International Civil Aviation Organization
Second Meeting of the Regional Aviation Safety Group (RASG-PA/02)
Bogota, Colombia, 3 to 6 November 2009

Agenda Item 7: NAM/CAR/SAM Sub-Regional Flight Safety Initiatives

ALIGNMENT OF SAFETY ENHANCEMENT INITIATIVES (SEIs) AGAINST INCIDENT/ACCIDENT DATA

(Presented by the United States)

SUMMARY	
This working paper presents a proposal for the use of available safety enhancements based on accident/incident data obtained from the Pan American Region.	
Strategic Objectives	*This working paper is related to Strategic Objective A.*

1. Introduction

1.1 Analysis of accidents and incidents provides a historic study of data that enables the development of risk mitigation strategies that can be used to reduce/eliminate future events. Many sources of data exist, thus it is important to define the predominant threats and to target safety initiatives against those threats.

1.2 Economic considerations also have to be considered when deciding what mitigations are to be used against identified risks. For this reason, a regional safety plan must be developed to not only utilize strategies that minimize risk, but also keep financial considerations at the forefront as well.

2. Definition of the Problem

2.1 There are many sources of aviation safety data, but in order to provide the information that is needed, the data needs to be categorized and processed using ICAO common taxonomy. The aviation category to be targeted also has to be defined. Are we looking at commercial operators only, all operators, large transport aircraft, VFR as well as IFR operations, etc? A strategy that may be useful for commercial operators may not be useful or economically feasible for all operators. Additionally, standardization IAW ICAO SARPS is an additional consideration when considering any risk mitigation activities.

3. Analysis

3.1 The three primary risk factors for fatal accidents in the NAM/CAR/SAM regions are:

1) Runway Excursions (RE)
2) Controlled Flight into Terrain (CFIT)
3) Loss of Control, In-flight (LOC)

3.2 Implementation of safety mitigation strategies against these three areas should be a priority in the development of a regional plan. Additional risk areas certainly exist and should be addressed if feasible, but the initial focus should be on the top three areas.

3.3 A traditional method in the development of mitigation strategies is to develop problem statements based on accident and incident data. After that is accomplished, risk analysis of the problems is undertaken to ensure that any developed strategies will work as designed and that actions taken are economically feasible based on the risk. Safety enhancements to target the known risk are then constructed for implementation. This entire process may take years to accomplish, thus consideration should be given to use proven strategies that already exist. Individual airlines, the FAA, EASA, Boeing, Airbus, the Flight Safety Foundation and the Commercial Aviation Safety Team (CAST) all have safety strategies developed based on extensive data studies. The RASG-PA should examine these enhancements for possible use within the region.

3.4 The data presented below is an attempt to align known safety mitigation strategies against the primary risk factors within the region. Many more mitigations exist, thus this is merely a starting point for building a regional plan.

Runway Excursions (RE)

Boeing; Landing on Slippery Runways
Flight Safety Foundation; Runway Excursion Toolkit
Flight Safety Foundation; Approach and Landing Accident Reduction (ALAR) Toolkit
Airbus; Tools for Landing Distance Determination
FAA Advisory Circular; AC 121-195-1A, Landing on Wet Runways
FAA Advisory Circular; AC 120-71A, SOPS for pilots (Appendix 2, Stabilized Approaches)

Controlled Flight into Terrain (CFIT)

CAST; Numerous CAST Safety Enhancements have been developed;
SE-1, Implementing TAWS
SE-2, SOPs for Flight crews
SE-9, MSAW for Air Traffic Controllers
SE-10, FOQA and ASAP programs
SE-11, CRM Training for Pilots
SE-12, CFIT Training for Pilots

Boeing, CFIT Training for Pilots
Flight Safety Foundation, ALAR Toolkit
Honeywell, Stabilized Approach Monitor for Pilots

Loss of Control, In-Flight (LOC)

CAST; Numerous CAST Safety Enhancements have been developed
SE-26, SOPs for Pilots
SE-27, Risk Assessment for Pilots
SE-28, Policies and Procedures
SE-30, Human Factors/CRM for Pilots

Boeing, Airplane Upset Training
Airbus, Abnormal Aircraft Operation

4. Conclusions

4.1 Significant data exists for the Pan American Region that enables the determination of predominant risks that should be considered for mitigation in a regional safety plan. The listing above is only a start at identifying possible actions as many additional strategies may exist for consideration.

5. Actions

5.1 The RASG-PA is invited to form a working group to further analyze the data and safety enhancements and propose an action plan for implementation.

5.2 This document should be updated on a routine basis with additional enhancements from all sources. Data collection and analysis should also be an ongoing task within the region to ensure that safety risks are being identified and appropriate actions are being taken to mitigate those risks.

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