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Agenda Item 4: Follow-up, Performance Evaluation and Monitoring of the CAR Regional Performance Based Air Navigation Implementation Plan
4.1 Progress Reports of the Task Forces of the ANI WG

PBN IMPLEMENTATION TASKFORCE PROGRESS REPORT

(Presented by the Rapporteur)

EXECUTIVE SUMMARY	
This discussion paper presents the updated progress report of the PBN Taskforce taking into consideration deliberations of the PBN Taskforce during ANI/WG/4.	
<i>Strategic Objectives:</i>	<ul style="list-style-type: none">• Safety• Air Navigation Capacity and Efficiency• Security & Facilitation• Economic Development of Air Transport• Environmental Protection
<i>References:</i>	<ul style="list-style-type: none">• Final Report of the Third ICAO/IATA/CANSO Performance-Based Navigation (PBN) Harmonization, Modernization and Implementation Meeting for the North American, Caribbean and South American (NAM/CAR/SAM) Regions, ICAO NACC Regional Office, Mexico City, Mexico, 2 to 6 July 2018.• Report of sub-project to develop and implement a Performance-Based Navigation (PBN) airspace concept document for the CAR Region, ICAO NACC Regional Office, Mexico City, May 8-11, 2018• Final report of Fifth North American, Central American and Caribbean Working Group Meeting (NACC/WG/5) Port of Spain, Trinidad and Tobago, 22 – 26 May 2017

1. Introduction

1.1 During the ANI/WG/4 Meeting, the PBN taskforce (TF) met as a Working Group Committee and discussed the following working papers/information papers:

WP/02, WP/06, WP/07, WP/26, WP/29

1.2 The PBN TF also engaged in discussion relating to issues such as:

- PBN Taskforce Terms of reference (TORs)
- PBN Taskforce Membership
- State Points of Contact (POCs) to coordinate with PBN Taskforce
- PBN Taskforce Work Programme
- Progress and activities accomplished from ANI/WG/03 to date

1.3 The Working Group Committee consisted of representatives from Antigua and Barbuda, Barbados, Cuba, Dominican Republic, Haiti, United States, Trinidad and Tobago, IATA and ICAO.

2. PBN TF Progress and results

2.1 Reports from the previous PBN Surveys conducted suggest that while the NAM Region has made substantive progress in their PBN implementation plans, there appears to be several roadblocks within the CAR region. There may also be a disconnection between reported implementation and effective implementation. Some States are yet to produce a comprehensive PBN implementation plan and in some cases, those that have submitted a plan, have found difficulty in meeting the objectives of the plan. There are also some States which have not participated in any of the previous surveys conducted by the TF.

2.2 Apart from the previously reported roadblocks such as lack of available training, lack of subject matter expertise, lack of financial and human resources, a major impediment to harmonization is the lack of coordination of PBN initiatives amongst adjacent FIRs/TMAs. Within the CAR Region especially, there are many adjoining FIRs which not only share boundaries with CAR States, but also with States from the NAM and SAM Regions. In 2017, the TF divided the CAR airspace into four (4) subsections, (E/CAR, C/CAR (East), C/CAR (West) and Central America and elected “Champions” to lead the coordination efforts. This was done with the hope that each subsection would find it easier to coordinate amongst themselves and alleviate the inherent issues that present themselves in a larger group.

2.3 In February 2018, the PBN TF Rapporteur requested updates from all members regarding the PBN implementation status from all States/Organizations within.

- RNAV 5 route implementations that have been accomplished following the last PBN Harmonization meeting (December 2016)
- Any statistics regarding fuel savings based on RNAV 5 implementation
- Any updates to PBN approaches, SIDs or STARs that have taken place since JAN 01, 2017 to date
- Any Issues States or ANSPs are still having with PBN approach design/implementation
- Any issues regarding the coordination of the RNAV 5 routes within the NAM/CAR Region
- Issues/Updates relating to reduction of longitudinal separation to 40NM GNSS

Reports were received from the Champions from the E/CAR and Central American subsections.

2.4 In April 2018, the PBN TF Rapporteur again requested status updates from all members regarding their individual PBN plans. Responses were received from Canada, Central America, Jamaica, Dominican Republic, Trinidad and Tobago (including reports from some E/CAR States) and the United States.

2.5 The reports that were received still showed that within the CAR Region, there were many coordination issues amongst adjacent FIRs and in some cases between the FIR and TMAs within. Additionally, the lack of harmonization continues to be a major issue. Some States were prepared to implement certain concepts, but there were some States which were not prepared. For example, if two FIRs are ready to implement an RNAV 5 route between city pairs, but the FIR in the middle is not capable, the route cannot be implemented.

