



*International Civil Aviation Organization*

**THE NINTH MEETING OF PERFORMANCE BASED NAVIGATION  
IMPLEMENTATION COORDINATION GROUP (PBNICG/9)**

Video Conference, 22 - 24 March 2022

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Agenda Item 4: States' PBN Implementation Progress

**PBN IMPLEMENTATION PROGRESS IN INDONESIA**  
(Presented by Indonesia)

**SUMMARY**

This paper presents an update on the progress of Indonesia's PBN implementation.

**1. INTRODUCTION**

- 1.1 Indonesia has presented the state PBN implementation progress and status at PBNICG/8 meeting on 2019. Since then, Indonesia has updated and make some adjustments to the plan to accommodate the development of airports.
- 1.2 Indonesia has been progressing in renaming charts for the transition plan of RNP APCH Chart and expected to complete the process by November 2022.

**2. DISCUSSION**

**PBN Implementation status**

- 2.1 Since reported in PBNICG/8 on 2021, Indonesia has increase the PBN IAP at 3 international airports and 9 domestic airports (with instrument runway) and the PBN SID/STAR procedures at 2 international airports and 2 domestic airports (with instrument runway).
- 2.2 The summary of airports that already implement fully/partly PBN flight procedures are as follows:
  - 2.1.1. International Airport (with instrument runway) with PBN IAP: 30 from total 32 airports (3 airports with RNP AR).
  - 2.1.2. International Airport (with instrument runway) with PBN SID/STAR: 15 from total 32 airports.

2.1.3. Domestic Airport (with instrument runway) with PBN IAP: 31 from total 31 airports.

2.1.4. Domestic Airport (with instrument runway) with PBN SID/STAR: 7 from total 31 airports.

The details of the airports are attached on this paper.

2.3 As addition with data above, there are domestic and remote airports in Indonesia with PBN procedures as follows:

2.2.1. 20 domestic airports (non-instrument runway) with PBN IAP

2.2.2. 6 domestic airports (non-instrument runway) with PBN SID/STAR

2.2.3. 21 remote airports (non-instrument runway) with PBN IAP.

The details of the airports are attached on this paper.

2.4 Since reported in PBNICG/8 on 2021, Indonesia also has adding more PBN domestic route, as follows:

ATS Route	Routes	Publication	Navspec
T5 EXT	Aceh – Jakarta - Cirebon	01 Jun 2021	RNAV 2
T6 EXT	Jakarta – Binaka - Aceh	01 Jun 2021	RNAV 2
T7	Aceh – Padang – Bengkulu - Jakarta	01 Jun 2021	RNAV 2
T8	Jakarta - Aceh	01 Jun 2021	RNAV 2
T10	Jakarta – Medan - Aceh	01 Jun 2021	RNAV 2
T19	Semarang – Surabaya - Kupang	02 Des 2021	RNAV 2
T20	Kupang – Surabaya – Semarang	02 Des 2021	RNAV 2

2.5 The Indonesia National PBN Stakeholders forum is actively monitoring the implementation of PBN in Indonesia and evaluating the PBN implementation plan.

