



International Civil Aviation Organization

**THE THIRD MEETING OF PERFORMANCE BASED NAVIGATION
IMPLEMENTATION COORDINATION GROUP (PBNICG/3)**

Bangkok, Thailand, 08 – 10 March 2016

Agenda Item 5: States' PBN Implementation Progress

- a) PBN implementation plans: updates by States/Administrations
- b) Review and adoption of PBN Implementation Progress Report results

**REVIEW OF THE
PBN IMPLEMENTATION PROGRESS IN APAC**

(Presented by the Secretariat)

SUMMARY

This paper presents the review results of State's PBN Implementation Progress Reports which were received up to March 2016.

1. INTRODUCTION

1.1 In the Resolution A37-11 of the 37th Session of the ICAO General Assembly which superseded Resolution A36-23, the Assembly resolved that States complete a PBN implementation plan to achieve the implementation of RNAV and RNP operations for en-route and terminal areas according to established timelines and intermediate milestones. Also the Assembly urged all States to implement RNAV and RNP operations for en-route, terminal and approach procedures by 2016.

1.2 In this regard, Asia and Pacific Regional Office issued the State Letter, AP052-15, requesting APAC States and Administrations to submit their PBN Implementation Plan by 31 July 2015 if not submitted yet and to update their PBN implementation Plan by the end of 2016 if submitted already (see Action 1/11 of PBNICG/1).

1.2 PBNICG/2 adopted the template of the PBN Progress Reporting Form to monitor the State's PBN implementation status and provide it for ICAO to reflect the latest PBN implementation information in its dashboard (see Action 2/21 of PBNICG/2).

2. DISCUSSION

2.1 **Attachment A** shows the PBN implementation status which has been collected from States' PBN Implementation Progress Reports up to January 2016, only for the reporting States.

2.2 **Attachment B** shows a global picture regarding the PBN plans, updates to the PBN plans, and progress, based on States' plans and progress reports up to January 2016, and papers submitted to ICAO up to January 2016.

PBN implementation plans

2.3 Based on attachment B, 27 States/Administrations submitted their PBN Implementation Plan. No new initial PBN plan was submitted. Only one State has submitted an update to the PBN implementation plan (France/French Polynesia), and another State has submitted new annexes to the future PBN plan (India).

2.4 14 States/Administrations have submitted their PBN Implementation Progress Report as of 04 March 2016. Among them, only 2 States indicated they had a plan to update their PBN Implementation Plan by 2016.

PBN Implementation Progress

2.5 The reports show that the Assembly Resolution 37-11 objective for Approach is met by 4 States, and will probably be almost met by 5 more end 2016 (for international and domestic runway ends). Based on third party data, the ICAO regional performance dashboard shows that 16 States have implemented 100% PBN approach at their international runway ends. However some discrepancies with the detailed reports indicate this could be a bit too optimistic.

2.6 In any case, it is forecast that the bulk of APAC States will not meet the Assembly Resolution 37-11 objectives end 2016 for international and domestic runway ends.

2.7 Therefore, such States should review their PBN implementation plan to speed up implementation and continue sharing with PBNICG all the issues they may face. Even though they cannot meet Assembly Resolution 37-11 objectives of 100% end 2016, the updated PBN plans should give an ambitious but reachable target for end 2016, and plan the date at which the Assembly Resolution 37-11 objectives will be met.

2.8 In terms of PBN arrival and departure route development, the number of airports where PBN arrival and departure procedures were developed does not match with the number of airports where PBN approach procedures were developed. From this, it can be inferred that these procedures were developed individually and arrival procedures did not connect to approach procedures.

2.9 Even though RNP approach is intended to be used by a stand-alone GNSS equipped aircraft, it will increase users' workload and reduce flight operations efficiency if arrival and departure procedures are not connected to the RNP approach procedure. Likewise, operations will be suboptimal if initial approach waypoints (IAW) of a RNP approach procedure do not coincide with those of existing conventional approach procedures, especially with ILS procedures, the main precision approach method. Therefore, it is recommended to connect PBN arrival procedures to the approach procedures regardless of PBN or conventional.

2.10 In addition, the Reports show that most States have already implemented at least one PBN route or will implement PBN routes by 2016.

