INTERNATIONAL CIVIL AVIATION ORGANIZATION

**FINAL REPORT OF
THE ELEVENTH MEETING OF THE PERFORMANCE BASED NAVIGATION
IMPLEMENTATION COORDINATION GROUP (PBNICG/11)**

ICAO APAC RO Bangkok, Thailand
27-29 March 2024

The views expressed in this Report should be taken as those of the
Meeting and not the Organization

Approved by the Meeting

and published by the ICAO Asia and Pacific Office, Bangkok

 HISTORY OF THE MEETING

1.   Introduction

1.1   The ELEVENTH Meeting of the Performance Based Navigation Implementation Coordination Group (PBNICG/11) was held in ICAO APAC RO Bangkok, Thailand, from 27-29 March 2024.

2.   Attendance

2.1   The meeting was attended by 77 participants from Australia, Brunei Darussalam, Cambodia, China, Hong Kong China, Fiji, India, Indonesia, Japan, Lao PDR, Malaysia, Maldives, Mongolia, Nepal, Pakistan, Papua New Guinea, Philippines, Republic of Korea, Singapore, Thailand, United States of America, Vanuatu, Vietnam, IATA, IFPDAVA and ICAO.

2.2   The participants from the States/Administrations were multi-disciplinary experts in various fields related to PBN implementation including CAA Regulators, Inspectors, ANSPs, instrument flight procedure designers, engineers, and airlines. The relevant presentations and documents are available at   https://www.icao.int/APAC/Meetings/Pages/2024-PBNICG11.aspx.   The list of participants is placed at **Attachment 1.**

3.   Opening of the Meeting

3.1   On behalf of Mr. Tao Ma, Regional Director, ICAO Asia/Pacific Regional Office, Mr. V. K. Mishra, Regional Officer, PBN welcomed the participants of the PBNICG/11.

3.2   Ms. Ying Zhang, Deputy Chief of RSO, emphasized that PBN has facilitated improved operational safety, efficiency, and environmental protection. PBN is a key enabler in GANP and APAC Seamless ANS Plan and it supports CDO/CCO, PMS, EoR etc. Therefore, it is of vital importance for the States in the region to deepen communication, share experiences and learn from each other. States should bring out the best practices, as well as concerns on PBN implementation and continue to take active part to sustain the PBN implementation in the APAC region.

3.3   Mr. R.S. Jamwal, Director, ANSS, DGCA India chaired the PBNICG/11 meeting.

4   Officers and Secretariat

4.1   The meeting was chaired by Mr. Jamwal. Mr. V. K. Mishra, Regional Officer (ATM-PBN), ICAO APAC RSO, acted as secretary and was supported by Ms. Ying Zhang, Deputy Chief of RSO, Mr. Luo Yi, RO, CNS and Ms. Zhong Wenhan, RO, CNS.

5.   Working Arrangements, Language and Documentation

5.1.   The working language of the meeting was English inclusive of all documentation and this Report. 13 Working Papers (WP), 11 Information Papers (IP) were presented in the meeting. A list of Working and Information Papers is provided at **Attachment 2**.

6.   Conclusions and Decisions - Definition

6.1 The Sub-groups of APANPIRG record their actions in the form of Draft Conclusions, Draft Decisions, Conclusions and Decisions with the following significance:

1) Draft Conclusions deal with matters which, by the Sub-Group's Terms of Reference, require the attention of States or actions by ICAO following established procedures.

2) Draft Decisions relate solely to matters dealing with the internal working arrangements of APANPIRG and its contributory bodies;

3) Conclusions: Those Conclusions adopted by the Sub-group on behalf of APANPIRG on technical matters; and

4) Decisions relate solely to matters dealing with the internal working arrangement of the Sub-group only.

List of Conclusions, Decisions, Draft Conclusions and Draft Decisions
1. Draft Conclusion PBNICG/11-01: To refer the WP 07 submitted by Australia to CNS SG & ATM SG
2. Draft Conclusion PBNICG/11-02: Proposed Revision in PBN Elements of Seamless ANS Plan V3.0
3. Draft Conclusion PBNICG/11-03: Proposal to simplify PBN Operational Authorizations/Approvals

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Agenda Item 1:   Adoption of agenda

1.1   The Chairman introduced the provisional agenda (WP01) to the meeting.

1.2   The Secretary explained the agenda items. The meeting reviewed and agreed to the proposed agenda without changes, as follows:

Agenda Item 1:   Adoption of Agenda

Agenda Item 2:   Global and Regional PBN Updates

Agenda Item 3:   Implementation Status of the Regional Transition Plan for RNP APCH Chart Identification from RNAV to RNP

Agenda Item 4:   States' PBN Implementation Progress

Agenda Item 5:   Performance Based Aerodrome Operating Minima (PBAOM)

Agenda Item 6:   Proposed revision of PBN Elements in Seamless ANS plan.