### **New PBN Implementation plan until 2024**

2.6 The Indonesia PBN implementation plan until 2024 are as follows:

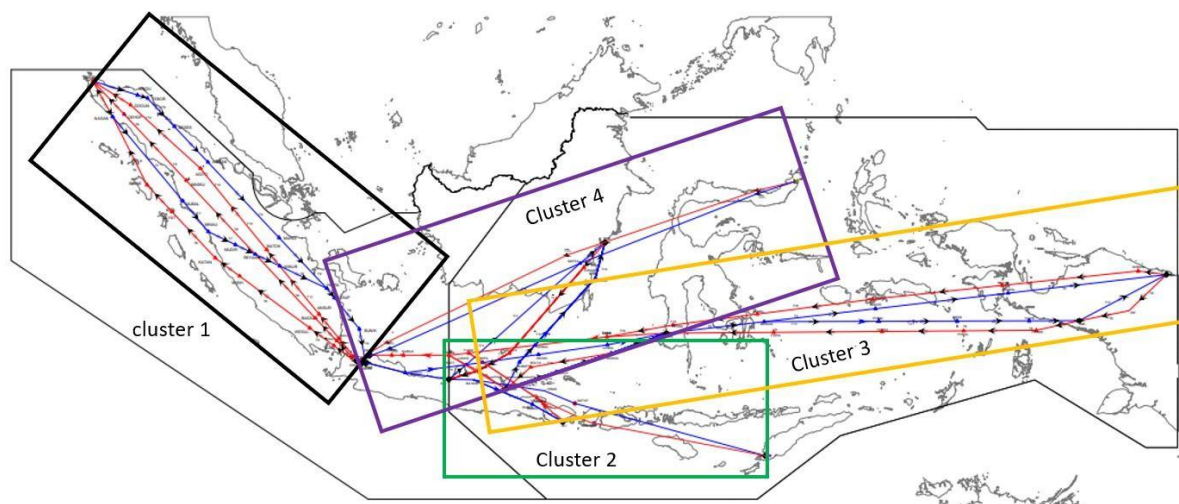
	Airport / Route	Status	Target Year
International Airport IAP	Raja Haji Fisabilillah, Tanjung Pinang	Coordination with adjacent ATS authority	2022
	Hang Nadim, Batam	Coordination with adjacent ATS authority	2022
	Sultan Syarif Kasim II, Pekanbaru (RWY 18)	Design process	2022
	Hasanuddin, Makassar (RWY 03, RWY 13)	Design process	2022

	Ahmad Yani, Semarang	Publication process	2022
	Husein Sastranegara, Bandung (RNP APCH, RWY 11&29)	Validation process	2022
	Sam Ratulangi, Manado (RNP APCH, RWY 18&36)	Design process	2022
	Supadio, Pontianak (Rwy 33)	Design process	2023
International Airport SID/STAR	Raja Haji Fisabilillah, Tanjung Pinang	Coordination with adjacent ATS authority	2022
	Hang Nadim, Batam	Coordination with adjacent ATS authority	2022
	Halim Perdanakusuma, Jakarta	Validation process	2022
	Banyuwangi, Banyuwangi	Plan	2022
	Sam Ratulangi, Manado	Design process	2022
	Supadio, Pontianak	Plan	2023
	Minangkabau, Padang	Plan	2023
	Zainuddin Abdul Lombok	Plan	2023
	El Tari, Kupang	Plan	2023
	Juwata, Tarakan	Plan	2024
	Sentani, Jayapura	Plan	2024
	Frans Kaisiepo, Biak	Plan	2024
	Adi Sumarmo, Solo	Plan	2024
	Sultan Syarif Kasim II, Pekanbaru	Plan	2024
Domestic Airport RNP AR	Sultan Babullah, Ternate	Design process (cooperation with Navblue Airbus)	2022
Domestic Enroute RNAV 2	Cluster 3 : Surabaya - Papua	Design process	2022
	Cluster 4 : Jakarta – Manado & Semarang–Surabaya- Balikpapan	Plan	2023
Lower ATS Domestic Enroute RNP2	Balikpapan - Tarakan	Plan	2022
	Luwuk – Gorontalo - Palu	Plan	2024

International Route RNP2	City Pair connecting Jakarta-Singapore	Plan	2022-2024
	City Pair connecting Jakarta-Australia	Plan	2024

\*The plan may still be changed according to the needs or technical considerations of flight operations.

Figure 2. Design of PBN Domestic Enroute RNAV 2



**Indonesia Transition Plan for RNP APCH Chart Identification from RNAV to RNP**

- 2.7 To support the transition plan for RNP APCH Chart Identification from RNAV to RNP, Indonesia has been renaming/transitioning a number of charts.
- 2.8 By 15 March 2022, the number of charts that have been renamed/transitioned from RNAV to RNP in Indonesia are 70 charts from total 76 charts are published (92.1%).
- 2.9 It is expected that the transition progress to be completed (100%) by November 2022.

