



International Civil Aviation Organization

**The Ninth Meeting of the ICAO Asia/Pacific Performance-Based Navigation Task Force (PBN/9)**

Bangkok, Thailand, 27-30 March 2012

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**Agenda Item 4: Asia/Pacific Region PBN Plans and Implementation**

**REGIONAL PBN IMPLEMENTATION PROGRESS**

(Presented by the Secretariat)

**SUMMARY**

This paper presents information on the current status of State PBN Plan implementation, and discusses possible strategies for improvement.

This paper relates to –

**Strategic Objectives:**

A: *Safety – Enhance global civil aviation safety*

C: *Environmental Protection and Sustainable Development of Air Transport – Foster harmonized and economically viable development of international civil aviation that does not unduly harm the environment*

**Global Plan Initiatives:**

GPI-5 RNAV and RNP (Performance-based navigation)

GPI-7 Dynamic and flexible ATS route management

GPI-10 Terminal area design and management

GPI-11 RNP and RNAV SIDs and STARs

GPI-12 Functional integration of ground systems with airborne systems

GPI-21 Navigation systems

**1. INTRODUCTION**

1.1 APANPIRG/21 (6-10 September 2010, Bangkok) made the following Conclusions with regard to the implementation of Asia and Pacific (APAC) State PBN Plans:

***Conclusion 21/32 – Develop State PBN Implementation Plan***

*That, the States, which have not developed their State PBN Implementation Plans so far, be urged to develop the plan in accordance with the Asia/Pacific Regional PBN Implementation Plan at the earliest and advise the Regional Office of the impediments they are facing in the implementation of PBN.*

***Conclusion 21/35 – Slow Progress of PBN Implementation***

*That, ICAO highlights the slow progress and impediments in PBN implementation at the upcoming 47<sup>th</sup> DGCA Conference for its support to expedite implementation.*

1.2 The 47<sup>th</sup> DGCA Conference (25-29 October, Macao) agreed to the following Action Item regarding PBN Implementation:

**Action Item 47/4**

*Noting the lack of completion of State PBN Implementation Plan in the APAC Region and in keeping with the ICAO Assembly Resolution A37-11, the Conference urges States/Administrations that are yet to develop their plans, to complete a State PBN implementation plan as a matter of urgency to achieve the timelines and intermediate milestones and:*

*a) requests States/Administrations to identify the focal point, consider deploying some resources to the PBN implementation plan and ensure the responses made within the deadline;*

*b) submit their plans to the ICAO APAC Office at the earliest; and*

*c) requests the ICAO APAC Office to initiate a questionnaire to find out the problem/issues faced by States in not being able to submit a State PBN Implementation Plan.*

## 2. DISCUSSION

### PBN State Plans

2.1 PBN Plans have been categorized in to three categories based on quality:

- Robust – when 8 to 10 basic plan elements (BPE) were satisfied;
- Marginal – when 5 to 7 BPE were satisfied; and
- Incomplete – when 4 or less BPE were satisfied.

2.2 **Table 1** indicates the results of the 2011 PBN State Plan assessments.

State	# of BPEs Addressed (Robust/Needs Improvement / Non Existent)	Status	Submitted
<b>Bangladesh</b>	6/2/2	Marginal	17 April 2011
<b>Cambodia</b>	2/1/7	Incomplete	1 September 2011
<b>DPRK</b>	7/2/1	Marginal	30 Dec 2010
<b>Fiji</b>	7/3/0	Marginal	21 February 2010
<b>Hong Kong</b>	8/2/0	Robust	16 January 2011
<b>Indonesia</b>	1/3/6	Incomplete	26 April 2011
<b>Malaysia</b>	7/2/1	Marginal	11 April 2011
<b>Maldives</b>	3/5/2	Incomplete	1 May 2011
<b>Mongolia</b>	8/1/1	Robust	3 March 2011
<b>Myanmar</b>	9/1/0	Robust	27 April 2011
<b>Philippines</b>	8/2/0	Robust	10 May 2011
<b>Sri Lanka</b>	9/1/0	Robust	20 June 2011
<b>ROK</b>	10/0/0	Robust	08 April 2011
<b>Nepal</b>	8/2/0	Robust	21 July 2011
<b>Lao PDR</b>	4/2/4	Incomplete	3 August 2011

**Table 1:** 2011 PBN State Plan Assessments

2.3 Details of PBN planning and progress are summarised in the WP04 **Attachment**<sup>1</sup>.

<sup>1</sup> The Table was expected to be updated during the Task Force, with State submissions.