2.11 Some discrepancies are noted between the PBN detailed report and the Seamless ATM report. PBN points of contact should cross check their data with the Seamless ATM point of contact. The current list of the Seamless ATM point of contact is placed at **Attachment C** to ease the coordination.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) note the information contained in this paper;
- b) as a follow-up to ICAO State Letter, AP052-15 States, urge States to update their PBN implementation Plan, setting ambitious but reachable targets for end 2016, and plan the date at which Assembly Resolution 37-11 objective will be met if it cannot be met end 2016;
- c) encourage all States to send their PBN detailed reports and share issues and challenges through PBNICG;
- d) encourage States to connect their PBN arrival procedures to the approach procedures irrespective of their being PBN or conventional;
- e) urge PBN points of contact to cross check their data with their Seamless ATM point of contact;
- f) urge ICAO to update the PBN related indicators of the APAC Regional Performance Dashboard to reflect the progress reported in the PBN detailed reports; and
- g) discuss any relevant matters as appropriate.

Attachment A – Progress based on State PBN implementation progress reports

1) RNP APCH Implementation Status (against the number of runway ends)

	International					Domestic					Overall				
	Target	Implemented	Planned before end 2016	Achieved as of Mar. 2016	Planned before end 2016	Target	Implemented	Planned before end 2016	Achieved as of Mar. 2016	Planned progress end 2016	Target	Implemented	Planned before end 2016	Achieved as of Mar. 2016	Planned before end 2016
China, Hong Kong	4	4	0	100.00%	100.00%	0	0	0	0.00%	0.00%	4	4	0	100.00%	100.00%
China, Macao	2	2	0	100.00%	100.00%	0	0	0	0.00%	0.00%	2	2	0	100.00%	100.00%
French Polynesia	2	2	0	100.00%	100.00%	50	18	8	36.00%	52.00%	52	20	8	38.46%	53.85%
India	54	1	14	1.85%	25.92%	56	0	11	0.00%	19.64%	108	1	25	0.93%	23.14%
Lao PDR	2	1	1	50%	100%	4	1	2	25%	75%	6	2	5	33.33%	83.33%
Malaysia	16	10	4	62.5%	87.50%	30	2	4	6.67%	20%	46	12	8	26.09%	43.48%
Maldives	8	4	2	50.00%	100.00%	12	6	6	50%	100%	20	10	10	50%	100%
Mongolia	2	1	0	50%	50%	13	0	0	0.00%	0%	14	1	0	6.7%	6.7%
Pakistan	16	10	6	62.5%	100%	14	7	7	50%	100%	30	17	13	56.7%	100%
Philippines	16	6	10	37.5%	100%	14	10	3	71.4%	92.8%	30	16	13	53.33%	93.66%
Republic of Korea	27	17	8	62.96%	92.59%	23	17	6	73.91%	100.00%	50	34	14	68.00%	96.00%
Singapore	6	4	2	66.67%	100.00%	-	-	-	-	-	6	4	2	66.67%	100.00%
Thailand	28	14	13	50.00%	96.43%	42	16	23	38.10%	92.86%	70	30	36	42.86%	94.29%
US territories ¹	12	12	-	100.00%	-	-	-	-	-	-	12	12	-	100.00%	-

¹ Guam, Mariana, Midway

2) PBN Arrivals and Departures (Seamless ATM item 120)

	Nb of aerodromes implemented		Nb of aerodromes in progress	
	ARR	DEP	ARR	DEP
China, Hong Kong	1	1	0	0
China, Macao	1	1	0	0
French Polynesia	3	3	0	1
India	11	10	7	7
Lao PDR	8	11	6	6
Malaysia	2	2	3	3
Maldives	1	1	-	-
Mongolia	0	0	1	1
Pakistan	0	0	several	several
Philippines	9	9	7	6
Republic of Korea	12	12	5	5
Singapore		1	0	0
Thailand	2	4	5	6
US territories	Not specified	Not specified	Not specified	Not specified

3) PBN ATS Routes (Seamless ATM item 140)

	Implemented	progress	% of ATS routes designated PBN Seamless ATM Phase 1	% of ATS routes designated PBN Seamless ATM Phase 2
China, Hong Kong	2	Not specified	100%	0%
China, Macao	0	Not specified	Not applicable	Not applicable
French Polynesia	2	0	80%	100%
India	26	4	60%	100%
Lao PDR	-	-	No seamless ATM report	No seamless ATM report
Malaysia	16	-	40%	100%
Maldives	9	Not specified	60%	100%
Mongolia	3	Not specified	NA	Not specified
Pakistan	16	4	No seamless ATM report	No seamless ATM report
Philippines	0	7	30%	0%
Republic of Korea	7	3	70%	Not specified
Singapore	1	Not specified	0%	0%
Thailand	15	13	20%	0%
US territories			100%	Not specified