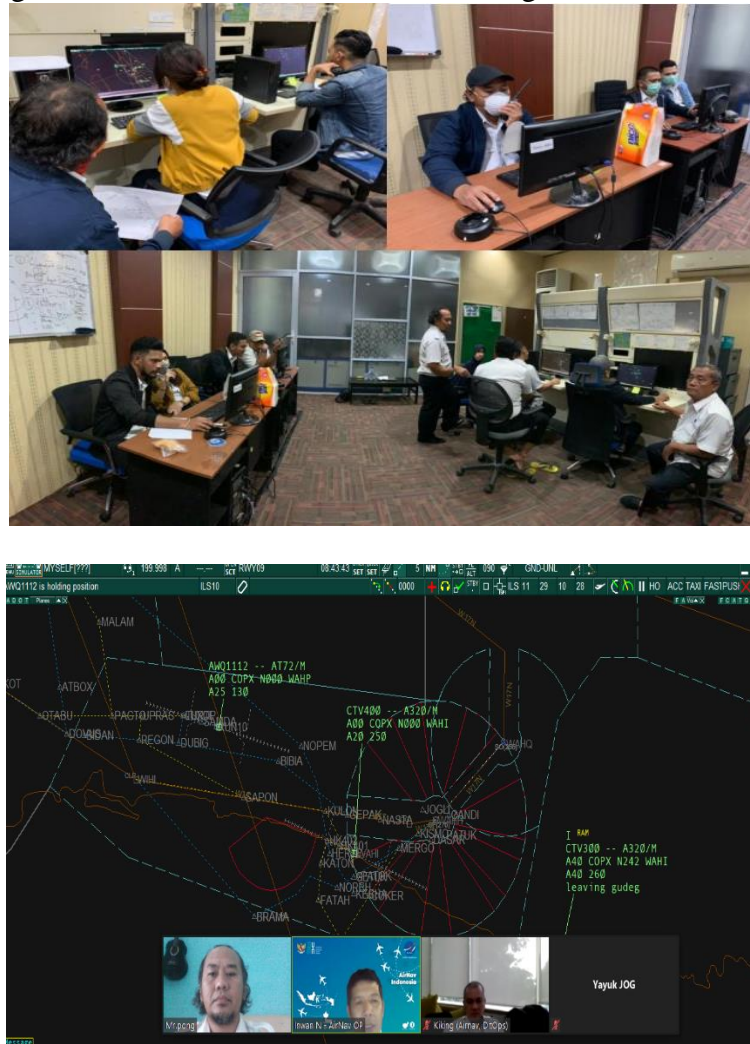
**Challenges and Lesson Learnt**

- 2.10 Throughout the PBN Implementation, Indonesia has faced some challenges as follow:
  - 2.10.1. The strategy to increase the effectiveness of utilization of a PBN route by considering the population of PBN capable aircraft in an airspace;
  - 2.10.2. The handling of mixed between conventional and PBN routes on an airspace;
  - 2.10.3. The PBN training for ATC personnel, especially during the pandemic;
  - 2.10.4. The crossing between the regional routes and domestic RNAV2 routes;
  - 2.10.5. The strategy to design a PBN route that is shorter and more effective than a conventional route
- 2.11 In facing these challenges, Indonesia has plan the PBN implementation to be more effective and applicable in the future.

**PBN Training for ATS Personnel**

- 2.12 Indonesia has conducted 17 PBN training and socialization for ATS personnel in 2021 and 2 PBN training and socialization in 2022 (up until 15 March 2022).
- 2.13 CBT has been performed by simulator and conducted online and offline consistent with the location of ATS Unit.

Figure 3. Offline and Online PBN Training for ATS Personnel



### 3. ACTION REQUIRED BY THE MEETING

3.1 The meeting is invited to:

- a) Update the status of Regional Transition Plan RNAV to RNP Chart Identification Change of Indonesia;
- b) Note the information contained in this paper; and
- c) Discuss any relevant matters as appropriate.

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**Summary of the paper to be included in the meeting report:**

**Indonesia has presented the progress of PBN implementation consisting of PBN Approach, SID, and STAR procedures at international and domestic airports and also PBN domestic routes. The transition for RNP APCH Chart Identification is expected to be completed by November 2022.**