2.4 **Table 2** provides an overall summary of the status of Asia/Pacific PBN Plans.

<b>Asia/Pacific PBN Plan Status</b>	<b>2011 (PBN/TF/8)</b>	<b>2012 (PBN/TF/9)</b>
Robust	9 (21%)	14 (33%)
Marginal	4 (10%)	5 (12%)
Incomplete	8 (19%)	5 (12%)
<b>Total Plans</b>	<b>21 (50%)</b>	<b>24 (57%)</b>
Administrations with no plan	21	18

**Table 2:** Asia/Pacific PBN Plan Overall Status

2.5 There has been a significant improvement in the number of administrations with a ‘Robust’ status plan, so one-third of administrations now have satisfactory PBN planning. States that have achieved this status in the past 12 months are: Hong Kong, China, Myanmar, Nepal, the Philippines and Sri Lanka. However, a large number of States remain with either ‘Marginal’ or ‘Incomplete’ status plans, or no plan. States with significant aviation activity in this category are Malaysia (‘Marginal’), Pakistan (‘Marginal’) and Indonesia (‘Incomplete’). Of significant interest to the Task Force is the proportion of Pacific Island administrations (14 of 18) that had not provided a PBN Plan to the Asia/Pacific Office:

- Bhutan
- Brunei Darussalam
- Cook Islands
- French Polynesia
- Kiribati
- Macao, China
- Marshall Islands
- Micronesia, FS
- Nauru
- New Caledonia
- Palau
- Papua New Guinea
- Samoa
- Solomon Islands
- Timor-Leste
- Tonga
- Vanuatu; and
- American Samoa, Guam, Johnston, Kingman, Midway, Mariana, Palmyra, Wake Islands (USA).

2.6 On 30 November 2011, a Special Implementation Project was approved for a PBN implementation Workshop that was intended to be held in the South Pacific in the third or fourth quarter of 2012 to assist small Pacific Island States to develop a PBN Plan. Unfortunately, EUROCONTROL was not able to support this as they did in New Delhi during 2011. Therefore, the Regional Office has embarked on the development of a PBN Plan Workshop that would utilize the services of experts from the Asia/Pacific Region.

### PBN Point of Contact

2.7 Despite several previous PBN APANPIRG Conclusions, a DGCA Action Item, and numerous State Letters reminding States, 14 administrations had not provided their PBN Point of Contact (POC). Of these administrations, 11 were small Pacific Island/Rim States.

### Terminal Procedures

2.8 Recalling that the ICAO Assembly Resolution A37-11 required, inter alia, States to implement approach procedures that have vertical guidance on 30% of runway ends by 31 December 2010<sup>1</sup>, the vast majority of administrations that have advised the Regional Office of progress that indicated achievement of the 30% implementation target.

2.9 Regarding Standard Instrument Departure and Standard Terminal Arrival Procedures (SID and STAR), only five administrations had submitted data indicating compliance with the short-term Regional PBN Plan target (RNAV 1 SIDs/STARs for 50% of international airports by 2010): Australia, Hong Kong, China, Japan, New Zealand and the Republic of Korea.

### En-route Procedures

2.10 Only four administrations (Hong Kong, China, India, Myanmar and the Republic of Korea) had provided any detail of PBN en-route procedure development, despite the implementation target of re-defining routes into PBN navigation specification by 2012 and implementing additional RNAV/RNP routes (**Table 3**).

<b>Asia/Pacific Regional PBN Implementation Plan Short Term Targets (2008-2012)*</b>		
<b>Airspace</b>	<b>Acceptable Specifications</b>	<b>Preferred Specifications</b>
Route – Oceanic	RNAV 10	RNP 4
Route – Remote continental	RNAV 10	RNP 4
Route – Continental en-route	RNAV 2, RNAV 5	

\* **Note:** Early completion of an implementation is encouraged within the timeframe on the basis of coordination between affected States and airspace users.

**Table 3:** Regional PBN Implementation Plan Short Term Targets

## **3. ACTION BY THE MEETING**

3.1 The meeting is invited to:

- a) note the information contained in this paper;
- b) update the PBN Plan Status document in the **Attachment**; and
- c) discuss any relevant matters as appropriate.

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<sup>1</sup> Except where there is no local altimeter setting available and there are no aircraft suitably equipped for APV operations with a maximum certificated take-off mass of 5 700 kg or more, implementation of straight-in LNAV only procedures are acceptable.