Note: objectives of the Seamless ATM plan v1 for phase 1 (Nov. 15) and phase 2 (Nov. 18):

Seamless ATM Phase 1	Seamless ATM Phase 2
<ul style="list-style-type: none"> Category R airspace – RNP 4, RNP 10 (RNAV 10) (other acceptable navigation specifications – RNP 2 oceanic); Category S airspace –RNAV 2 or RNP 2 (other acceptable navigation specifications – RNAV 5). 	<ul style="list-style-type: none"> Category R and S airspace – RNP 2

4) CCO – CDO (Seamless ATM items 90 and 100)

	Nb of aerodromes Implemented	Progress	% of International aerodromes implemented (Seamless ATM report)
China, Hong Kong	CDO: 1 airport	-	0% CCO 100% CDO
China, Macao	Not Applicable	-	Not Applicable
French Polynesia	Not implemented	Not implemented	Not Applicable
India	CCO: 18 CDO: 17		100% CCO 100% CDO
Lao PDR	-	-	No seamless ATM report
Malaysia	Not implemented	Not implemented	100% CCO 100% CDO
Maldives	-	-	100% CCO 100% CDO
Mongolia	Not specified	Not specified	10% CCO 10% CDO
Pakistan	-	planning phase for CDO/CCO at major airports	No seamless ATM report
Philippines	Not implemented	Not implemented	50% CCO 50% CDO
Republic of Korea	CCO: 0 CDO :1	Most of RNAV1 SIDs/STARs in ROK were developed on the bases of CCO/CDO concepts for the efficient operations	0% CCO 30% CDO
Singapore	CCO: 0 CDO: 1	-	0% CCO 100% CDO
Thailand	CCO: 0 CDO: 3	-	20% CCO 20% CDO
US territories (Guam, Mariana, Midway)	Not specified	Not specified	Not Applicable

Status of PBN Implementation Plan and implementation (as per 04 March 16)

State/Administration	Date Versions Received
Australia	July 2009, 6 May 2010
Bangladesh	13 July 2009, 17 April 2011, 30 July 2012
Cambodia	01 September 2011 (copy of older version)
China	23 December 2008, 26 December 2009
Fiji	21 Feb 2010
French Polynesia	17 May 2012 (high level plan only), 12 October 2012
Hong Kong, China	10 July 2008, July 2009, 16 January 2011
India	07 Sep 2010, 30 May 2011
Indonesia	29 June 2009, 26 April 2011
Japan	11 July 2008, July 1009
Korea, DPR	30 December 2010
Korea, Republic of	11 July 2008, 18 Jan 2010, 08 April 2011
Lao PDR	11 July 2008, 3 August 2011
Malaysia	08 July 2008, 15 Jan 2010, 11 April 2011, 20 November 2012
Maldives	09 July 2008, 1 May 2011
Mongolia	11 August 2010, 3 March 2011
Myanmar	27 April 2011
Nepal	21 July 2011
New Zealand	18 December 2009
Pakistan	19 May 2009
Papua New Guinea	Informal Plan 11 April 2011
Philippines	29 June 2009, 18 Feb 2010, 10 May 2011
Singapore	07 July 2008, 2 October 2009
Sri Lanka	4 Feb 2010, 20 Jun 2011
Thailand	08 July 2008, 13 July 2009
Tonga	26 June 2012, 6 February 2013
Viet Nam	Cambodia, Laos and Vietnam IP for APANPIRG/23 – not a plan

