



International Civil Aviation Organization

**First Meeting of the Asia Pacific - Safety Reporting and Programme
Ad hoc Working Group (AP-SRP AWG/1)**

(Bangkok, Thailand, 13 - 15 June 2012)

Agenda Item 2: State's Safety Reporting and Information Management

2A ICAO and States' Requirements of Safety Reporting

2B State's Safety Data Collection and Analysis

REGIONAL MECHANISM TO LEVERAGE SAFETY DATA

(Presented by the Secretariat)

SUMMARY

This paper presents a proposal for the effective use of safety data available from different sources to assist RASG-APAC in making data driven decisions as recommended by the ICAO Global Aviation Safety Plan (GASP).

This paper is related to the following objectives of the GASP Global Safety Initiative (GSI) 3 – *Effective Errors and Incidents*:

Objective 3 - Collate Regional Safety Data

Objective 4 - Implement International Sharing of Data/Global Data Reporting System.

It is also related to GSI 12 - *Use of Technology to Enhance Safety*; Best Practice (BP) 12 a-1-a Establish data-driven, prioritized list of known and highly likely regional aviation safety threats; and BP 12 a-1-b *Use consensus-based process to provide qualitative threat assessment as appropriate*.

1. INTRODUCTION

1.1 “In many ways, aviation is data rich but still information poor. ICAO and other external sources collect vast amounts of data but, until now, the aviation community as a whole has not spent an equal amount of energy on the analysis of and derivation of practical intelligence from this data. In the past this has generated situations where programmes have been launched that were founded as much on opinion as on the actual information that was available, which can have a negative impact on resource allocation and essentially means that our safety dollars are not being as well spent as they might be” (ICAO Journal Vol. 63, Number 5, 2008).

1.2 The First Meeting of the Regional Aviation Safety Group (RASG-APAC) in October 2011 adopted the organizational structure and terms of reference (TOR) of the Asia Pacific Regional Aviation Safety Team (APRAST) and its Ad hoc Working Groups, i.e. the APRAST Accident Investigation Ad hoc Working Group (APRAST-AIG AWG) and the Asia Pacific-Safety Reporting and Programme Ad hoc Working Group (AP-SRP AWG). The TOR of the AP-SRP AWG, is in Attachment A for ease of reference.

- 1.3 Based on the TOR, the purpose of the AP – SRP AWG is as follows:
- Gather safety information from different available sources to determine the main aviation safety risks in the Asia and Pacific Regions;
 - Develop and organize an Annual Safety Report in three main Sections, one for each safety information category i.e. a) Reactive Information; b) Proactive Information; and (c) Predictive Information;
 - Based on the risk areas identified in the annual report, make recommendations to the RASG-APAC, through the APRAST, for safety enhancement initiatives; and
 - Prepare a draft progress report to the ANC based on the Annual Safety Report, the safety enhancement initiatives and detailed implementation plans.

2. DISCUSSION

2.1 The ICAO SARPs and State's Safety Data Collection and Analysis

2.1.1 Annexes 1, 6, 8, 11, 13 and 14 include the requirement for States to establish a State Safety Programme (SSP), in order to achieve an acceptable level of safety (ALoS) in civil aviation. The ALoS related to an SSP must be developed based upon a judicious combination of safety measurement and safety performance measurement. Information for safety performance and monitoring comes from a variety of sources.

- 2.1.2 Basic building blocks underlying the process of managing safety include:
- Acquiring safety data on hazards that allow for measurement to take place. Most of such data will be acquired through voluntary and self-reporting by operational personnel. It is essential therefore to develop working environments where effective safety reporting by operational personnel takes place;
 - Continuous monitoring through systems that collect safety data on hazards during normal operations. Beyond safety data collection, organizations must analyse and extract safety information and safety intelligence from data; and
 - Sharing safety lessons learned and best practices through the active exchange of safety information.

2.1.3 The ICAO Safety Management Manual (Doc 9859) states that mature safety management requires the integration of *reactive, proactive and predictive safety data* capture systems. In terms of safety data acquisition, the accident and serious incident investigation process is reactive while safety data from low-severity events collected through mandatory and voluntary reporting programmes, safety audits and safety surveys are proactive. Predictive safety data collection systems are essentially statistical systems, whereby a considerable volume of operational data, which alone are largely meaningless, are collected and analysed, and combined with data from reactive and proactive safety data collection systems. Hazard reporting systems, flight data analysis and normal operations monitoring are examples of predictive navigation aids.

2.1.4 While the analysis of accidents is inherently reactive, even so, it is absolutely essential that the lessons learned from these accidents remain at the forefront of safety enhancement activities. Analysis of recent accidents in regions with poorer safety records show that nearly all were caused by previously well understood factors with equally well-understood mitigating actions.

2.1.5 In recent years, the availability of technological means has led to an accelerated development of safety data collection and processing systems or SDCPS. SDCPS are vital to safety management and generate information that is used to implement corrective safety actions and on-going strategies.