Attachment

**LIST OF AIRPORTS WITH PBN IN INDONESIA**

Table 1. List of International Airport (with instrument runway) with PBN IAP

No.	Airport Name	Location	Navpsec	Remarks
1	Pattimura	Ambon	RNP AR	
2	I Gusti Ngurah Rai	Bali	RNP APCH	
3	Sultan Aji Muhammad Sulaiman Sepinggian	Balikpapan	RNP APCH	
4	Sultan Iskandar Muda	Aceh	RNP APCH	
5	Husein Sastranegara	Bandung	RNP AR	
6	Halim Perdanakusuma	Jakarta	RNP APCH	
7	Soekarno Hatta International	Jakarta	RNP APCH	
8	Sentani	Jayapura	RNP APCH	
9	El Tari	Kupang	RNP APCH	
10	Zainuddin Abdul Madjid International	Praya	RNP APCH	
11	Sam Ratulangi	Manado	RNP AR	
12	Minangkabau International	Padang	RNP APCH	
13	Sultan Mahmud Badaruddin II	Palembang	RNP APCH	
14	Sultan Syarif Kasim II	Pekanbaru	RNP APCH	Not all RWY
15	Jenderal Ahmad Yani	Semarang	RNP APCH	
16	Juanda	Surabaya	RNP APCH	
17	Raja Sisingamangaraja XII	Siborongborong	RNP APCH	
18	Kualanamu International	Deli Serdang	RNP APCH	
19	Kertajati International	Majalengka	RNP APCH	
20	Supadio	Pontianak	RNP APCH	Not all RWY
21	Sultan Hasanuddin	Makasar	RNP APCH	Not all RWY
22	Yogyakarta International	Kulonprogo	RNP APCH	
23	Banyuwangi	Banyuwangi	RNP APCH	
24	Frans Kaisiepo	Biak	RNP APCH	
25	Juwata	Tarakan	RNP APCH	
26	Radin Inten II	Lampung	RNP APCH	
27	Syamsudin Noor	Banjarmasin	RNP APCH	
28	Mopah	Merauke	RNP APCH	
29	H.AS. Hanandjoeddin	Tanjung Pandan	RNP APCH	
30	Adi Soemarmo	Solo	RNP APCH	

Table 2. List of International Airport (With Instrument Runway) With PBN SID/STAR

No.	Airport Name	Location	Remarks
1	Pattimura	Ambon	RNP AR
2	Husein Sastranegara	Bandung	RNP AR
3	Sam Ratulangi	Manado	RNP AR

4	I Gusti Ngurah Rai	Bali	RNAV 1
5	Sultan Aji Muhammad Sulaiman Sepinggian	Balikpapan	RNAV 1
6	Soekarno Hatta International	Jakarta	RNAV 1
7	Sultan Hasanuddin	Makasar	RNAV 1
8	Juanda	Surabaya	RNAV 1
9	Sultan Mahmud Badaruddin II	Palembang	RNAV 1
10	Kualanamu International	Deli Serdang	RNAV 1
11	Yogyakarta International	Kulonprogo	RNAV 1
12	Kertajati International	Majalengka	RNP 1
13	Radin Inten II	Lampung	RNP 1
14	Sultan Iskandar Muda	Aceh	RNP 1
15	H.AS. Hanandjoeddin	Tanjung Pandan	RNAV 1

Table. 3 List of Domestic Airport (with instrument runway) with PBN IAP

No.	Airport Name	Location	Remarks
1	Sultan Syarif Haroen	Pelalawan	RNP APCH
2	Bersujud	Batulicin	RNP APCH
3	Fatmawati Soekarno	Bengkulu	RNP APCH
4	Djalaluddin	Gorontalo	RNP APCH
5	Sultan Thaha	Jambi	RNP APCH
6	Wamena	Jaya Wijaya	RNP APCH
7	Utarom	Kaimana	RNP APCH
8	Kuabang	Kao	RNP APCH
9	Halu Oleo	Kendari	RNP APCH
10	Rahadi Oesman	Ketapang	RNP APCH
11	Gusti Sjamsir Alam	Kotabaru	RNP APCH
12	Komodo	Labuan Bajo	RNP APCH
13	Rendani	Manokwari	RNP APCH
14	Tjilik Riwtut	Palangkaraya	RNP APCH
15	Muara Sis Al Jufri	Palu	RNP APCH
16	Mathilda Batlayeri	Saumlaki	RNP APCH
17	Tebelian	Sintang	RNP APCH
18	Domestik Eduard Osok	Sorong	RNP APCH
19	Waikabukak	Tambolaka	RNP APCH
20	Sultan Baabullah	Ternate	RNP APCH
21	Mozes Kilangin	Timika	RNP APCH
22	Syukuran Aminuddin Amir	Luwuk	RNP APCH
23	Abdul Rachman Saleh	Malang	RNP APCH
24	Depati Amir	Pangkal Pinang	RNP APCH
25	Kalimarau	Tanjung Redeb	RNP APCH
26	Silampari	Lubuk Linggau	RNP APCH
27	Haji Hasan Aroebesman	Ende	RNP APCH
28	Toraja	Tana Toraja	RNP APCH