Summary	Focal Point / Member	PBN Plan	Update to the PBN plan by end 2016	PBN Implementation Report
Information Submitted	<ol style="list-style-type: none"> 1. Australia 2. Bangladesh 3. Bhutan 4. Cambodia 5. China 6. China, Hong Kong 7. China, Macao 8. Fiji 9. India 10. Indonesia 11. Japan 12. Korea DPR 13. Korea Republic of 14. Lao PDR (29 Feb. 16: new focal point) 15. Malaysia 16. Maldives 17. Mongolia 18. Myanmar 19. Nepal 20. New Zealand 21. Pakistan 22. Papua New Guinea 23. Philippines 24. Samoa 25. Singapore 26. Sri Lanka 27. Thailand 28. Tonga 29. French Polynesia 30. US territories 	<ol style="list-style-type: none"> 1. Australia 2. Bangladesh 3. Cambodia 4. China 5. China, Hong Kong 6. Fiji 7. India 8. Indonesia 9. Japan 10. Korea DPR 11. Korea Republic of 12. Lao PDR 13. Malaysia 14. Maldives 15. Mongolia 16. Myanmar 17. Nepal 18. New Zealand 19. Pakistan 20. Papua New Guinea 21. Philippines 22. Singapore 23. Sri Lanka 24. Thailand 25. Tonga 26. Viet Nam 27. French Polynesia 	<ol style="list-style-type: none"> 1. French Polynesia 2. India (partial) 	<ol style="list-style-type: none"> 1. China, Hong Kong (Dec 15) 2. China, Macao (Dec 15) 3. French Polynesia (Nov 15) 4. India (Nov 15) 5. Maldives (Dec 15) 6. Mongolia (Dec 15) 7. Philippines (Dec 15) 8. Republic of Korea (Dec 15) 9. Singapore (Dec 15) 10. Thailand (Jan 16) 11. US territories (Jan 16) 12. Malaysia (Jan 16) 13. Lao PDR (Feb 16) 14. Pakistan (Mar 16)
NOT Submitted	<ol style="list-style-type: none"> 1. Afghanistan 2. Brunei Darussalam 3. Cook Islands 4. Kiribati 5. Marshall Islands 6. Micronesia 7. Nauru 8. Palau 9. Solomon Islands 10. Timor-Leste 11. Vanuatu 12. Viet Nam 	<ol style="list-style-type: none"> 1. Afghanistan 2. Bhutan 3. Brunei Darussalam 4. Cook Islands 5. Kiribati 6. Macao, China 7. Marshall Islands 8. Micronesia 9. Nauru 10. Palau 11. Samoa 12. Solomon Islands 13. Timor-Leste 14. Vanuatu 15. US territories 		

Administration	Status Date	Focal Point	PBN Plan Review (BPEs = Basic Planning Elements, Robust/Needs Improvement/Non-Existent)	En-Route Operations	Approach Operations							Arrival & Departure Operations (SID and STAR)										
					Implementation Targets (# of RWY Ends)			Completed (# of RWY Ends)		In Progress (# of RWY Ends)		Note(s)	Implementation Targets (# of Int'l Airports)			Completed (# of Int'l Airport)		In Progress (# of Int'l Airports)		Note(s)		
					2010	2014	2016	LNAV	LNAV/VNAV	LNAV	LNAV/VNAV		2010	2014	2016	ARR	DEP	ARR	DEP			
Afghanistan												Note: Based on Jepesen data, 100 % of the 4 runway ends: implemented (OAKB Kabul, OAKN, Kandahar)										
Australia	ROBUST	Ian Mallett, Section Head CNS/ATM CASA, Level 4, 16 Furzer St., Phillip, ACT, 2601, Australia Email: ian.mallett@casa.gov.au	PBN TF/5 approved. Review conducted by CASA and in letter of 24 Nov 2010 and advised plan improvements in areas of international fleet readiness and APV terminal operations		30 LNAV 36 Baro	30 LNAV 20 Baro	30 LNAV 20 Baro	444	36	30	20	Caveats: 1. Baro-VNAV training is being provided. 2. Industry/Government consultation on Baro-VNAV deployment program and funding not yet completed	6	8	8	10	8	0				
Bangladesh	ROBUST	Mr. Ratan Kumar Saha Deputy Director (Aerodromes) Civil Aviation Authority of Bangladesh Headquarters, Kurmitola Dhaka-1229 Tel/Fax: +88-02-8919002 Email: aiscaab@bracnet.net	BPEs 9/2/0	Work with BIMT: plan to establish 2 new PBN routes and to amend 1 PBN route.	Nil	70%	100%	Nil	Nil	Nil	Nil	Implementation (international):0% Implementation (total): 0%	Nil	70%	100%	Nil	Nil	Nil	Nil	2 Int aerodromes in RANP VGEG and VGHS Targets 50% of RNAV1/RNP1 SID/STAR end 2018		
Bhutan		Mr. Pema Tashi (Mr) Superintendent Air Navigation Services Air Navigation and Aerodrome Division Bhutan Civil Aviation Authority Paro International Airport Paro -Bhutan Mobile No. +975 17622702 /+975 77274647	No plan									Paro Intl Airport has been analysed for PBN Approach and RNP-AR 0.3 is not possible Bhutan continues to analyse the possibilities of PBN approaches, perhaps as visual overlay Implementation (international):0% Implementation (total): 0%										
Brunei Darussalam																						
Cambodia	INCOMPLETE	Mr. Chhun Sivorn Director Director Air Navigation Standard and Safety Department State Secretariat of Civil Aviation No. 62 Preah Norodom Blvd. Phnom Penh CAMBODIA Tel: +855 (23) 224 259	BPEs 2/1/7 Email sent 16 Jun. 15 Robust: 1/4 Improv.: 10 NE: 2/3/5/6/7/8/9/11	RNAV 5 parallel routes between Siem Reap and Sihanouk Airports 15 October 2015 RNAV 5 parallel routes between Phnom Penh and Siem Reap		30% of instrument runways by 2013	50% by 2015	5	-	-	-	2 Int aerodromes in RANP (VDPP, VDSR) RNP APCH with Baro-VNAV in most possible airports VDPP was implemented on 25 July 2013 with 2 RNP Approaches (LNAV 23 and 05)			2	2	2	-	-	RNAV1/RNP1 SID/STAR and RNP APCH (LNAV) – Phnom Penh (27/06/2013), Siem Reap (2013), Sihanouk (2014). VDPP was implemented on 25 July 2013 with 16 RNAV 1 SIDs, and 16 RNAV 1 STARs Implementation: 100%		