2.1.6 Currently, certain entities in industry are striving to take a more prognostic or predictive approach to risk assessment. This requires more innovative safety-related data collection and analysis approaches. An example is the formulation of safety strategies with the use of some existing programs, such as Flight Data Analysis (FDA) – Flight Data Monitoring (FDM) – Flight Operations Quality Assurance (FOQA) programs. Other examples include those from auditing programs such as the ICAO Universal Safety Oversight Audit Program (USOAP) and IATA’s Operational Safety Audit (IOSA).

2.2 Case for a Regional Safety Reporting Entity/Mechanism

2.2.1 Objective 3c of the Global Aviation Safety Roadmap highlights that in many States the level of collecting safety data is too low to permit reliable safety analysis. In addition, it is more difficult to establish an open reporting system in smaller States where the aviation community is made up of a small group of individuals who know each other personally. The collation of data at the regional level overcomes this problem. Moreover, many of the safety problems are regional in nature and are best addressed at the regional level.

2.2.2 BP 3c-1 to 4 (*Global Aviation Safety Roadmap Best Practices and Metrics*) calls for an entity to be designated in each region as the focal point for collating safety data from States and industry stakeholders using common methodologies; to analyze and to take action at regional and State level to correct deficiencies; and to categorize the safety data on the ICAO based common taxonomy.

2.2.3 BP 12a-1 calls for the establishment of a data-driven, prioritized list of known and highly likely regional aviation safety threats and for a consensus-based process to provide qualitative threat assessment, as appropriate, and defines metrics as “Data-driven current list of prioritized regional safety threats.”

2.3 Sources of Safety Data

2.3.1 Accident rate data represents a reliable source for measuring safety performance. There are several excellent sources of accident rates which are maintained throughout the aviation industry, and should be considered a vital component to any risk measurement effort. For example:

- ICAO’s report of the Council;
- The International Air Transport Association (IATA) also publishes its annual Safety Report;
- Boeing also publishes annual hull-loss based industry-wide accident statistics that reflect differences in regional accident rates; and
- Other global accident data capture and analysis programs exist. Some States endeavor to measure their own safety performance in order to shape their national programs. One such example is the Safety Plan 2006/2007 – 2010/11 prepared by the United Kingdom (UK) Safety Regulation Group.

2.3.2 Currently, as a result of a memorandum of cooperation between ICAO and IATA, data collected from IOSA and USOAP programs, along with other forms of safety intelligence, can now be shared between these international organizations as appropriate. ICAO has entered similar cooperation and sharing agreements with the European Civil Aviation Conference (ECAC), the European Aviation Safety Agency (EASA) and Eurocontrol.

3. CONCLUSION

3.1 Most States will have some basic safety management activities in place, at different levels of implementation and with different degrees of effectiveness. These activities may include inspections and audits reports, analysis of information from accident reports and incident investigations, and employee reports. Sharing safety lessons learned and best practices through the active exchange of safety information is a critical building block for managing safety.

3.2 Safety data statistics maintained by ICAO, IATA, CAST, ALTA and BOEING etc. would be a valuable source and tool to identify the top most safety issues in the region.

3.3 While at present there are many sources of safety data; however, in order to provide valuable information this safety data needs to be categorized and processed using ICAO common taxonomy.

3.4 RASG-APAC needs to take an aggregated approach to risk assessment, which requires an innovative safety-related data collection and analysis approach to formulate safety strategies. The aggregation of safety data thus leads to the development of a most complete intelligence that will allow the Asia and Pacific Regions to navigate around obstacles.

3.5 Using data from a number of existing sources (ICAO USOAP, IATA IOSA, safety deficiencies identified by PIRGs or other sources, analysis of available safety data) or from the detailed knowledge derived from knowledgeable experts, AP-SRP AWG should reach consensus on the top aviation safety hazards for the Asia and Pacific Regions to develop action plans to mitigate risks.

4. ACTION BY THE MEETING

4.1 The meeting is invited to:

- a) take note of the information contained in this paper; including
- b) note the establishment of a regional entity as the focal point for collating safety data from States and industry stakeholders; and
- c) consider the different sources of safety data and how to leverage the incredibly valuable safety data at its disposal.

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ATTACHMENT A

TERMS-OF-REFERENCE

**ASIA PACIFIC – SAFETY REPORTING AND PROGRAMME AD HOC WORKING GROUP
(AP–SRP AWG)**

A) Purpose of the AP – SRP AWG:

- Gather safety information from different available sources to determine the main aviation safety risks in the Asia and Pacific Regions;
- Develop and organize an Annual Safety Report in three main Sections, one for each safety information category:
 - a) Reactive Information;
 - b) Proactive Information; and
 - c) Predictive Information.
- Based on the risk areas identified in the annual report, make recommendations to the RASG-APAC, through the APRAST, for safety enhancement initiatives; and
- Prepare a draft progress report to the ANC based on the Annual Safety Report, the safety enhancement initiatives and detailed implementation plans.

B) Membership:

- RASG-APAC Partners.

C) Roles and Responsibilities:

- ICAO HQ – Support;
- ICAO APAC Regional Office – Support; and
- Workgroup Partners – Provide technical expertise and collaborate in the development of material as requested by APRAST.

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