2.6 Following several discussions between the ICAO NACC Regional Officer (ATM/SAR) and the PBN TF Rapporteur, it was decided that under the ICAO Regional Technical Cooperation Project (RLA/09/801), a project team would meet to develop a PBN Airspace Concept Document for the CAR Region. The objectives of the project were:

- To provide the minimum requirements that each State or International Organization should consider in developing their individual PBN implementation plan.
- To provide an analysis of PBN implementation within the region.
- To document reported challenges.
- To provide recommendations to assist those States/Organizations which are currently encountering difficulty in meeting PBN implementation objectives.

2.7 It was decided that since the objectives were very broad, the project would be would require a three (3) -phased process:

- Phase 1 – Concept Development
- Phase 2 – Data collection and analysis
- Phase 3 – Assessment and development of individual plans

2.8 During the first phase (Concept Development), five (5) SMEs from across the CAR Region met at the ICAO NACC Office in Mexico City, 8 – 11 May, 2018, to identify the following minimum requirements that the Region would require each State/Organization to meet:

Upper Airspace

- Implementation of RNAV 5 routes as agreed to in the Regional ANP
- Removal of conventional routes made redundant by PBN route implementation
- Implementation of RNAV 1/2 STAR/SIDs(CCOs and CDOs) to TMAs within the FIR
- Implementation of 20 NM longitudinal separation at FIR Boundaries (WHERE APPLICABLE)
- All waypoints corresponding to routes from the regional air navigation plan, published by the States in their AIP, are identical to the coordinates stored in the ICARD database.
- For oceanic airspace, use of 50 NM lateral separation.

- For oceanic airspace, use of 30 NM longitudinal and lateral separation (Where applicable)

Lower Airspace

- Implementation of RNAV 1/2 STAR/SIDs (CCOs and CDOs) to TMAs within the FIR
- Implementation of at least LNAV approaches for International Airports
- LNAV/VNAV (BARO VNAV) Approaches if analysis determines a benefit
- Implementation of RNP AR Approaches if analysis determines a benefit
- Implementation of APV (GBAS) Approaches if analysis determines a benefit

2.8 The project team also developed a new survey form to be promulgated to all States/Territories and Organizations within the CAR Region. This would be part of phase 2. The PBN TF would analyse the survey results and prepare a portfolio on each State/Territory/Organization. During phase 3, the PBN TF would work with those States/Territories/Organizations identified as having critical PBN implementation issues, to develop individual plans.

2.9 The Third ICAO/IATA/CANSO Performance-Based Navigation (PBN) Harmonization, Modernization and Implementation Meeting for the North American, Caribbean and South American (NAM/CAR/SAM) Regions was held at the ICAO NACC Regional Office, Mexico City, Mexico, 2 to 6 July 2018. This meeting had previously been rescheduled on two (2) prior occasions. First due to the unfortunate incident of the earthquake in Mexico City in September 2017 and then due to a logistical issue in April 2018.

2.10 The meeting was very productive in that the pitfalls encountered during the last Proposal for Amendment of routes were analysed and steps were taken to ensure that similar mistakes were not repeated. One of the additional steps added to the process was the requirement for each FIR/TMA representative involved in a route agreement, to verify the proposal with their signatures. It is hoped that this would alleviate the problem of States agreeing to route proposals that they were not ready and capable of implementing. During the meeting, there were thirty-four (34) agreements reached for either new, realignment or extension of RNAV 5 routes. The meeting also clearly outlined all of the steps required for the amendments to be approved and added to the Regional ANP. An implementation date of January 31, 2019 was agreed to by all for the implementation of these proposals.

2.11 During the meeting, there was a meeting between the ICAO NACC ATM/SAR RO, CANSO, IATA and the PBN TF Rapporteur to discuss the TORs of the PBN TF. It was agreed by all that there was a need for a change, both in the way the TF operated and also the composition of TF members. It was decided that this would be discussed at the ANI/WG4 meeting and that the TORs would be adjusted thereafter. It was also agreed that an ad hoc group be formed during the ANI/WG4 to analyse the PBN RPOs contained within the RPBANIP and to provide any required changes to the meeting.

3. Discussion

3.1 The WG discussed the need to amend the TORs of the PBN Taskforce to improve its effectiveness. While the taskforce had achieved some of the tasks in its work program, there were some activities that the group recognized as being outside of the scope of the task force. The taskforce has the capability to analyse the Region's PBN implementation status and provide documentation, training and

recommendations. It also has the ability to provide technical assistance to individual States/Territories/International Organizations. However, the responsibility for implementation lies with the decision makers of individual States/Territories/International Organizations.