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					Implementation Targets (# of RWY Ends)			Completed (# of RWY Ends)		In Progress (# of RWY Ends)		Note(s)	Implementation Targets (# of Int'l Airports)			Completed (# of Int'l Airport)		In Progress (# of Int'l Airports)		Note(s)		
					2010	2014	2016	LNAV	LNAV/VNAV	LNAV	LNAV/VNAV		2010	2014	2016	ARR	DEP	ARR	DEP			
Korea, DPR	MARGINAL	An Kyong Hwa Head of AIS, ATM GACA, DPR Korea Pyongyang International Airport Sunan District, Pyongyang City DPR Korea Tel: +850-2-18111-999 ext. 8108, Fax: +850-2-381-4410 ext. 4625 Email: gaca@silibank.com	BPEs: 7/2/1		-	X	-	-	-	-	-	-	-	-	X (2014)	-	-	-	-	-	-	-
Korea, Republic of	ROBUST	Mr. Koh Hanseung, #11, Doum-ro 6, Sejong Special Self-governing City, 339-012, Republic of Korea. Tel +82-44-201-4301, Email: koh119@korea.kr Republic of Korea	PBN BPEs: 10/0/0	RNAV5: 10 completed, 4 in progress, RNAV2: 2 in progress	15	35	50	34	27	16	21	Total 56 runway ends with 6 ends with no PBN planned 34 published: <ul style="list-style-type: none"> 27 LNAV/VNAV and LNAV 7 LNAV only 16 planned for 2016: <ul style="list-style-type: none"> 12 LNAV/VNAV and LNAV 2 LNAV only 2 unknown Implementation (international): 63% Note: update the ICAO regional dashboard (shows 70.83%) Implementation (total): 68%	2	6	8	5	5	3	3	Missing SID/STAR for RKPK, RKNY and RKTN planned for 2016		

