International Civil Aviation Organization

WORKING PAPER

A40-WP/370[1]
TE/160
9/7/19
(Information paper)
English and Spanish only

ASSEMBLY — 40TH SESSION

TECHNICAL COMMISSION

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

NATIONAL AVIATION SAFETY RISK MANAGEMENT: METHODOLOGY FOR DETERMINING RISK AREAS

(Presented by the Dominican Republic)

EXECUTIVE SUMMARY

The *Global Aviation Safety Plan* (GASP, Doc 10004) sets out the objective of implementing and developing national aviation safety programmes that contain procedures for risk management and safety assurance in order to build a solid foundation of quantitative data and reliable qualitative information for strategic risk-based decision making and appropriate allocation of optimized safety resources.

Efforts must therefore focus on the planning and implementation of risk management processes and the monitoring of safety performance in order to meet States' concerns. The process is not, however, free of challenges, particularly in regard to the development of procedures and methodologies to make good use of available national safety data infrastructure.

This paper outlines the process that is being formulated by the Civil Aviation Authority of the Dominican Republic to comply with the provisions and stresses the importance of validating such procedures before making changes to conventional oversight methods in accordance with GASP objectives.

Strategic Objectives:	This paper relates to the Safety Strategic Objective.
Financial implications:	Not applicable.
References:	Global Aviation Safety Plan (Doc 10004) Annex 19 — *Safety Management* *Safety Management Manual* (Doc 9859)

1. INTRODUCTION

1.1 Undoubtedly, efforts made and action and measures taken to reduce continually the number of fatalities and the risk of occurrence of aviation accidents and incidents show that ICAO, States, service providers and the various aviation stakeholders give maximum priority to aviation safety. However, the determination of so many measures notwithstanding, total elimination of aviation accidents and incidents is an unattainable goal.

[1] Spanish version provided by the Dominican Republic.

1.2 The risk-free system approach has been moving towards being centred on safety-risk management based on resource allocation that strikes a balance between the two Ps, namely “production” and “protection”.

1.3 In accordance with GASP requirements, States must implement and develop a State safety programme (SSP) in order to take a preventive approach to national aviation safety oversight and safety risk management, which undoubtedly implies better use of the often limited resources available to aviation authorities. This raises the question of which effective risk assessment methodology should be adopted by States in order to ensure prioritization of major risk areas, and of whether the methodology ensures analysis of lower risk areas.

1.4 Doc 9859 proposes some standard safety risk assessment methods, but those techniques do not contain procedures for quantitative risk assessment, since each State is required to adapt to their complexity and requirements in particular; for this reason, the State’s risk assessment procedures in terms of probability and severity must be introduced concurrently with robust and validated methodologies in order to ensure data-driven, rather than subjective, decision making.

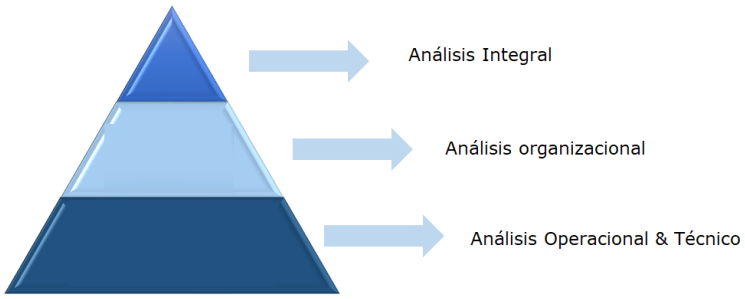
1.5 The approach currently followed in the Dominican Republic in implementing this process is set out below.

2. NATIONAL RISK MANAGEMENT IN THE DOMINICAN REPUBLIC

2.1 In implementing a national safety programme, States must acquire data and information that can have an influence on safety. Accordingly, one of the first steps taken by the Dominican Republic was to develop a database drawing on various sources, both internal and external, as reported at the Thirteenth Air Navigation Conference in working paper AN-Conf/13-WP/148.

2.2 Organizations’ risk profiles are generated simultaneously and they contain information on audit and inspection findings, related safety events, data on key safety staff, operations and various critical operational and organizational information.

2.3 In implementing this process, a risk pyramid, drawing on various indicators, was developed as a tool that facilitates decision making as shown below:



Legend: Análisis integral = Comprehensive analysis; Análisis organizacional = Organizational analysis; Análisis operacional y técnico = Operational and technical analysis.

2.4 Operational and technical analysis rests on procedures developed to assess a given service provider's risk profile, which are based on indicators that show, by type of aircraft (aircraft and design), the volume of activity, inspection and audit findings (number and severity of discrepancies) on aspects such as operations, airworthiness, ramp inspections, time period for discrepancy closure, number of deferred defects, number of extended maintenance tasks, sustained or connected accidents and incidents, reporting culture and capacity to manage inherent operational risks.

2.5 Organizational analysis entails an assessment of aspects relating to the way in which the service provider manages the staff and financial profitability, as it has been determined that safety levels may ultimately deteriorate when a service provider is in a difficult financial situation.

2.6 Comprehensive analysis involves an overall assessment of the above-mentioned aspects by means of a comparative risk map, so that measures can be taken nationally against the identified risk.

2.7 The national risk management workflow is detailed below.

Process Activity	**Process Description**
Identification of safety hazards and of existing controls	*In this step, trends in the Safety Report are analysed in order to identify systemic and intersectoral risks and thus address the State's aviation safety concerns and make determinations on existing controls.*
Safety risk assessment	*In this step, the Safety Review Committee (CRSO) is convened to determine the probability of consequences arising and the severity of likely consequences by means of probability and severity tables; consideration is given to their adaptation to the actual situation in the State.*
Determination of risk tolerability and definition of mitigation strategies	*In this step, the risk level obtained is determined. If the risk outcome is Tolerable or Not Tolerable, a strategy is defined for proposal in determining controls consistent with the risk level, taking into account the pyramid described above.* *If the risk level is Acceptable, it is recorded in the State risk matrix.*
Risk assessment outcome	*In this step, the behaviour of the defined and approved control is evaluated, by verifying probability and/or severity, as well as the risk level and the tolerability index.*

3. CONCLUSION

3.1 In the implementation and development of a State safety programme, each State must introduce procedures that make it possible to manage its risks and prioritize its areas of greatest risks. The methodology that a State develops and implements for these procedures is therefore crucial, for, if it is not designed properly, available resources could be used inappropriately and, more worryingly, deterioration in areas that could reduce States' safety levels might be ignored.

3.2 The Assembly is invited to:

a) request ICAO to provide information on the risk management and assessment methods used in Member States and on the experience thus gained in order to unify the particular concepts and approaches of various Member States and draw up relevant guidance texts to enable them to take a scientific and standardized approach to the implementation of these processes; and

b) analyse the content of this paper in order to assess the possibility of requesting ICAO to organize training, experiential exchanges and fora on the subject in order to guide Member States in this task.

— END —