



WORKING PAPER

ASSEMBLY — 40TH SESSION

TECHNICAL COMMISSION

Agenda Item 30: Other issues to be considered by the Technical Commission

AVIATION SAFETY FOR TURBOPROP OPERATIONS

(Presented by the International Coordinating Council of Aerospace Industries Associations (ICCAIA), the International Air Transport Association (IATA), the International Business Aviation Council (IBAC) and the International Federation of Airline Pilots Associations (IFALPA))

EXECUTIVE SUMMARY

Regional connectivity opens economic development opportunities, boosts tourism and promotes better access to education, health and culture. Interlinking secondary and tertiary cities allows every community to be connected, and benefit from world economic growth, and may be a factor in sustainable development. Turboprop airplanes provide an increasingly efficient means to meet this need. Nevertheless, despite noticeable improvements, the safety record of turboprop operations is not equivalent to the safety performance achieved by other segments of the overall industry. ICAO, national civil aviation authorities (CAAs), aviation industry, and other civil aviation stakeholders should place a high priority on their collaborative work to improve safety operations in the regional turboprop segment.

Action: The Assembly is invited to:

- a) request ICAO to place turboprop operational safety as a high priority in its work programme;
- b) request the Council to urge member States to work with their air navigation service providers to establish instrument flight procedures with vertical guidance (ground or satellite based) at airports that serve commercial operations; and
- c) request the Secretary General to further engage with all stakeholders to analyse available data so that its future work on improving regional turboprop operations can be focused on the areas where most benefit would be gained.

<i>Strategic Objectives:</i>	This working paper relates to the Safety, Air Navigation Capacity and Efficiency and Air Transport development Strategic Objectives.
<i>Financial implications:</i>	The activities referred to in this paper will be subject to the resources available in the 2020-2022 Regular Programme Budget and/or from extra budgetary contributions.
<i>References:</i>	Doc 10115, <i>Report of the Thirteenth Air Navigation Conference (AN-Conf/13)</i> , Corrigenda Nos. 1 and 2, and Supplement No. 1 Doc 10075, <i>Assembly Resolutions in Force (as of 6 October 2016)</i>

¹ English, Arabic, Chinese, French, Russian and Spanish versions provided by ICCAIA.

1. INTRODUCTION

1.1 According to the United Nations, as of 2018, fifty-five percent of the world's population lived in urban areas; a proportion that is expected to increase to sixty-eight percent by 2050. Projections show that urbanization, the gradual shift in residence of the human population from rural to urban areas, combined with the overall growth of the world's population could add another 2.5 billion people to urban areas by 2050, with close to 90 per cent of this increase taking place in Asia and Africa. Transport will be essential to reducing the congestion and stress on major urban areas. The availability of rapid and efficient air transport could figure prominently in urban development by offering businesses the opportunity to establish offices outside of major urban areas whilst retaining quick access to those major urban centres.

1.2 Regional connectivity opens economic development opportunities, boosts tourism and promotes better access to education, health and culture. Interlinking secondary and tertiary cities allows every community to be connected and benefit from world economic growth and may be a factor in sustainable development. Turboprop airplanes provide an increasingly efficient means to meet this need. While turboprop operational safety has improved markedly, in comparison to jet operations, further improvement is needed for this segment to meet its full potential.

1.3 The demand for regional markets served by turboprop airplanes in developing States is growing at a rapid pace. Emerging markets have shown a 4.6 per cent growth in capacity since 2011. This is notably driven by growing markets in China and India. Half of the growth of turboprop operations is driven by the creation of new routes as part of airlines' network development strategy. The other half relates to the expanded usage of the turboprop technology in pre-existing segments.

2. DISCUSSION

2.1 Industry, ICAO and IATA data suggests that turboprop regional operations have a higher accident rate than jet operations. It should be noted that turboprop airplanes are certified to the same airworthiness standards as jet airplanes. Thus, a thorough analysis of all available operational data for regional operations is required to determine the root causes of the apparently higher accident rates for regional turboprop operations compared to jet operations. The analysis should consider the generally shorter flight times of turboprops compared to jets. The result of these shorter flight times is that a higher percentage of the flight time for turboprops is associated with critical flight phases (i.e. take-off and landing) compared to jets.

2.2 It will be crucial that ICAO, national CAAs, aviation industry, and other civil aviation stakeholders collaborate to improve the safety of operations in the regional turboprop segment, and develop practical and sustainable policies, approaches, and measures to improve safety, including in the area of training, infrastructure and oversight capacity-building. Given the interdependence of the various parts of the global civil aviation eco-system, close coordination is essential to address these challenges.

2.3 The available statistics justify that turboprop operational safety be afforded a high priority in the international civil aviation community. However, further analysis of this data is needed. A data-driven approach, combining the inputs of all stakeholders is needed, to ensure that efforts made to improve turboprop operational safety are targeted and appropriate to the need. ICAO and the industry currently possess a plethora of data. However, this data will require disaggregation and further analysis to contribute to such a community effort. The industry is prepared to assist ICAO through the provision of data and to participate in the data analysis.

2.4 Runway safety and controlled flight into terrain account for a high percentage of accidents in scheduled commercial operations. One of the mitigations available for these high-risk accidents is the availability of instrument approaches with vertical guidance. Regional turboprop operations frequently serve less developed airports that have limited infrastructure including instrument approach guidance. Performance-based navigation (PBN) uses satellites and PBN-compliant on-board equipment for navigation purposes. PBN approaches do not require large investments in ground-based navigation aids (purchase plus maintenance) and the safety benefits are unquestionable. In addition, PBN allows increased airspace capacity, improves operational efficiency, and reduces environmental impact. States should be urged to work with their air navigation service providers and air operators to design and approve approach procedures, with vertical guidance, as soon as practicable at airports serving commercial air operations. Further analysis on loss of control in flight accident data will also be needed to address any specific needs in the turboprop segment.

3. CONCLUSIONS

3.1 Regional connectivity opens economic development opportunities, boosts tourism and promotes better access to education, health and culture. Interlinking secondary and tertiary cities allows every community to be connected, and benefit from world economic growth, and may be a factor in sustainable development. Turboprop airplanes provide an increasingly efficient means to meet this need. Nevertheless, the safety record of turboprop operations may lag behind the safety performance achieved by other segments of the overall industry. It will be crucial that ICAO, national CAAs, aviation industry, and other civil aviation stakeholders place a high priority on their collaborative work to improve the safety of operations in the regional turboprop segment.

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