Administration	Status Date	Focal Point	PBN Plan Review (BPEs = Basic Planning Elements, Robust/Needs Improvement/Non-Existent)	En-Route Operations	Approach Operations							Arrival & Departure Operations (SID and STAR)									
					Implementation Targets (# of RWY Ends)			Completed (# of RWY Ends)		In Progress (# of RWY Ends)		Note(s)	Implementation Targets (# of Int'l Airports)			Completed (# of Int'l Airport)		In Progress (# of Int'l Airports)		Note(s)	
					2010	2014	2016	LNAV	LNAV/VNAV	LNAV	LNAV/VNAV		2010	2014	2016	ARR	DEP	ARR	DEP		
		PA Complex, Male' 20307, Maldives Tel: +960-334-2984 Fax: +960-332-3039 Email: ramiza@aviainfo.gov.mv		the remaining routes.								(domestic): 12 All procedures are planned to be completed in 2016 Implementation (international): 50% <u>Note: Update ICAO regional dashboard (shows 100%)</u> Implementation (total): 50%									
Marshall Islands																					
Micronesia, FS																					
Mongolia	ROBUST	Mr. J. Bayarsaikhan, Director of Flight Inspection & Procedure Design Service Division, Chinggis Khaan Int'l Airport, Buyant-Ukhaa, Ulaanbaatar-17120, Mongolia, Tel: (976-11) 282040, Fax: (976-10) 282-108 Email: bayarsaikhan.j@mcaa.gov.mn bayarsaikhan.mcaa@yahoo.com	BPEs: 8/1/1	RNAVS: 3 routes published since 2013: • Y327 POLHO-SULOK • Y345 POLHO-UDA-SERNA • Y520 POLHO-SERNA	2	6	14	1	-	-	-	Total number of instrument runway ends (international): 2 Total number of instrument runway ends (domestic): 13 ZMUB RNP APCH RWY 14 implemented 15th November 2015 Implementation (international): 50% <u>Note: Update ICAO regional dashboard (shows 100%)</u> Implementation (total): 6.7%	1	5	-	-	1	1	-	SID ZMUB runway 32 published Oct. 15	
Myanmar	ROBUST	Mr. Tike Aung Director (Air Navigation Services) Department of Civil Aviation Yangon International Airport Mingaladon, Yangon 11021 Tel: 951-533008 Fax: 951-533016 Email: ats@dca.gov.mm	BPEs: 9/1/0	RNAVS : 4 (continental, by 2012) RNP4: 5 (oceanic, by 2012)	6 (by 2013)	5	7	-	4	-	5	Approach procedures with LNAV/VNAV have already been developed for Yangon, Mandalay and Nay Pyi Taw airports. Yangon International airport and Mandalay Airport: Baro-VNAV effective 28 May 2015. Baro-VNAV Planned: Nay Pyi Taw, Terchilark, Heho, Bagan and Thandwe	3 (by 2012)		1	1	1	-	-	1 int aerodrome (VYYY) in the RANP RNAV1 SIDs and STARs implemented Yangon International airport and Mandalay Airport effective 28 May 2015. Implementation @int aerodromes: 100% Domestic Planned: Nay Pyi Taw, Terchilark, Heho, Bagan and Thandwe	
Nauru			Pacific PBN workshop planned in 2016									Dec. 15: Pacific Aeronautical Charting and Procedures Project: Approach procedures planned for mid 2018									
Nepal	ROBUST	Mr. Mahesh Kumar Basnet	BPEs: 8/2/0		RNP	-	-	-	-	-	-	Nil	1?	-	-	-	-	-	-	-	RNAV 1 based on GNSS in KT TMA

Administration	Status Date	Focal Point	PBN Plan Review (BPEs = Basic Planning Elements, Robust/Needs Improvement/Non-Existent)	En-Route Operations	Approach Operations							Arrival & Departure Operations (SID and STAR)								
					Implementation Targets (# of RWY Ends)			Completed (# of RWY Ends)		In Progress (# of RWY Ends)		Note(s)	Implementation Targets (# of Int'l Airports)			Completed (# of Int'l Airport)		In Progress (# of Int'l Airports)		Note(s)
					2010	2014	2016	LNAV	LNAV/VNAV	LNAV	LNAV/VNAV		2010	2014	2016	ARR	DEP	ARR	DEP	
		Deputy Director, ATM Department Civil Aviation Authority of Nepal Babar Mahal, Kathmandu Tel: +977-1-426-2923 Fax: +977-1-426-2516 Email: atedr@caanepal.org.np; cnsatm@mos.com.np			APCH at TIA															
New Caledonia		Fabien DINCLAUX Civil Aviation New Caledonia BP H1 98840 NOUMEA CEDEX New Caledonia Ph: +687 26 52 87 Fax :+687 26 52 06 email : prefered group address (Airspace manager, Program Manager, AIS manager, Procedure design manager) sna-nc-ais@aviation-civile.gouv.fr	No plan																	
New Zealand	ROBUST	Mike Haines, Manager Aeronautical Services, Civil Aviation Authority of New Zealand, PO Box 31 441, Lower Hutt 5040, New Zealand; Email: mike_haines@caa.govt.nz	Reviewed by ICAO APAC PBN TF		18	42	58	32	18	-	1	Nil	3	5	6	3	2	-	1	Nil