Agenda Item 7:   Any other business

1.3   India suggested that PBN procedures to facilitate parallel runway operation should also be an agenda item in view of the introduction of parallel runway operations in several States. Secretariat reminded the meeting that EoR, which caters to parallel runway operations was deliberated in the last PBNICG/10 and Nav-Canada, which has implemented EoR at two of their busy airports shared their experience. The secretariat also assured the meeting that this topic will be considered in

the next PBNICG meeting. The agenda as proposed was adopted.

Agenda item2:   Global and Regional PBN updates

WP02– Global and Regional PBN Implementation Update (Secretariat)

2.1   ICAO presented global and regional PBN implementation status as available in ICAO iSTARS. ICAO informed that implementation of APV procedures for all instrument runway ends by 2016, key requirement of ICAO Assembly Resolution A37-11, was behind global achievement. However, implementation of PBN SID/STAR were above the global implementation status (see **Charts 1**).

Charts 1. PBN (Approach) Update, as of January 2024(as per iSTARS)

PBN SID Implementation at International Airports

■ September 2021 ■ March 2023 ■ Jan-24
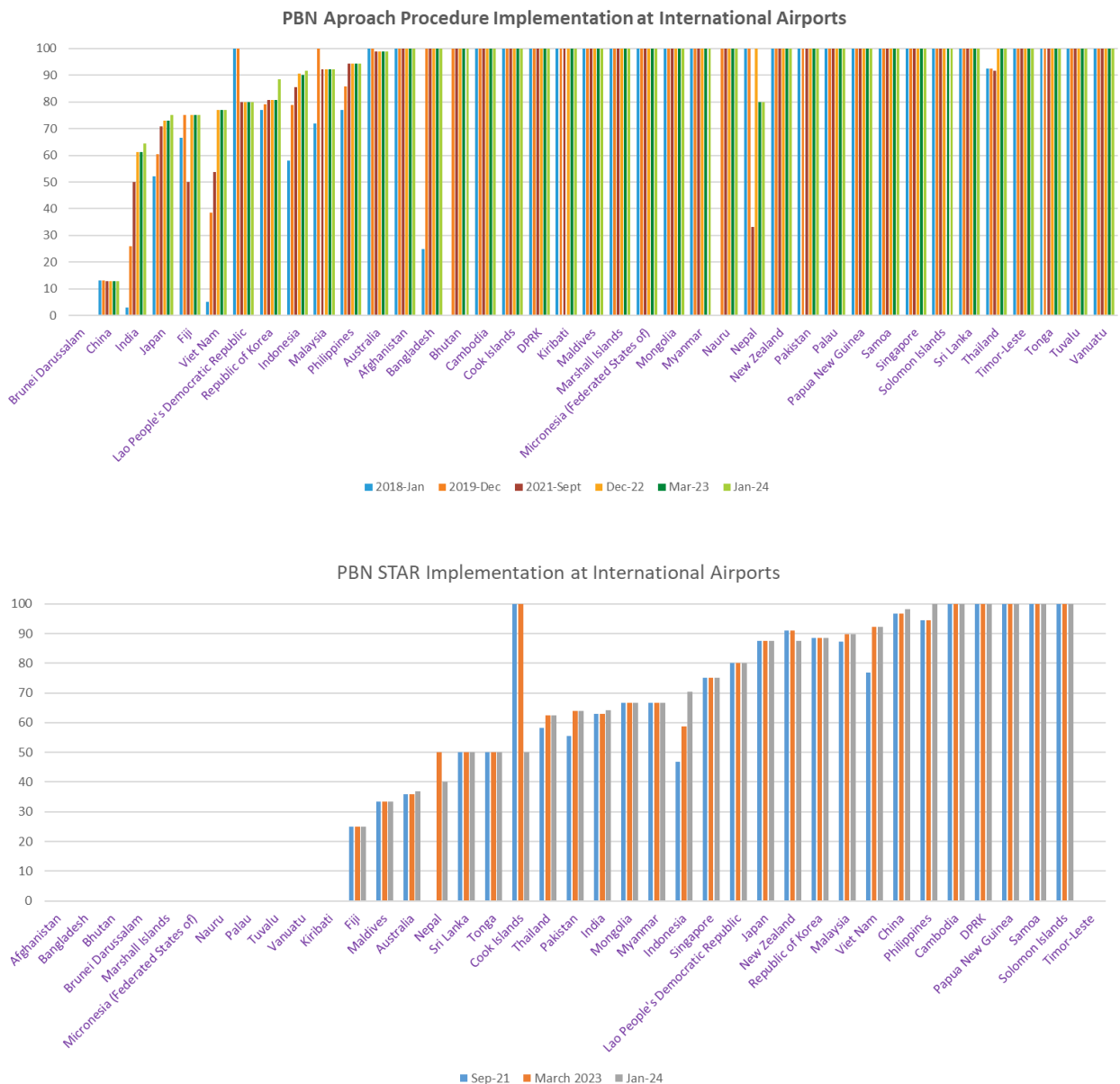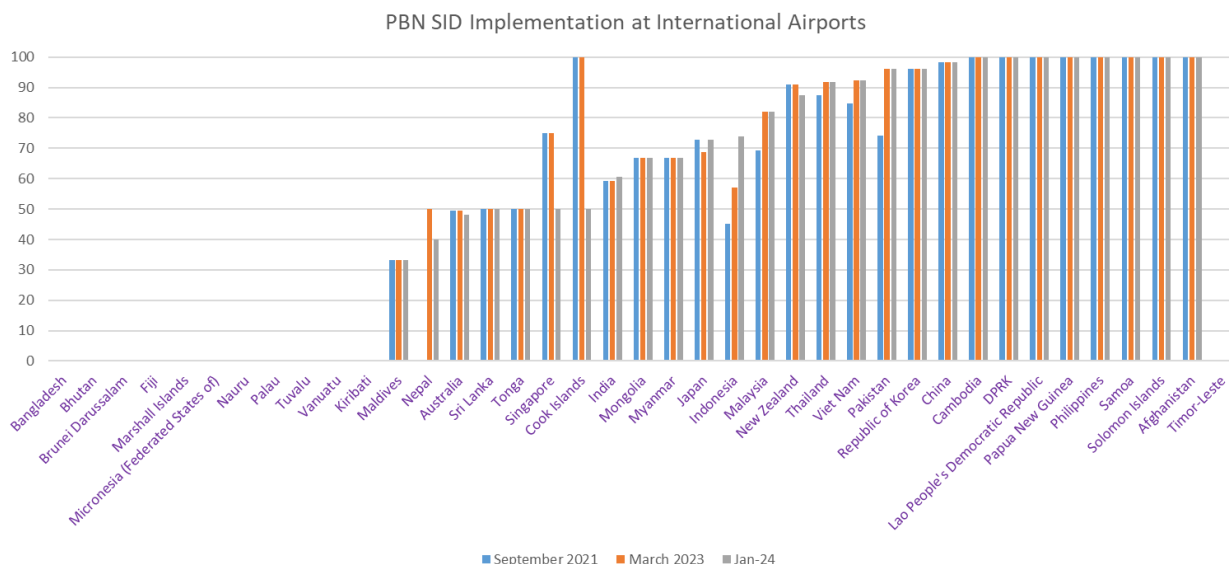