## Status of PBN Implementation Plan

State/Administration	Date Versions Received
Australia	July 2009, 6 May 2010
Bangladesh	13 July 2009, 17 April 2011
Cambodia	01 September 2011 (copy of older version)
China	23 December 2008, 26 December 2009
Fiji	21 Feb 2010
French Polynesia	
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
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

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



PBN Plan Status

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			
China	<b>ROBUST</b>	Mr. Yang, Honghai Civil Aviation Administration of China, Flight Standards Department 155 Dongsi Street, West Beijing, China 100710  Tel: +86-10-6409-1406 Fax: +86-10-6409-2458 H/P: +86-139-1073-6500 Email: hh_yang@caac.gov.cn  Mr. Liu Song Engineer of Air Space Management Division of ATMB CAAC  Tel: 86-10-8778-6835 Fax: 86-10-8778-6830 e-mail: Liusong@atmb.net.cn; Liusong73@hotmail.com	NEEDS REVIEW DATA																			
Cook Islands																						
Fiji	<b>MARGINAL</b>	Mr. Petero Kaveni Delai General Manager Engineering & Infrastructure Airports Fiji Limited Private Mail Bag Nadi Airport, Fiji Island  Tel: +679-6731707 Email: peterod@afl.com.fj	BPEs: 7/3/0																			
French Polynesia		Charles Peretti Chef Division Circulation Aérienne, SEAC-PF Tel : 86 10 41 - 78 24 40 Fax : 86 13 29 PERETTI_Charles@seac.pf	NO PLAN RECEIVED YET																			PBN plan (French Polynesia) will come after the PBN plan for France
Hong Kong, China	<b>ROBUST</b>	Mr. H. K. Chung Chief Air Traffic Control Officer 4/F, ATCX, Hong Kong International Airport Hong Kong  Tel: +852-2910-6432 Fax +852-2910-0186 Email: hkchung@cad.gov.hk	BPEs: 8/2/0	Completed: RNAV10 routes- 5. In progress: RNP4 routes-2. Hong Kong has implemented 1 RNAV 10 route, Q1, within Hong Kong FIR on 1 April 2011 for connecting PBN routes M771/M772 and STAR for Hong Kong International Airport.	2	2	-	-	2	-	2	Hong Kong implemented RNP AR APCH to 2 runway ends on 3 June 2010. Hong Kong plans to implement RNP AR APCH to the other 2 runways ends by 2012.	-	-	1	0	1	1	-	Hong Kong implemented RNAV SID in 2005. Hong Kong plans to implement RNP 1 STAR by 2013.  A website site for PBN implementation in Hong Kong has been developed and the Hong Kong plan is available in the website. www.pbninfo.gov.hk		

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					2010	2014	2016	LNAV	LNAV/VNAV	LNAV	LNAV/VNAV		2010	2014	2016	ARR	DEP	ARR	DEP	
India	ROBUST	Mr. N. V. Atale Joint General Manager (ATM) Airports Authority of India Rajiv Gandhi Bhavan, New Delhi  Tel: +91-11-2461-0523 Fax: 91-11-2461-0528 Email: nvatale@aai.aero; nvatale@gmail.com	PBN Implementation Roadmap of India was published in Jan 2009 and reviewed by ICAO APAC PBN TF	Routes In progress: RNAV 10 – 34 RNAV5 – 8	28	42	38	-	-	10	10	-	6	15	-	6	6	6	6	Update ATS/AIS/SAR SG IP28
Indonesia	INCOMPLETE	Mr. Novie Riyanto Deputy Director of Standardization and Certification for Air Navigation, Ministry of Transportation, Karya Building Floor 23rd, Jl. Medan Merdeka Barat No-8, Jakarta-10110  Tel: 62-21350-6451 Fax: 62-21-350-7569 Email: novierianto@gmail.com;	BPEs: 1/3/6		6	20	56	-	-	2	2	Nil	2	5	11	-	-	2	2	
Japan	ROBUST	Mr. Koichiro Kubo JCAB 2-1-3 Kasumigaseki, Chiyoda-ku, Tokyo, Japan  Tel: +81-3-5253-8739 Fax: +81-3-5253-1664 Email: kubo-k2iy@mlit.go.jp	JCAB published RNAV Roadmap in Nov. 2008 as Version 2. It will be revised in Mar. 2011 as Version 3. Reviewed by ICAO APAC PBN TF	.	42	154	163	13	12	2	18	Runway End Data Chart	14	14	14	12	11	2	3	PBN Implementation Progress Report dated 01 May 2011. 25 Jan 2010 Adopted by Civil Aviation Bureau (JCAB)
Kiribati																				
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@silbank.com	BPEs: 7/2/1		-	X	-	-	-	-	-		-	X (2014)	-	-	-	-	-	-
Korea, Republic of	ROBUST	Mr. Huho Ha Assistant Director of Air Traffic Management Division, 1-8 Byulyang-Dong, Gwacheoun-Si, Gyeonggi-Do, 427-801, Republic of Korea  Tel: +82-2-2669-6425, Fax: +82-2-6342-7289 Email: hoocho_ha@korea.kr,	PBN BPEs: 10/0/0	RNAV5: 7 completed, 2 in progress, RNAV2: 2 in progress	2	23	35	10	10	23	23	RNP APCH with Baro-VNAV procedures for Gimpo International Airport Runway 32L/R will be developed in 2010 to gain operational experience. Runway End Data Chart	2	6	8	2	2	6	6	PBN approached were developed at all runways in Incheon and Gimpo airports and will be effective on 3 May 2012. Point merge methods were incorporated in STARs at Incheon Airport and will be effective on 3 May 2012. The ROK considered CDO while developing most procedures but used a conventional approach procedures to be able to use CDFA STARs at Gimpo and Incheon Airports, effective 3 May 2012.