Administration	Status Date	Focal Point	PBN Plan Review (BPEs = Basic Planning Elements, Robust/Needs Improvement/Non-Existent)	En-Route Operations	Approach Operations							Arrival & Departure Operations (SID and STAR)								
					Implementation Targets (# of RWY Ends)			Completed (# of RWY Ends)		In Progress (# of RWY Ends)		Note(s)	Implementation Targets (# of Int'l Airports)			Completed (# of Int'l Airport)		In Progress (# of Int'l Airports)		Note(s)
					2010	2014	2016	LNAV	LNAV/VNAV	LNAV	LNAV/VNAV		2010	2014	2016	ARR	DEP	ARR	DEP	
Pakistan	MARGINAL	Mr. Syed Yousuf Abbas Director Operations Headquarters Civil Aviation Authority Terminal-1 JIAP Karachi, Pakistan Tel: +92-21-9924-2742 Cell: +92-301-825-8525 Fax: +92-21-3460-4323 Email: dops@caapakistan.com.pk	Implementation plan submitted to APAC Regional office in May, 2009, reviewed by ICAO APAC PBN TF, not in accordance with Regional Plan format		8	13	16	10	5	6 (LNAV/VNAV or LNAV)	03 Mar 16: 06 Pakistani airports in the ICAO regional air navigation plan with 16 runway ends. RNP1 STARs and RNP APCH procedures have been implemented for 10 runway ends of 05 airports so far whereas efforts are being made to cover remaining 06 runway ends during 2016. Domestic: Pakistan has also implemented RNP APCH procedures at some medium and small airports to facilitate aircraft operators. As a total, RNP APCH procedures for 21 Runway ends are now available at 11 airports in Pakistan Implementation (international): 62.5% <u>Note: Update ICAO regional dashboard (shows 60%)</u> Implementation (total): 53.1%	14	24	8	-	-	-	-		Nil
Palau																				
Papua New Guinea		David K. Tawae Executive Manager Future Directors PNB Air Services Ltd. ATS Tower Level 1, 7 Mile, Jacksons Airport P.O. Box 273, BOROKO, NCD 111 Papua New Guinea Tel: +675 3121522, Fax: +675 3250749, Mob: ++711-764-05/76950424 Email: dtawae@pngairservices.com.pg	Plan received from Jeff Bollard (email 5 Mar 2010), informal plan received from web site dated April 2011 RSO (Dec 2015): 6/3/2																	
Philippines	ROBUST	Mrs. Jessica Adeline D. Jamero, CAAP PBN Task Force Team Leader, Airspace and Flight Procedures Design Division, Civil Aviation Authority of the Philippines Email: jamerjessica@gmail.com	BPEs: 8/2/0	7 RNAV 10 routes planned for end 2016	-	-	30	2	14	0	14	Completion is planned for end 2016 Subic Bay RPLB not planned 16 int. runway ends, 6 implemented Implementation			6	2	2	4	4	Subic Bay RPLB not planned

Administration	Status Date	Focal Point	PBN Plan Review (BPEs = Basic Planning Elements, Robust/Needs Improvement/Non-Existent)	En-Route Operations	Approach Operations							Arrival & Departure Operations (SID and STAR)								
					Implementation Targets (# of RWY Ends)			Completed (# of RWY Ends)		In Progress (# of RWY Ends)		Note(s)	Implementation Targets (# of Int'l Airports)			Completed (# of Int'l Airport)		In Progress (# of Int'l Airports)		Note(s)
					2010	2014	2016	LNAV	LNAV/VNAV	LNAV	LNAV/VNAV		2010	2014	2016	ARR	DEP	ARR	DEP	
		Telefax: 63 (2) 8799260										(international): 37.5% Note: Update ICAO regional dashboard (shows 26.7%) 14 dom. Runways, 10 implemented Implementation (total): 53.3%								
Samoa		Magele Hoe Viali Ministry of Works, Transport & Infrastructure Private Bag Savalalo, SAMOA Tel: +685 21-611 Fax: +685 28-687 Email: hoe@mwti.gov.ws	Pacific PBN workshop planned in 2016									Dec. 15: Pacific Aeronautical Charting and Procedures Project: Approach procedures planned for mid 2018								
Singapore	ROBUST	Mr. Michael Shee Air Traffic Control Manager (Air Traffic Management) Civil Aviation Authority of Singapore Singapore Changi Airport, P.O. Box 1 Singapore 918141 Tel. +65-6541-2454, Fax: +65-6545-6516 Email: michael_shee@caas.gov.sg,	Plan submitted but originally not in accordance with Regional Plan format. Reviewed by ICAO APAC PBN TF	RNAV10: 9, RNAV5: 2 Restructuring of ATS Routes L504, M635 and M774, in the Southeast portion of Singapore FIR to allow RNP10/RNAV10 operations eff.9 Feb 2012 RNAV 5 City pair routes connecting Singapore - Kuala Lumpur and Singapore Jakarta implemented in 23 August 2012. City Pair RNAV 5 routes connecting Major Airports in South-East Asia (JKT-SIN-BKK) are planned to be implemented (2015)	-	2	6	-	4	-	2	Changi: LNAV/VNAV) approaches implemented for 02L/20R in 2005. Implementation for 02C/20C completed in August 2014. RNP AR planned for 2018 onwards Paya Lebar: RWY 02 and 20 LNAV/VNAV planned for end 2016 WSSL SELETAR: non instrument runways Implementation (international): 66.6%	-	1	2	1	1	1	-	Changi: 57 RNAV1 SIDs & STARs. AIP Supplement 110/15 2 STARs (LEBAR 2A and 2B) recently undergone trials was for Changi airport. Overall implementation: 50%
Solomon Islands			Pacific PBN workshop planned in 2016									Dec. 15: Pacific Aeronautical Charting and Procedures Project: Approach procedures planned for mid 2018								