2.2   The Secretariat informed the meeting that LNAV-VNAV implementation in the region is only 58% and so the states should pay attention to the implementation of LNAV-VNAV so as to get the full benefit of PBN approach to enhance safety and improve continued access to airports. The Secretariat further advised the States that PBN SID/STAR is more convenient and efficient than the conventional procedures and it also enhances safety and efficiency by allowing optimum structured and separated flow for departure and arrival thus reducing the workload of ATC. The Secretariat reminded the meeting that Nepal was the first state in the region to implement RNP AR Departure even when there were no criteria in ICAO. The Chairman also encouraged States to implement PBN procedures as they ensure safe operations in absence of any Nav-aids.

2.3   India stated that EoR cannot be implemented as fleet is not approved for RNP AR and as ILS has lower minima than PBN approaches and Radar vectors for that has to be on to a fixed waypoint and therefore becomes inflexible. Due to these reasons PBN approaches are not used at busy airports. The Secretariat suggested that if PBN approaches are linked to well designed STARs, it can provide an optimum track mile to the final approach and can be used at even busy airports up to a reasonable minimum. India also wanted to know the data source as the implementation percentage was not matching with their data. The Secretariat informed the meeting that the States should look into the regional Air Navigation Plan for the number of international runways declared by the States and then see the percentage implementation and if there is a deficiency they should contact iSTARS in ICAO HQ at iSTARS@icao.int with a copy to the regional office.

