiribati

Samoa

Vanuatu

Niue

Cook Islands

New Caledonia

Tonga

23 August 2016

ACTIONS FOR THE MEETING

Actions for the meeting

- **Missing points of contact**

- **Quality of reporting should be improved**
  - Phase 1: crosscheck inside the State and with reporting done to ICAO regional WG/TF
  - Phase 2: poor reporting

- **National plan**
  - not necessarily a stand-alone document
  - can link to the various existing national plans consistently prioritized

Actions for the meeting (cont'd)

- **Missing reports:**

  - Afghanistan;
  - Brunei Darussalam;
  - Cambodia;
  - Lao People's Democratic Republic;
  - Myanmar;
  - Vietnam

- Cook Islands;
- Kiribati;
- Marshall Islands;
- Micronesia (Federated States of);
- Nauru;
- Palau;
- Papua New Guinea;
- Samoa;
- Solomon Islands;
- Democratic Republic of Timor-Leste;
- Tonga;
- Vanuatu

Actions for the meeting (cont'd)

DGCA Conference Action Item 53/9 for States/Administrations:

- **highest priority to the implementation of the regional priorities**

- **provide resources (CAA and ANSP) to complete phases 1 and 2**

- **align their national strategy with the objectives of phase 2 (November 2019) and phase 3 (November 2022)**

Actions for the meeting (cont'd)

Draft Conclusion XX/XX - Mobilization of human / financial resources to achieve the Seamless ATM Plan objectives	

What: That, noting that most States/Administrations are not achieving the expected implementation progress of regional priorities for Air Navigation Systems, States/Administrations should:
 	
                a)   give highest priority to the implementation of regional priorities and provide human/financial resources to CAAs and ANSPs to complete Seamless ATM phase I implementation; and
                b)   mobilize human and financial resources to plan for timely implementation of phase 2 and phase 3 elements assessed as relevant by their national gap analysis..
	Expected impact:
	☒ Political / Global
	☐ Inter-regional
	☒ Economic
	☒ Environmental
	☒ Ops/Technical

Why: The ten regional targets planned for completion in November 2015 were far from being achieved as of August 2016; the second cycle of the seamless ATM planning is starting and needs focus from high decision makers to mobilize adequate resources.	
When: 9-Sep-16	Status: To be adopted by PIRG
Who: ☐Sub groups ☒APAC States ☒ICAO APAC RO ☐ICAO HQ ☐Other:	

Additional information

- **Regional picture:** http://www.icao.int/APAC/Pages/ATMReport.aspx

- **Assistance: contact** apac@icao.int

- **To report:** https://portal.icao.int/RO_APAC/Reporting/Pages/default.aspx

- **How to:**

  https://portal.icao.int/RO_APAC/Reporting/Documents/How%20to%20-
  %20Seamless%20ATM%20online%20reporting%20-%20061114.pdf

North American
Central American
and Caribbean
(NACC) Office
Mexico City

South American
(SAM) Office
Lima

ICAO
Headquarters
Montréal

Western and
Central African
(WACAF) Office
Dakar

European and
North Atlantic
(EUR/NAT) Office
Paris

Middle East
(MID) Office
Cairo

Eastern and
Southern African
(ESAF) Office
Nairobi

Asia and Pacific
(APAC) Sub-office
Beijing

Asia and Pacific
(APAC) Office
Bangkok

THANK YOU