Administration	Status Date	Focal Point	PBN Plan Review (BPEs = Basic Planning Elements, Robust/Needs Improvement/Non-Existent)	En-Route Operations	Approach Operations							Arrival & Departure Operations (SID and STAR)									
					Implementation Targets (# of RWY Ends)			Completed (# of RWY Ends)		In Progress (# of RWY Ends)		Note(s)	Implementation Targets (# of Int'l Airports)			Completed (# of Int'l Airports)		In Progress (# of Int'l Airports)		Note(s)	
					2010	2014	2016	LNAV	LNAV/VNAV	LNAV	LNAV/VNAV		2010	2014	2016	ARR	DEP	ARR	DEP		
Sri Lanka	ROBUST	Atula Jayawickrama Director/Aeronautical Services Civil Aviation Authority, No.4, Hunupitiya Road, Colombo 2, Sri Lanka Tel. +94112304687 Fax. +94112358876 Email: das@caa.lk	BPEs: 9/1/0	(2008 – 2012) - RNP10 Routes in oceanic airspace, RNAV5 Continental Routes (2013– 2016 & beyond); RNP10 FIR above FL225, RNP4 routes in oceanic airspace	30%	70%	100%	Nil	Nil	-	6	Two RNP APCH (APV) for each of the following: 1. Bandaranaika International airport 2. Hambanatota International Airport (New) 3. Colombo City Airport, Ratmalana.	30%	100%	100%	Nil	Nil	2	2	RNAV 1 SID/STAR are planned for following; 1. Bandaranaika International airport 2. Hambanatota International Airport (New)	
Thailand	ROBUST	Mr.Chai Kaewkitinarong Email: psybuster@hotmail.com Mr.Kom Promsuttikul Email: kom.pr@aerothai.co.th	Thailand PBN Implementation Version 1.0 was approved by the National Working Group on PBN and GNSS in June 2009. Thailand PBN Implementation Plan was then submitted to ICAO PBN TF/5 Meeting in July 2009. The National Working Group is now revising Thailand PBN Implementation Plan and the new version is expected early 2013. No update to PBN plan received in Dec. 15	RNAV5: 13 published as of Dec.15, 13 planned for 2016 RNAV2: 0 published as of Dec.15, 2 planned for 2016 (Y1/Y2)	18	-	-	15	6	5	16	Implementation (international): 57.14% Implementation (total): - %	13			13	15	4	7	1. Lum Pang Airport – two RNP-1 SIDs were published in November 2012	
Timor-Leste																					
Tonga	ROBUST BPEs: 8/2/1	Vili Cocker Director of Civil Aviation P.O.Box 845, Nuku'alofa Tonga Tino Fuka Tonga Airports Limited P.O.Box 876, Nuku'alofa Tonga, Tino Malo. Chief Operations Officer Tonga Airports Limited P +676 7767264 F +676 35211 E tfuka@tongaairports.com	Pacific PBN workshop planned in 2016																		
Vanuatu			Pacific PBN workshop planned in 2016									Pacific Aeronautical Charting and Procedures Project: 9 approaches planned to be completed end 2016 : Tanna / Whitegrass									