2.4   Philippines informed the meeting that RNP APCH is not possible at one runway end at Manila airport due to presidential palace and inquired whether implementation of Pins procedure on that runway will qualify for PBN implementation. The Secretariat informed the meeting that pins procedure can not be counted as PBN implementation on any runway as the majority operations is fixed wing airplane and suggested to consider RNP AR APCH for that runway as it has reduced protection area.

2.5   IFPDAVA also suggested that RNP AR APCH could be an alternative if RNP APCH is not feasible. IFPDAVA further stated that PBN approaches are good alternative in case of no ILS.

2.6   Singapore sought the data source for their SID implementation. The Secretariat informed the meeting that the States should see their regional air navigation plan and then see the data. If there is a discrepancy, they should contact iSTARS@icao.int with a copy to regional office. Singapore also inquired if new edition of Doc 9905 is coming out to align with RNP AR departure criteria in new edition of Doc 9613. India informed the meeting IFPP is working on this.

WP03 – ICAO RECOMMENDATIONS AND GUIDANCE ON GNSS VULNERABILITY (Secretariat)

2.7   The Secretariat presented an overview of ICAO's Recommendations and Guidance on Global Navigation Satellite System (GNSS) vulnerability, including the Resolution COM5/5 (WRC-23), ongoing work in NSP and regional efforts in APAC.

2.8   The chairman reminded the meeting that this was very important subject and that the States should provide data to support study on this. The Secretariat informed the meeting that ICAO HQ is working on this subject and that the conflict zones, such as middle east and eastern Europe are the worst affected.

2.9   IATA informed the meeting that they are sharing the data with the States, manufacturers are also sharing the information and working in ICAO Panels for mitigation.

The Secretariat further informed the meeting that the States should identify and collaborate and coordinate with the agency responsible for GNSS interference within their States for mitigation.

WP04 – ICAO Doc 9849 GNSS Manual Update (Secretariat)

2.10   The Secretariat presented the latest updates on DOC 9849, GNSS Manual. It was pointed out that the Manual updates addressed changes required to support the recent SARPs changes and outdated significant material within the current GNSS Manual.

WP05 – Safety Issues related to Altimeter Setting in BARO-VNAV Approaches (Secretariat)

2.11   The Secretariat outlined the risks related to altimeter setting errors during APV Baro-VNAV and non-precision approach operations and proposed a plan to mitigate altimeter setting errors. The chairman pointed out that this is a very important issue, and the States should focus on the mitigation, such as training of pilots and ATCOs.

2.12   IFPDAVA inquired about the SBAS status in the region as LPV is one of the mitigations. The Secretariat informed that two SBAS in Japan and India are operational for several years, one in ROK is almost ready and others in China and Australia-New Zealand is under development. The Secretariat also encouraged the States to coordinate with States having footprint of SBAS in their territory to develop LPV procedures. The Secretariat further advised the States to focus on the training of pilots and ATCOs with special emphasis on the importance of altimeter setting in case of Baro-VNAV approaches.

2.13   Vietnam inquired about the implementation of universal transition altitude/level as one of the mitigations. The Secretariat informed the meeting that although this is one of the mitigations, it is not practicable in view of the elevation difference around the world.

Agenda Item 3:   Implementation status of the Regional Transition Plan for RNP APCH Chart Identification from RNAV to RNP

WP/06 – Implementation Status of Regional Transition Plan for RNP Chart Identification (Secretariat)

3.1   The Secretariat presented the Implementation status as on March 2024 of the regional transition plan for RNP APCH chart identification from RNAV to RNP, as adopted by

APANPIRG/30 vide Conclusion APANPIRG/30/14 (CNS SG/23/8-PBNICG/6/1). Most of the States have already completed the transition and a few States are on track as per the plan. The Secretariat reminded the States that the target date was November 2022 for RNP transition. The plan is available at the following link on ICAO APAC webpage:

https://www.icao.int/APAC/Documents/edocs/APX.%20B%20-%20Regional%20Transition%20Plan%20for%20RNP%20Chart%20Identification.pdf

3.2   The Secretariat invited the participants to review if there was any change to their APAC Regional Transition Plan and to report the same to APAC-RSO@icao.int.

Agenda Item 4:   States' PBN Implementation Progress

IP/01 – Update on PBN Implementation in Australia

4.1   Australia provided an update on PBN implementation activities in Australia. The transition of RNP APCH Chart identification was completed Nov 2023. A standardization and quality assurance initiative are underway for RNAV SID/STAR. The Continuous Descent Operations (CDO) trial for managed descent has been successful and has expanded to new routes and ATC groups for further data capture, and further implementations are planned for other airspaces around the country.

