



WORKING PAPER

ASSEMBLY — 40TH SESSION

EXECUTIVE COMMISSION

Agenda Item 25: ICAO Civil Aviation Training and Capacity Building

TRAINING IN THE MANAGEMENT OF PERFORMANCE-BASED NAVIGATION

(Presented by the Dominican Republic)

EXECUTIVE SUMMARY

In order to ensure effective monitoring of the implementation of Performance-based Navigation (PBN), it is essential to develop and implement a training programme enabling managerial staff of air navigation services to acquire the knowledge and skills required for PBN management. Training of the technical managers responsible for managing and overseeing PBN implementation is a key factor in ensuring that the process proceeds smoothly and accurately in order to achieve an acceptable level of safety, using the tools and procedures proposed by the International Civil Aviation Organization (ICAO). In this regard, training in PBN management seeks to develop a special curriculum providing a clear understanding of the new concepts associated with PBN in both theoretical and practical terms. It should be emphasized that the Dominican Republic is the first Spanish-speaking country to develop a standardized training package on PBN management. The main objective of this training is to enable the managerial personnel responsible for PBN implementation to develop the knowledge and skills required for:

- monitoring PBN implementation and the procedures allowing for the efficient use of airspace;
- evaluating whether such procedures are adequate and relevant having regard to the specific needs of the air navigation system and operators; and, in addition, evaluating whether such procedures can be improved;
- measuring operators' satisfaction with the impact of the procedures in terms of safety, efficiency, investment of resources, adaptability and competitiveness;
- evaluating the capacity of the air navigation system and the State with respect to the redesign of airspace and the possible introduction of improvements resulting from implementation; and
- verifying compliance of air operators with the requirements for PBN operations laid down in local regulations.

Action: The Assembly is invited to:

- a) analyse and endorse the content of this working paper;
- b) instruct the Secretary General to draft and promote the development of other guidance materials on PBN management;
- c) give priority to training in PBN management as a tool for promoting and strengthening aviation safety in air navigation systems worldwide, thereby ensuring successful monitoring of PBN implementation; and

¹ Spanish version provided by the Dominican Republic.

d) include the need for PBN management training in processes linked to change management.	
<i>Strategic Objectives:</i>	This working paper relates to Strategic Objectives: a) Aviation Safety; b) Air Navigation Capacity and Efficiency; and c) Environmental Protection.
<i>Financial implications:</i>	N/A
<i>References:</i>	Standardized Training Package (STP) PBN Management <i>Performance-based Navigation (PBN) Manual</i> (Doc 9613), Fourth edition – 2013 <i>Global Air Navigation Plan</i> (Doc 9750), Fifth edition - 2016 Caribbean and South American (CAR/SAM) Air Navigation Plan, Vol. I, 13/04/2016

1. INTRODUCTION

1.1 The air transport industry plays an important role in the economic activity of the Dominican Republic and, as a key element in the world economy, continues to be one of the fastest growing sectors. One of the keys to maintaining the vitality of civil aviation is to ensure that there is a navigation system at the international, regional and national levels that is safe, protected, efficient and environmentally sustainable. This requires the establishment of an air traffic management system that makes for the optimum use of the improved capacities resulting from technical advances.

1.2 The efforts of ICAO to satisfy the requirements of the air transport industry and international civil aviation have made possible the development of the Global Air Navigation Plan, taking into account the operational concept and the objectives of the organization that facilitate global planning of the air traffic management (ATM) system as a part of the evolving process relating to the concept of technology-based communications, navigation, and surveillance (CNS) and ATM systems.

1.3 The complexities of Caribbean airspace are unique. Occupying a highly strategic position at the confluence of air traffic services (ATS) routes that connect major destinations, the airspace has become a vital nexus for the homogeneous traffic between the main airspaces in the CAR and North American (NAM) regions.

1.4 In this connection, ICAO has developed a Regional PBN Implementation Plan for the NAM/CAR region, which is in line with the Global Plan Initiatives (GPI) of Doc 9750 and the ICAO vision for an integrated, harmonized and interoperational ATM system, as set forth in the *Global Air Traffic Management Operational Concept* (Doc 9854).

1.5 The Academia Superior de Ciencias Aeronáuticas (ASCA), in support of global plans to improve the efficiency and safety of civil aviation and air navigation systems, provides training for the technical personnel of the Instituto Dominicano de Aviación Civil (IDAC) and other organizations in the region, in line with its strategic objectives. As part of these initiatives, a standardized course was developed on “Performance-based Navigation (PBN) Management”, with the aim of ensuring that the administrative staff of air navigation services acquire the knowledge and skills required for the management of PBN, as called for in ICAO Doc 9613 and regional agreements.