29	Aji Pangeran Tumenggung Pranoto	Samarinda	RNP APCH
30	Oesman Sadik	South Halmahera	RNP APCH
31	Adi sucipto	Yogyakarta	RNP APCH

Table 4. List of Domestic Airport (with instrument runway) with PBN SID/STAR

No.	Airport Name	Location	Remarks
1	Muara Sis Al Jufri	Palu	RNP 1
2	Komodo	Labuan Bajo	RNP 1
3	Tebelian	Sintang	RNP 1
4	Mozes Kilangin	Timika	RNP 1
5	Sultan Baabullah	Ternate	RNP 1
6	Toraja	Tana Toraja	RNP 1
7	Oesman Sadik	South Halmahera	RNP 1

Table 5. List of Domestic Airports (non-instrument runway) with PBN IAP

No.	Airport Name	Location	Remarks
1	Silampari	Lubuk Linggau	RNP APCH
2	Tampa Padang	Mamuju	RNP APCH
3	Pitu	Morotai	RNP APCH
4	Cut Nyak Dien	Nagan Raya	RNP APCH
5	Jenderal Sudirman	Purbalingga	RNP APCH
6	David Constanctine Sudele	Rote Ndao	RNP APCH
7	Aji Pangeran Tumenggung Pranoto	Samarinda	RNP APCH
8	Naha	Tahuna	RNP APCH
9	Toraja	Tanah Toraja	RNP APCH
10	Sultan Bantilan	Toli Toli	RNP APCH
11	Matahora	Wakatobi	RNP APCH
12	Jenderal Besar Soedirman	Purbanlingga	RNP APCH
13	Tunggul Wulung	Cilacap	RNP APCH
14	Soa	Bajawa	RNP APCH
15	Ngloram	Blora	RNP APCH
16	Gewayantana	Larantuka	RNP APCH
17	Haji Muhammad Sidik	Muara Teweh	RNP APCH
18	Rembele	Takengon	RNP APCH
19	Fransiskus Xaverius Seda	Maumere	RNP APCH
20	Maimun Saleh	Sabang	RNP APCH

Table 6. List of Domestic Airports (non-instrument runway) with PBN SID/STAR

No.	Airport Name	Location	Remarks
1	Toraja	Tanah Toraja	RNP 1
2	Tampa Padang	Mamuju	RNP 1
3	Jenderal Besar Soedirman	Purbanlingga	RNP 1
4	Haji Muhammad Sidik	Muara Teweh	RNP 1
5	Fransiskus Xaverius Seda	Maumere	RNP 1

6	Rembele	Takengon	RNP 1
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Table 7. List of Remote Airports (non-instrument runway) with PBN IAP

No.	Airport Name	Location	Remarks
1	Buli	Halmahera	RNP APCH
2	Morotai	Halmahera	RNP APCH
3	Bade	Papua	RNP APCH
4	Ewer	Papua	RNP APCH
5	Kimam	Papua	RNP APCH
6	Kokonao	Papua	RNP APCH
7	Tanah Merah	Papua	RNP APCH
8	Sarmi	Papua	RNP APCH
9	Ayawasi	Papua	RNP APCH
10	Teluk Bintuni	Papua	RNP APCH
11	Inanwatan	Papua	RNP APCH
12	Kambuaya	Papua	RNP APCH
13	Merdei	Papua	RNP APCH
14	Teminabuan	Papua	RNP APCH
15	Bawean	East Java	RNP APCH
16	Takengon	North Sumatra	RNP APCH
17	Sinabang	North Sumatra	RNP APCH
18	Sibolga	North Sumatra	RNP APCH
19	Torea	Papua	RNP APCH
20	Sitaro - Siau	North Sulawesi	RNP APCH