WP/07 – Challenges in Implementation of PBN Separation Across FIR Boundaries - Australia

4.2   Australia presented an overview of issues encountered when implementing RNP separation standards across FIR boundaries, within the framework of APAC plans. Considerations for the improvement of seamless RNP separation including review of RNP designation requirements, the provision to States of more information on RNP designation and changes to RNP separation standards (ICAO Doc 4444) to accept other means of compliance. Philippines indicated that they come across similar situations in the oceanic operations.

4.3   The Secretariat informed the meeting that designation of RNP route/ airspace is required to enhance/sustain the airspace capacity and that without designation parallel routes cannot be established. The Secretariat also pointed out that it is important to apply appropriate separations in line with ICAO provisions in airspace concerned after the implementation of different RNP navigation specifications.

4.4   Australia agreed and clarified that the designation of RNP routes/ airspace should not be removed, but that the designation of RNP routes/ airspace as a requirement for the application of RNP separation could be reviewed as a potential solution, among others. IATA suggested that the issue should be referred to an appropriate ICAO panel. The Chairman suggested to send the paper to CNS SG and ATM SG to deliberate on the issues raised in the paper and to provide guidance to the States. Australia also noted that the paper will be presented to SASP in May.

Draft Conclusion PBNICG/11-01: To refer the WP 07 submitted by Australia to CNS SG & ATM SG	
What: To refer the WP 07 submitted by Australia to CNS SG & ATM SG for deliberation on the issues raised in the paper and to provide guidance.	Expected impact: ☐ Political / Global ☐ Inter-regional ☐ Economic ☐ Environmental ☒ Ops/Technical

Why: For guidance on the issues raised in the paper as it involves CNS as well as ATM sections.	Follow-up: ☒Required from States
When: 28-Mar-24	Status: Draft to be adopted by Subgroup
Who: ☒Sub groups ☒APAC States ☒ICAO APAC RO ☐ICAO HQ ☐Other:	

IP/02 -Update on PBN Iimplementation in China

4.5   China presented PBN implementation status in China and the status of transition of RNP APCH Chart identification.

WP/08 - PMS Implementation in TMA Airspace – China

4.6   China presented basic concept, implementation progress and experience gained during PMS implementation at Shanghai Pudong, Guangzhou Baiyun, Shenzhen Bao'an & Beijing Capital Airports.

4.7   The Chairman appreciated the paper that it provided an excellent solution to streamline the TMA operations. Australia wanted to know when the pilot will know the distance to touchdown, China informed the meeting that the ATC will do it tactically.

4.8   IATA stated that PMS is basically to increase the track miles to the final approach and that to achieve optimum efficiency of flight operations, ATFM should be the final goal.

4.9   India inquired about the RCF provisions in PMS and whether there are any incident reports of conflict when the aircraft are descending on the arcs. China informed the meeting that in case of RCF aircraft on the arc continues to the last point and then heads to merge point and then to intercept final approach course and there are no incident reports so far.

4.10   The Secretariat asked the method of measuring the benefits of PMS. China informed the meeting that the benefits were measured by software modelling. The Secretariat further inquired about the usability of PMS at different airports in China. China informed the meeting that PMS is normally used in the peak hours.

4.11   India further wanted to know the challenges and constraints while implementing PMS. Coordination with stakeholders and airspace users are some of the constraints and challenges as informed by China.

IP 03 - RNP Chart Transition – Cambodia

4.12   Cambodia presented completion status of transition of RNP APCH chart identification from RNAV to RNP in Cambodia.

IP/04- PBN Implementation Progress in India

4.13   India presented the progress of PBN implementation including publication of seven (7) LPV procedures, eighteen (18) LPV procedures at various level of validation and thirteen(13) LPV procedures planned to be implemented. India also informed the meeting several RNP 2 routes have been published with 20 nm longitudinal separation. This paper also presented the challenges and

lessons learnt in PBN implementation.

IP/05- PBN Implementation Progress in Indonesia

4.14   Indonesia presented the progress of PBN implementation and the updated PBN implementation plan. This paper also presented the challenges and lessons learnt in PBN implementation.

4.15   The Secretariat enquired the involvement of stakeholders in making PBN implementation plan to which Indonesia explained the process followed. The Chairman appreciated the effort of Indonesia in participation of Stakeholders, PBN training for ATCOs and certification of air operators.