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					2010	2014	2016	LNAV	LNAV/ VNAV	LNAV	LNAV/ VNAV		2010	2014	2016	ARR	DEP	ARR	DEP		
Lao PDR	<b>INCOMPLETE</b>	Mr. Bounteng Symoon Chief, Area Control Center Lao Airport Authority  Tel/Fax: +856-21-512-091 +856-21-512-216 Email: bounteng@yahoo.com  Mr. Khine Simvongsa Chief, Aeronautical Information Service Air Navigation Division Department of Civil Aviation Lao PDR  Tel/Fax: +856-21-512-164 +856-21-520-237 Email: ksimvongsa@yahoo.com	BPEs: 4/2/4									Runway End Data Chart									
Macao, China	18 Jan 2010 Adopted by Macao, China	Mr. Bryan, K.H. Chiu Safety Officer (ATC) Civil Aviation Authority - Macao, China Alameda Dr. Carlos D'Assumpcao, 336-342 Centro Comercial Cheng Feng, 18 andar, Macao  Tel: +853-8796-4142 Fax: +853-2833-8089 Email: bryanchiu@aacm.gov.mo;	Not submitted. To be reviewed by ICAO APAC PBN TF.		1	2	-	0	0	0	1	-	0	1	0	0	0	1	0	-	
Malaysia	<b>MARGINAL</b>	Mr. Nordin Ibrahim Assistant Director Air Traffic Management Sector Department Civil Aviation Malaysia No. 27, Persiaran Perdana Level 4, Block Podium B, precinct 4 62618 Putrajaya, Malaysia  Tel: +603 8871 4230 Fax: +603 8881 0530 Email: nordin@dca.gov.my	BPEs: 7/2/1		4	16	24	-	-	-	-	Currently published RNAV Non-Precision Approaches are pre-PBN approach procedures. Runway End Data Chart	2	4	4	-	-	-	-	Currently published RNAV arrival (STAR) are pre-PBN procedures.	
Maldives	<b>INCOMPLETE</b>	Ms. Fathimath Ramiza Director Air Navigation and Aerodromes Civil Aviation Department Ministry of Civil Aviation and Communication PA Complex, Male' 20307, Maldives  Tel: +960-334-2984 Fax: +960-332-3039 Email: ramiza@aviainfo.gov.mv	BPEs: 3/5/2		4 RWY Ends	-	-	4 RWY Ends	4 RWY Ends	-	-	Runway End Data Chart	1 Int'l Airpo rt	-	-	-	-	1 Int'l Airpor t	1 Int'l Airpor t		

