PBN IMPLEMENTATION IN INDONESIA
Program For
The PBN Workshop For ATC

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Profile of AirNav Indonesia

Establishment:
- Declared by Government Decree no 77 on September 13th, 2012
- Started the operation on January 26th, 2013.
- The shares is wholly owned by Government and become Single Air Navigation Service Provider.

Core Business of AirNav Indonesia:
- Air Traffic Services
- Aeronautical Telecommunication
- Aeronautical Information
- Search & Rescue Information
- Aviation Meteorology Information

Scope of operation:
- Operate at 275 Airports
  - 26 Airport previously managed by Airport Operator.
  - 249 previously managed by DGCA

Scope of operation including:
- 2 ACC Units (Area Control Centre)
- 2 FIC (Flight Information Centre)
- 37 APP/TMA Units (Approach Control / Terminal Control)
- 14 FSS (Flight Service Station)
- 66 TWR (Aerodrome Control Tower)
- 209 AFIS (Aerodrome Flight Information Service)

Vision:
To be the best Air Navigation Service Provider in South East Asia

Mission:
- Working together with partners to provide air traffic services that are safe, comfortable and environmentally friendly, in order to meet the expectations of service users
- Meet the expectations of shareholders and regulators
- Improving the quality, performance and career of personnel

Corporate Value:
I-SAFE: Integrity, Solidity, Accountability, Focus on Safety and Excellent Services

Indonesian space = 4,110,752 Km²
FIR Coverage = 5,193,252 Km²
Traffic Movement = 1,828,934/year
1. PBN Implementation Update in Indonesia
2. Update on PBN Implementation in Indonesia
3. Experience and Challenges on PBN Implementation in Indonesia
4. Safety Improvement Program In Papua and Remote Area
5. Proposed RNAV Services in Papua using GPS/WAAS as a main sole navigation system
1. International Airports 84% of total 25 Airport
2. Domestic Airports 16% of total 65 Airport
3. Aerodrome for Light Aircraft 6% of total 516 Airport
4. Lower Domestic ATS Route 3 area
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<th>NO</th>
<th>CATEGORY</th>
<th>PERCENTAGE</th>
<th>INFORMATIONS</th>
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<td>1</td>
<td>International Airport</td>
<td>84 %</td>
<td>21 of 25 Airports</td>
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<td>80 Procedures:</td>
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<td>Domestic Airport</td>
<td>16 %</td>
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<td>Aerodrome for Light Aircraft</td>
<td>6 %</td>
<td>32 of 516 Airports</td>
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<td>• 44 APPROACH</td>
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<td>4</td>
<td>Lower Domestic ATS Route</td>
<td>3</td>
<td>ATS Area Navigation Route up to FL 150 between Spoke – Hub Airport for 3 areas: Aceh, Maluku and Papua</td>
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</table>
Charts of Implemented PBN Procedures

KETERANGAN:

- INSTRUMENT APPROACH RNP APCH
- INSTRUMENT APPROACH RNP APCH LNAV/VNAV
- INSTRUMENT APPROACH RNP AR
- SID/STAR RNP
- SID/STAR RNAV

SABANG
ACEH
TAKENGON
NAGAN RAYA
SABANG
CILATAR
SIBOLGA
PELAWAAN
PEKANBARU
PADANG
PALEMBANG
BENGKULU

AirNav Indonesia

www.airnavindonesia.co.id
Charts of Implemented PBN Procedures
Experience and Challenges on PBN Implementation in Indonesia

A. Implementation PBN Procedure in Papua and Remote Area
B. Training PBN for ATC Operation
C. Safety Improvement in Papua and Remote Area
A. PBN Implementation in Papua and Remote Area

- The following characterize:
  1. High accidents/incidents rate;
  2. Limited radar coverage;
  3. No highway infrastructure;
  4. Mountainous area;
  5. Limited weather reporting capabilities, instrument routes, or approach structures; and
  6. Remote living conditions.

- Challenge for PBN Implementation in Papua/remote area
  1. Common constrains;
     a. High Terrain and Mountain
     b. Wide area
     c. Lack of ground Nav Aid (including power supply)
     d. Many of Airport/airfield – limited accessability
     e. Weather Phenomenon (rapidly change)
2. **Technical Constrains;**
   a. Hard to make Straight in Approach due to terrain
   b. Mostly high elevation airport (high OCA number)
   c. Visibility minima becomes high (5 km or more)
   d. Turning Missed Approach

3. **Operation Limitations**
   a. Aircraft capability on PBN compliance
   b. Limited PBN certified aircraft.
   c. ATC capability on PBN implementation
B. PBN Training for ATC

Training challenges:
1. Missed Perception concerning PBN training for ATC between DGCA and Airnav Indonesia
2. Training Provider lack of capabilities and competencies concerning PBN
3. Lack of PBN Instructors
4. Number of ATC personnel's (± 1600 personnel) spread out in Indonesia

Training Solution (Familiarization) Program:
1. In Collaboration with NavBlue (Airbus Prosky) to conduct PBN ToT in 2 Locations (Bandung and Manado)
2. Propose to Training Provider to include PBN Training Program in the PANS-OPS in Training
3. PBN training simulation - A/C Simulator
4. Conduct PBN Training in the Field
C. Safety Improvement in Papua and Remote Area

Safety improvement Program:
1. Established ad-hoc team
2. Collaboration between Regulator and Operator (ANSP and Aircraft Operator)
3. Propose new concept of operation – Papua Program, including:
   - Weather and Other Information to the Cockpit;
   - Cost Effective CFIT Avoidance enhancement;
   - Improved Terminal Operations in Low Visibility;
   - Enhanced See and Avoid;
   - Enhanced En Route Air-to-Air Operations;
   - Improved Surface Surveillance and Navigation for the Pilot;
   - Enhanced Airport Surface Surveillance for the Controller;
   - ADS-B Surveillance in Non-Radar Airspace;
   - PBN Operation (RNAV Services)
Proposed RNAV (GPS/GNSS) Services in Papua and Remote using GPS as a main sole navigation system

Primary Operational Goal

- expand the usable low altitude airspace for IFR operations and increase the access to airports in poor and marginal weather conditions.

- Improve Safety
Objective

To allow the use of GPS Technology for the En-route portion of flight on routes in Papua and remote areas outside the operational service volume of ground-based navigation aids.

To establish new departure and approach procedures.

Promote Safety by creating and promoting a usable IFR environment that allows an IFR option for pilots that had to fly predominantly in the visual flight rules (VFR) environment that exists today.

Change aviation regulation.
RNAV services make use of GPS as *the only means* of navigation from departure, throughout enroute operations, to approach at the destination airport.

This initiative creates an end-to-end IFR system, meeting our RNAV services goal. By using GPS avionics requirements for integrity monitoring, these departure/arrival routes can be optimized for lowest altitudes to connect city pairs.
Benefit

1. Will accrue through the application of lower MEAs and creation of new RNAV routes.

2. Allowing many flights to remain below adverse weather conditions.

3. With the use of new RNAV instrument approaches, access to area airports will increase.

4. Safety will be enhanced during these operations.
Thank You