IP/06 - Implementation Plan of Point Merge System in Jakarta's Airspace - Indonesia

4.16   Indonesia presented the implementation plan of the Point Merge arrivals at Soekarno Hatta International Airport to enhance airspace capacity, effectively reduce the impact of complex operating environment on operational safety and efficiency.

4.17   IATA wanted to know if PMS is used in multi-runway at the airport, feed to all the runways or part of the RWY. Indonesia informed the meeting that PMS will be used in segregated mode.

4.18   India queried about any threshold to decide the PMS implementation. Indonesia informed the meeting that departure delays, mix operation RWY and to reduce the holding for departure are some of the factors to be considered for implementation of PMS.

IP/07- PBN Implementation Progress in Japan

4.19   Japan presented the update on the progress of PBN implementation, including the change of the procedure chart identification from RNAV to RNP. In this paper Japan informed the meeting that RF leg transitions to ILS approaches at five airports have been implemented, resulting in saving of track miles for the approaches. Going forward, Japan will continue to replace conventional approach procedures with PBN procedures.

4.20   The Secretariat queried whether Japan could provide some more details on the implementation of RF leg to ILS for the benefit of participants. Japan informed the meeting that the details would be provided at the next meeting.

IP/08- PBN Implementation Progress in Nepal

4.21   Nepal presented the progress of PBN implementation in Enroute, Terminal & Approach at domestic airports including RNP AR Departure procedure implementation at Kathmandu Airport.

4.22   The Secretariat inquired about the percentage of fleet operating at Kathmandu Airport certified for RNP AR departure and Approach. Nepal informed the meeting that majority of international carriers operating in Kathmandu are certified for RNP AR APCH but for RNP AR departure, the international carriers are in the process of getting approvals.

IP 09 - PBN Implementation Progress in Malaysia

4.23   Malaysia presented information on the latest progress of PBN implementation in Malaysia. It summarized the implementation status of PBN SID, STAR and PBN Approach at airports within Kuala Lumpur and Kota Kinabalu Flight Information Regions (FIRs).

4.24   The Chairman inquired about the status of consultations with the airlines on GBAS and RNP AR so that when the system is ready aircraft operators should be ready to carry out the procedures. Malaysia informed the meeting that stakeholder consultation is part of their process.

4.25   Thailand queried how often is the RNP AR conducted and what's the percentage of RNP AR fleet? Malaysia informed the meeting that it's based on the request by pilot and also on opportunity basis. India wanted to know the use of RNP AR procedures on parallel RWYs and number of RNP AR arrivals in one hour. Malaysia informed the meeting that they are willing to share the statistics upon request.

IP 10- PBN Implementation Progress Update – PNG

4.26   Papua New Guinea presented the PBN implementation progress, and they requested onsite FPP training on FPD and Operational approval. The Secretariat informed the meeting that FPP coordinator will address the on-site training requirements and ICAO and COSCAPs have conducted several workshops/trainings on operational approval in the past and the same will be considered in near future.

Agenda Item 5:   Performance Based Aerodrome Operating Minima(PBAOM)

WP09 – Performance Based Aerodrome Operating Minima (PBAOM) (Secretariat)

5.1   The Secretariat discussed Performance Based Aerodrome Operating Minima (PBAOM), which is one of the ASBU elements listed as a priority task in APAC Seamless ANS plan and shared the draft CONOPS developed by FLTOPS panel. The Secretariat further informed the meeting that the draft CONOPS has been sent to various panels for comments.

Agenda Item 6:   Proposed revision of PBN elements in APAC Seamless ANS plan

WP-10- Proposed revision of PBN elements in APAC Seamless ANS plan- Secretariat

6.1   The secretariat introduced to the meeting the proposed changes in the PBN elements of Seamless ANS plan in order to align with the latest GANP and PBN Manual.

After deliberations in the meeting the proposed revision of PBN elements in the Seamless ANS plan was adopted with some minor amendments.

Draft Conclusion PBNICG/11/02 - Proposed Revision in PBN Elements of Seamless ANS Plan V3.0	
What: Proposed Revision in PBN Elements of Seamless Ans Plan V3.0 as per Appendix A of the report.	Expected impact: ☐ Political / Global ☐ Inter-regional ☐ Economic ☐ Environmental ◼ Ops/Technical

Why: PBN Elements in Seamless ANS Plan need to be revised to align with 7th edition of GANP & fifth edition of PBN Manual.	Follow-up: ☐Required from States

Agenda 7 – Any Other Business (AOB)

WP-11- Introduction of APAC FPP (Flight Procedure Program)

7.1   FPP introduced its organizational structure, Active Participating States/Administrations, User States, activities in the flight procedure design field, courses and workshops being conducted, work plan for the next year, customized courses for the willing States etc.
Fiji queried for official assistance of APAC FPP to user States for support on the review of IFPs. FPP assured the meeting that it will be looked into.