2. DISCUSSION

2.1 The managers responsible for the management of PBN, who thereby are involved in activities connected with already implemented aspects of PBN, in many cases do not have defined in their functions the skills relating to the tasks inherent in their job profiles. In addition, since they have not received specific standardized training relating to PBN management, these managers are not using the appropriate PBN tools when managing projects that are under way or the new specifications that emerge in the context of already implemented PBN.

2.2 The problems that arise from the situation described above can lead to inefficient monitoring of already implemented PBN. Managerial personnel who lack sufficient knowledge of a topic as sensitive as this jeopardize the achievement of the objectives pursued by PBN implementation, such as reduction of airspace saturation, reduction of aircraft flight time, and reduction of Carbon Dioxide (CO₂) emissions.

2.3 It has been noted that some authorities in our regions fail to give sufficient priority to the importance of efficient PBN management and that there is no national policy encompassing the necessary requirements for PBN management integrating all industry stakeholders affected by the implementation of this navigation system. Similarly, there is no systematic standardized training programme for personnel involved in the management of implemented PBN.

2.4 Airspace in which PBN is not adequately managed is airspace in which navigation and air traffic management occur in a disorganized manner, in which the routes in use are not efficient owing to their design, which is determined by existing radio navigation aids and area navigation (RNAV) procedures and routes that do not satisfy users.

2.5 The Dominican Republic is the first Spanish-speaking country to develop a standardized training package on PBN management. This STP will provide the means for technical managers of air navigation services in the regions who are involved in the implementation of the PBN Regional Plan to acquire the knowledge, skills and attitudes that create the competencies necessary for the efficient management of performance-based navigation in diverse airspaces.

2.6 The main objective of the training is to enable the managerial personnel responsible for PBN implementation to develop the knowledge and skills required for:

- a) monitoring PBN implementation and the procedures allowing for the efficient use of airspace;
- b) evaluating whether such procedures are adequate and relevant having regard to the specific needs of the air navigation system and operators; and, in addition, evaluating whether such procedures can be improved;
- c) measuring operators' satisfaction with the impact of the procedures in terms of safety, efficiency, investment of resources, adaptability and competitiveness;
- d) evaluating the capacity of the air navigation system and the State with respect to the redesign of airspace and the possible introduction of improvements resulting from implementation; and
- e) verifying compliance of air operators with the requirements for PBN operations laid down in local regulations.

2.7 Given that the NAM/CAR Regional Performance-based Air Navigation Implementation Plan (RPBANIP) of 16 May 2018 states that "Performance-based navigation (PBN) is the highest ICAO

implementation priority”, appropriate training of managerial staff and all closely involved in policy regarding monitoring of PBN implementation is important, bearing in mind that such personnel tend to be changed with some regularity and are replaced by others; a training programme for those who have recently taken up such managerial-level posts ensures follow-up and monitoring of PBN objectives.

2.8 The training programme designed by the Academia Superior de Ciencias Aeronáuticas is geared to compliance with the Regional Performance Objectives set out in Appendix A of the RPBANIP, namely: (a) implement Collaborative Decision-Making (CDM) process and PBN approval training in coordination with stakeholders; and (b) develop and implement PBN training programme for pilots, Air Traffic Control Officers (ATCOs), operators and regulators, as well as implementation of Global Navigation Satellite System(s) (GNSS) technologies”.

2.9 Airspace increasingly requires not only PBN implementation but also genuine management of that implementation, given that the forecast is for air traffic to grow to more than 3.7 million movements in 2031, reflecting an average annual growth rate of 4.5% (on routes between North America and CAR/SAM) and 8% (between South America and Central America/the Caribbean).

3. CONCLUSION

3.1 Civil aviation authorities should give consideration to the standardized course in PBN management that we are proposing in respect of training of air navigation services managerial staff as the most efficient response to the current challenges of PBN implementation. This requires that aviation authorities hold the firm conviction that the human factor plays a leading role in any aviation strategy.

3.2 The success of implementation programmes in improving aviation depends in large measure on training the human factor. Such training must be carried out with teaching materials designed in accordance with the highest standards of quality and ICAO guidelines, having regard to the organization’s strategic objectives. It is with this in mind that ASCA has undertaken the preparation of this standardized course on PBN management.

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