3.2 The WG agreed that due to the fact that all members have main duties within their own organization, it is often difficult to commit the time required to attend meetings, participate in Teleconferences or even commit time to work on specific tasks. It was agreed that States which nominate persons to the TF, should ensure that the representatives are provided with the necessary time or financial resources to attend meetings or participate in TF activities.

3.3 The WG agreed that the TF should comprise of at least one representative from each Sub-region within the CAR Region, as well as a representative from the NAM Region. The TF Members should be SMEs with PBN training or experience. Additionally, the TF should contain at least one (1) Procedure Designer and one (1) airspace designer. Notwithstanding the TF members, each State/Territory/International Organization should nominate a POC who is responsible to coordinate with the PBN TF. This POC will then be responsible for internal coordination within their own Organization. The amended TORs are included as **Appendix A** to this discussion paper.

3.4 The WG also noted that there are elements within the work program that may need to be amended. However, the WG also recognized the need to re-evaluate the RPOs within the RPBANIP. It was agreed that amendments to the RPOs would drive the TF work program. The time allocated for group discussion was not enough to conduct a full evaluation to the RPOs and therefore it was decided that the TF will work on this as well as the work program and provide required updates by September 30, 2018.

3.5 The WG agreed that the Flight Procedure Program would be a benefit to the region and that the feasibility study should be conducted.

4. PBN Taskforce Recommendations

- States/Territories/Organizations should participate in the ICAO CAR Region PBN Survey and provide accurate, up to date information which would then allow the PBN TF to provide a proper analysis on their PBN implementation status.
- States/Territories/Organizations should ensure the follow-up activities required for the implementation of PBN initiatives they have agreed to.
- States/Territories/Organizations should continue to participate in the regional project to harmonize both the upper and lower level airspace routings within the NAM/CAR/SAM Region.
- The TORs and work program of the PBN TF should be amended to improve its effectiveness.

5. Draft Conclusions

DRAFT CONCLUSION ANI/WG/4/XX

EFFECTIVENESS OF PBN TASK FORCE

That,

In order to improve the effectiveness of the PBN taskforce, NAM/CAR States/Territories/Organizations should:

- a) Ensure that suitably trained/qualified personnel are nominated to be representatives on the PBN TF
- b) Ensure that appropriate resources are provided to ensure that PBN representatives to the TF are able to commit time to participate in TF activities as well as are capable of attending meetings.

DRAFT CONCLUSION ANI/WG/4/XX

ANALYSIS OF CURRENT PBN IMPLEMENTATION STATUS IN THE NAM/CAR REGION AND PROVIDING INDIVIDUAL PLANS FOR STATES/TERRITORIES/INTERNATIONAL ORGANIZATIONS

That,

In order to determine the current state of PBN implementation in the NAM/CAR Region, determine the roadblocks to implementation and identify ineffective initiatives utilized on past PBN projects;

- a) The ICAO NACC Office promulgates survey developed by the PBN TF to NAM/CAR States/Territories/ Organizations by September 30 2018;
- b) States/Territories/International Organizations provide accurate responses to the survey by December 31, 2018 and provide evidence where implementation of tasks are stated as completed;
- c) The PBN taskforce conducts analysis on each survey response and provides individual assessments to the ICAO NACC Office by April 30, 2019;

DRAFT CONCLUSION ANI/WG/4/XX

CDM WITH STAKEHOLDERS

That, in order to improve the effectiveness of the PBN Airspace implementation, NAM/CAR States/Territories/Organizations should engage in regular CDM meetings with the airline operators and other stakeholders.

DRAFT CONCLUSION ANI/WG/4/XX FEASIBILITY STUDY ON THE ESTABLISHMENT OF A FLIGHT PROCEDURE PROGRAMME (FPP) WITHIN THE NAM/CAR REGION

That,

Taking into consideration ICAO Assembly Resolution A39 – 14, where States are urged to utilize FPPs for PBN implementation, the PBN Task Force in collaboration with the ICAO NACC Regional Office should:

- a) promulgate a survey form by September 30, 2018, which seeks to identify which identifies which States/Territories/International Organizations require assistance in procedure design;
- b) identify the resources required for the establishment of a FPP within the Region; and
- c) provide a report to the ICAO NACC Office with appropriate recommendations by April 30, 2019

APPENDIX A

TASK FORCE ON IMPLEMENTATION OF PERFORMANCE-BASED NAVIGATION (PBN) AIRSPACE CONCEPT

1. *Background*

During the first ANI/WG meeting, a PBN Implementation Task Force was formed in order to streamline related air navigation implementation activities. This Task Force shall carry out specific studies to support Performance-Based Navigation (PBN) implementation in the NAM/CAR Regions in accordance with the NAM/CAR RPBANIP, as well as update and report progress to the ANI/WG based on the action plan for these tasks. During the Fourth ANI/WG meeting a decision was taken to amend the TORs with the objective of increasing the effectiveness of the PBN Taskforce.