WP-12 - Authorizations for PBN operations – IATA

7.2   IATA presented a proposal to simplify and standardize authorizations and FPL notations for PBN capabilities and their related interpretations.
After several rounds of deliberations, the meeting reached agreement on the following decision:
PBNICG supports simplification and standardization of the interpretation and application for PBN operational authorizations/approvals in line with ICAO provisions.

Draft Conclusion PBNICG/11-03: PBN Operational Authorizations/Approvals		
What: That PBNICG supports simplification and standardization of the interpretation and application for PBN operational authorizations/approvals in line with ICAO provisions.		Expected impact: ☐ Political / Global ☐ Inter-regional ☐ Economic ☐ Environmental ☒ Ops/Technical
Why: Simplification and standardization of the interpretation and application for PBN operational authorizations.		Follow-up: ☒Required from States
When: 29-Mar-24		Status: Draft to be adopted by Subgroup
Who: ☒Sub groups ☒APAC States ☒ICAO APAC RO ☐ICAO HQ ☐Other:		

WP 13 – Smart Procedure Validation – IFPDAVA

7.3   IFPDAVA presented the smart validation concept. First the difference of layout in the process flow of Doc 9906 Volume 5 Edition 1 and Edition 2 was shown. Thereafter the individual steps of the validation process were explained. It was highlighted that the word ground validation will be removed in Edition 2. Also, it was indicated that simulator flight validation and aircraft flight validation each have their own benefits. With some IFP examples various validation options were highlighted.

IP-11 - Outcomes of Workshop on oversight of IFPs (Secretariat)

7.4   The Secretariat presented a brief account of the workshop on oversight of IFPs for the benefit of participants who could not participate in the workshop.

Next meeting

7.5   The Chairperson proposed that PBNICG/12 would tentatively be held in March/April 2025 and invited the States to host the meeting in person. States willing to host may contact APAC-RSO@icao.int.

Closing of the meeting

7.6   The Chairperson thanked the participants for their contributions and expressed appreciation to the ICAO Asia/Pacific Regional and Regional Sub-Office for their support.

7.7   The Deputy Chief of ICAO APAC RSO, Ms. Ying Zhang thanked all the participants and ICAO secretariat personnel for making this meeting meaningful.

Appendix A

PROPOSED REVISION IN PBN ELEMENTS OF SEAMLESS ANS PLAN V3.0

NOTES ON THE PRESENTATION OF THE PROPOSED AMENDMENT

1. The text of the amendment is arranged to show deleted text with a line through it and new text highlighted with grey shading, as shown below:

a) ~~Text to be deleted is shown with a line through it.~~	text to be deleted in
b) New text to be inserted is highlighted with grey shading.	new text to be inserted in
c) ~~Text to be deleted is shown with a line through it~~ followed by the replacement text which is highlighted with grey shading.	new text to replace existing text

Proposed Table 1 of the plan

APTA-B0/1 : PBN ~~non-precision~~ approaches(with basic capability); (PARS 7.4, 7.5, 7.10, 7.13, 7.14, 7.21)

APTA-B0/2: ~~Basic~~ PBN SID and STAR procedures(with basic capability); (PARS 7.4, 7.5, 7.10, 7.13, 7.14, 7.21)

APTA-B0/3 : SBAS/GBAS CAT I precision approach procedures; PARS 7.5, 7.6, 7.10, 7.14, 7.21

APTA-B0/4 : CDO (Basic): (PARS 7.14, 7.19, 7.21)

APTA-B0/5 : CCO (Basic) : (PARS 7.14, 7.19, 7.21)

APTA-B0/6: PBN Helicopter Point in Space (PinS) Operations; (PARS 7.5, 7.6, 7.10, 7.14, 7.21)

APTA-B0/7 :Performance-based aerodrome operating minima for advanced aircraft (PARS 7.14, 7.19, 7.21)

APTA-B0/8: Performance-based aerodrome operating minima for basic aircraft (PARS 7.14, 7.19, 7.21)

APTA-B1/1: PBN approaches (with advanced capability), (PARS 7.14, 7.21, 7.22, 7.23)

APTA-B1/2: PBN SID and STAR procedures(with advanced capability) (PARS 7.14, 7.21, 7.22, 7.23)

APTA-B1/4: CDO(Advanced) (PARS 7.14, 7.21, 7.22, 7.23)