PBN Plan Status

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					2010	2014	2016	LNAV	LNAV/VNAV	LNAV	LNAV/VNAV		2010	2014	2016	ARR	DEP	ARR	DEP	
Marshall Islands																				
Micronesia, FS																				
Mongolia	<b>ROBUST</b>	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		2	6	-	-	-	-	-	8 aerodromes with paved runway including ZMBH, ZMCD, ZMDZ, ZMDN, ZMKD, ZMMN, ZMUB and ZMUG have been included.	1	5	-	-	-	1	-	Currently, only one international aerodrome. However, 6 international aerodromes were recorded considering Muran, Choibalsan, Khovd, Ulgii and "Gurvansaikhan" airports shall obtain international status between 2010 and 2013.
Myanmar	<b>ROBUST</b>	Mr. Tike Aung Deputy-Director (Air Traffic 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	RNAV5 : 4 (continental, by 2012) RNP4: 5 (oceanic, by 2012)	6 (by 2013)	5	7						3 (by 2012)							
Nauru																				
Nepal	<b>ROBUST</b>	Mr. Mahesh Kumar Basnet Deputy Director, ATM Department Civil Aviation Authority of Nepal Babar Mahal, Kathmandu  Tel: +977-1-426-2923 Fax: +977-1-426-2516 Email: atsdr@caanepal.org.np; cnsatm@mos.com.np	BPEs: 8/2/0		RNP APCH at TIA	-	-	-	-	-	-	Nil	1?	-	-	-	-	-	-	RNAV 1 based on GNSS in KT TMA
New Caledonia																				
New Zealand	<b>ROBUST</b>	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

PBN Plan Status

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					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	8	-	-	1	1	Runway End Data Chart	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																	
Philippines	ROBUST	Mr. Zerubbabel N. Cadiz ATC/Technical Officer, Airspace and Traffic Management Division Air Traffic Service, 4th Floor, Main Building, Civil Aviation Authority of the Philippines, MIA Road, Pasay City 1300 Tel/Fax: +63-2-8799-260 zncadiz@atmd.caap.gov.ph	BPEs: 8/2/0		8	To follow	To follow	-	-	-	8	Runway End Data Chart	4	To follow	To follow	-	-	4	4	
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																		
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		-	2	1	-	2	-	-	Runway End Data Chart	-	1	1	-	-	-	-	Nil

PBN Plan Status

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					
Solomon Islands																								
Sri Lanka	<b>ROBUST</b>	Atula Jayawickrama Deputy Director/Aerodromes & Navigation Services Civil Aviation Authority, 64, Galle Road, Colombo 3, Sri Lanka.  Tel. +94112436324, Fax. + 94112440231 Email: ddans@caa.lk	BPEs: 9/1/0		30%	70%	100%	Nil	Nil	-	Both Runway Ends *(See Note)	New PBN Approach procedures which fulfill both LNAV and VNAV requirements are planned for Both Ends of the Runway at Bandaranaike International Airport-Colombo (BIA) with Implementation Targets shown as a %	30%	100%	100%	Nil	Nil	RNAV 1 STAR RNP 1 STAR	RNAV 1 SID RNP 1 SID	RNAV 1 SID/STAR are planned as above by 2014 for our International Airport (BIA) with a gradual transition to RNP 1 SID/STAR by 2016. At Colombo Domestic Airport, Ratmalana RNAV 1 SID/STAR are expected to be introduced by 2014.				
Thailand	<b>ROBUST</b>	Mr. Noppadol Pringvanich Acting Director Procedure Design for Air Navigation Service Tel. +66 (0) 81207-8822 Fax. +66 (2) 2287-8639 npringvanich@gmail.com; noppadol@stanfordalumni.org	PBN Implementation was approved by the National Working Group on PBN and GNSS in June 2009. Thailand PBN Plan was then submitted to ICAO PBN TF/5 Meeting in July 2009		18	-	-	8	-	20	4	1. Two RNP APCH procedures for Phuket International Airport were published on 1 January 2009. 2. Two RNP APCH procedures for Hat Yai International Airport were published on 17 December 2009. 3. Two RNP APCH procedures for Samui Airport were published on 25 March 2010. Runway End Data Chart	13	-	-	-	-	16		1. Phuket International Airport - two RNP APCH procedures were published on 1 January 2009. 2. Hat Yai International Airport - two RNP APCH procedures were published on 17 December 2009. 3. Samui Airport - two RNP APCH procedures were published on 25 March 2010. 4. Chiang Mai International Airport - two RNP APCH procedures were published in September 2011.				
Timor-Leste																								
Tonga																								
Vanuatu																								
Vietnam	<b>INCOMPLETE</b>	Mr. Bui Van Vo Director of Air Navigation Department Civil Aviation Administration of Viet Nam Gialam Airport Hanoi, Viet Nam Tel: +84-4-827-4191 Fax: +84-4-827-4194 Email: buivanvo@caa.gov.vn	NEEDS REVIEW DATA																					
USA (American Samoa, Guam, Johnston, Kingman, Midway, Mariana, Palmyra, Wake Islands)																								

Basic Planning Elements (BPEs): Robust/Needs Improvement/Non-Existent