2. *Responsibilities*

2.1 The Task Force is responsible for:

- a) Develop and implement a Work Program to support the PBN implementation in NAM/CAR Regions according with the NAM/CAR RPBANIP and RPOs.
- b) Continued refinement and ongoing review of the NAM/CAR PBN Implementation Plan and monitoring and reporting on its application in the Regions.
- c) Propose to the ANI/WG updates to the NAM/CAR RPBANIP and RPOs as required.
- d) Assisting States with the development of their PBN implementation plans, based on the PBN airspace concept, periodically monitor their progress and report to the ANI/WG.
- e) Carrying out specific studies, developing guidance material and organizing workshops and seminars to assist States with Area Navigation/Required Navigation Performance (RNAV/RNP) implementation in the en-route, terminal, and approach flight phases, taking into account the PBN concept according to the ICAO Strategic Objectives and Global Plan Initiatives (GPIs).
- f) Identifying deficiencies and constraints with PBN implementation, and propose solutions that would facilitate resolution of such problems.
- g) The Task Force Rapporteur would be appointed through coordination between ICAO NACC Office and Member States.

2.2 Responsibilities of the members

- a) Attend to the Task Force meetings and Teleconferences.
- b) Collaborate with the development and implementation of the Task Force work program.
- c) Comply with the agreed tasks and activities as assigned.

2.3 Responsibilities of the Rapporteur

- a) Lead the development and implementation of the Task Force work programme and activities.
- b) Follow up on the compliance with the RPOs.
- c) Report to the ANI/WG the compliance with the Task Force Work Programme and RPOs related tasks.

2.4 Responsibilities of the Secretariat

- a) The ICAO NACC ATM/SAR Regional Officer will serve as the Secretary of the Task Force.
- b) He/she is responsible to support the Task Force activities, providing guidance to the connection for the Task Force work program and the RPBANIP;
- c) In coordination with the Rapporteur, develop and present to the members the annual programme of activities;
- d) In coordination with the Rapporteur, convene the Task Force activities, teleconferences and meetings; and
- e) Maintain up to date the Task Force documentation, work programme and membership in the ANI/WG website information.

2.5 Responsibilities of the States

- a) Ensure commitment and active participation of its members, according to the role and responsibilities assigned.
- b) Provide resources (e.g. time/finances to attend meetings) to ensure that their representatives are able to contribute to the activities of the taskforce.
- c) Request accountability for the development and implementation of PBN work program in the NAM/CAR Region.
- d) Provide Points of Contact (POCs) to the PBN Taskforce. The PBN Taskforce will liaise with the POCs of each State regarding the activities of the TF and it is expected that the POCs will then coordinate internally with the relevant persons within their organization.

3. Membership.

3.1 The PBN Task Force shall be comprised of a Rapporteur and up to nine (9) members, nominated by ICAO States, Territories and International Organizations members of the ANI/WG. All members of the taskforce should have completed some form of PBN training and or have experience in PBN implementation.

- 3.2 The membership of the PBN Taskforce should include:
- i At least one (1) representative from the following:
 - a The NAM Region
 - b Central America Sub-region
 - c Central Caribbean Sub-region
 - d Eastern Caribbean Sub-region
 - e IATA
 - f CANSO
 - ii One (1) Procedure Designer
 - iii One (1) Airspace Designer
- 3.3 The taskforce may temporarily include other persons as required for specific tasks.

4. Working Methods

The Task Force will:

- a) Present its work programme containing activities in terms of objectives, responsibilities, deliverables and timelines.
- b) The Task Force Rapporteur and the Secretariat will coordinate an annual programme of activities to comply with the requirements of the approved work programme.
- c) Avoid duplicating work within the ANI/WG and maintain close coordination among the existing entities to optimize use of available resources and experience.
- d) Designate, as necessary, Ad hoc Groups to work on specific topics and activities and organize clearly defined tasks and activities.
- e) Coordinate tasks to maximize efficiency and reduce costs via electronic means including emails, telephone and teleconference calls, and convene meetings as necessary.
- f) Report on and coordinate the progress of assigned tasks to the ANI/WG.

Work Programme - *[Develop a separate document for the Work Programme, since the programme is a living document that will change according to the situation]*

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