APTA-B1/5: CCO (Advanced) (PARS 7.14, 7.21, 7.22, 7.23)

APTA-B2/4: Performance-based aerodrome operating minima for advanced aircraft with SVGS (PARS 7.14, 7.21, 7.22, 7.23)

Proposed PARS 7.5

7.5 Where practicable, all instrument runways serving aeroplanes should have the following

~~precision approach systems (or if an APV is not practical, PBN non-precision approaches)~~ approach procedures consistent with APTA-B0/1 ~~(Priority 1)~~ and APTA-B0/3:

a) SBAS/GBAS Cat I precision approaches; or ILS Cat I/~~MLS~~ approaches (with APV approach as a backup); or

Appendix A

b) Approaches with Vertical Guidance (APV), ~~either RNP APCH with Barometric Vertical Navigation (Baro VNAV) or augmented GNSS (e.g. SBAS)~~; RNP APCH with LNAV-VNAV or LPV Minima or

c) if an APV is not practical, straight-in RNP APCH with Lateral Navigation (LNAV) **or** SBAS based LP Minima.

* APV - RNP APCH with LNAV-VNAV or LPV Minima

Proposed PARS 7.6
7.6 All international aerodromes with rotary wing operations-should establish ~~PBN arrival/departure, approach and/or en-route transiting procedures~~. PBN Helicopter PinS Operations ~~should be established~~ consistent with APTA-B0/6 where there is an operational benefit (Priority ~~3~~ **2**).

Proposed PARS 7.14

7.14 As far as practicable, all new ATS Routes should be PBN Routes in accordance with the following specifications to support APTA-B0/1 – 8, and APTA-B1/1 – 5:
- Category R airspace – RNP 4, RNP 10 (RNAV 10), (~~other acceptable navigation specifications~~ – RNP 2 ~~oceanic~~); and
- Category S airspace –RNAV 2 or RNP 2.

Proposed PARS 7.21

7.21 As far as practicable, all new ATS Routes should be PBN Routes in accordance with the following specifications to support COMS-B0/1 – 2, COMS-B1/1 – 3, APTA-B0/1 – 8, and APTA-B1/1 – 5:
- Category R airspace – RNP 2 ~~Oceanic or (other acceptable navigation specification~~ –RNP 4);
  and
- Category S airspace –RNAV 2 or RNP 2.

Proposed PARS 7.22

7.22 Where there is an operational benefit, all international aerodromes should implement advanced capability PBN SID and STAR procedures and performance-based aerodrome operating minima for advanced aircraft with SVGS consistent with APTA-B1/1 – 3.

List of Participants

No	Name	Title/Organization	Email
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Attachment 2

List of WPs and IPs for PBNICG/11

Working Papers (WPs)

1. WP01 - Provisional Agenda (Secretariat)
2. WP02 - Global and Regional PBN Update (Secretariat)
3. WP03 - ICAO Recommendations and Guidance on GNSS Vulnerability (Secretariat)
4. WP04 - ICAO Doc 9849 GNSS Manual Update (Secretariat)
5. WP05 - Safety Issues related to Altimeter Setting in BARO-VNAV Approaches (Secretariat)
6. WP06 - Implementation Status of Regional Transition Plan for RNP Chart Identification (Secretariat)
7. WP07 - Challenges in Implementation of PBN Separation Across FIR Boundaries - Australia
8. WP08 - PMS Implementation in TMA Airspace – China
9. WP09 - Performance Based Aerodrome Operating Minima (PBAOM) (Secretariat)
10. WP10 - Proposed revision of PBN elements in APAC Seamless ANS plan (Secretariat)
11. WP11- Introduction of APAC FPP (Flight Procedure Program)
12. WP12- Authorizations for PBN operations – IATA
13. WP13- Smart Procedure Validation – IFPDAVA

Information Papers (IPs)

1. IP01 - Update on PBN Implementation in Australia
2. IP02 - Update on PBN Implementation in China
3. IP03 - RNP Chart Transition – Cambodia
4. IP04 - PBN Implementation Progress in India
5. IP05 - PBN Implementation Progress in Indonesia
6. IP06 - Implementation Plan of Point Merge System in Jakarta's Airspace - Indonesia
7. IP07 - PBN Implementation Progress in Japan
8. IP08 - PBN Implementation Progress in Nepal
9. IP09 – PBN Implementation Progress in Malaysia
10. IP10 - PBN Implementation Progress Update – PNG
11. IP-11 - Outcomes of Workshop on oversight of IFPs (Secretariat)