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ASIA AND PACIFIC REGIONS**

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**AGENDA ITEM 6: TECHNICAL AND REGIONAL  
COOPERATION**

**TRANS-TASMAN APPROACH TO SECTOR RISK PROFILING**

(Presented by Australia and New Zealand)

**INFORMATION PAPER**

**SUMMARY**

Australia and New Zealand have embarked on Sector Risk Profiling (SRP). SRP is a method of identifying, understanding, and addressing risks within a sector. The exercise to complete a SRP involves collaboration, sector engagement and consultation, and data collection and analysis. Australia and New Zealand are sharing their approach to their SRPs, in hopes that this will be helpful for other States embarking on similar risk profiling activities.

## TRANS-TASMAN APPROACH TO SECTOR RISK PROFILING

### 1. INTRODUCTION

1.1 Australia and New Zealand have individual State Safety Programmes (SSP) that set out specific safety activities each State will perform in order to meet their ICAO responsibilities concerning the safe and efficient performance of aviation activities. The SSP has a monitoring and governance framework for addressing safety risk entrusted to the Civil Aviation Safety Authority (CASA) and the Civil Aviation Authority of New Zealand (CAANZ), respectively.

1.2 Within these safety management frameworks, sector risk profiling is a principal element which attempts to produce a picture of the risks likely to impact a group of similar aviation activities and services, so that the regulator and participants can target activities and resources to minimize risk.

1.1 CASA and CAANZ started sector risk profiling in 2012 and 2013 respectively with the agricultural sector, and recently initiated sector risk profiling for the medium and large air transport sectors.

1.2 This paper shares the Trans-Tasman approaches and methodologies to sector risk profiling, including demonstration of the challenges and opportunities, which other States may find useful if embarking on similar exercises.

### 2. DISCUSSION

#### *About Sector Risk Profiles (SRP)*

2.1 SRP uses quantitative and qualitative methods to capture the knowledge, experience and perceptions of key stakeholders about the underlying influences on safety within particular sectors. The resulting mix of fact and opinion is combined with evidential data, such as industry studies and demographics, to give the most comprehensive and accurate sector profile possible.

2.2 A SRP is developed most effectively when it is forward-looking and collaborative in nature, thereby including:

- Data collection and analysis;
- Teams of subject matter experts from functional areas within the aviation authority;
- Workshops with sector participants to identify risks, causes of risks, and development of a sector risk register with safety initiatives if required;
- Ongoing monitoring of sector safety performance with safety performance indicators; and
- Frequent safety performance information shared with sector participants to update the profile.

#### *The SRP methodology*

##### Data collection

2.3 International and domestic aviation safety data is obtained from several sources for input into the SRPs. For the large aircraft SRP, CASA developed a “state of the sector” document, compiling all the available data and analysis of the occurrences reported to, and investigated by, the Australian Transport Safety Bureau (ATSB). The CAANZ, with a much smaller dataset, elected to survey the participants in the sector, gathering the “five key or emerging risks” across six different aspects of the sector: aircraft, systems and technology; personnel; airports and ground-based infrastructure; airspace and air traffic management; rules and regulations; and organizational culture and procedures.

2.4 On reflection, the SRP teams of both agencies agreed that, in future, a combination of these approaches would lead to effective preparation for risk profiling workshops. The quantitative data prepared by CASA provided an informative historical context of the various incidents currently occurring in the sector, while the qualitative survey by CAANZ provided unique insights into both the nature of some of those incidents, but also the foundation for discussion around emerging risks.

#### Sector engagement

2.5 Following the data analysis, the SRP Project Teams engaged with the sector through facilitated workshops to define risks and look for potential areas of safety improvement. Sector engagement is the cornerstone of an effective SRP, and workshops are especially appropriate for the more well-resourced large aircraft sector. They facilitate robust discussion between the sector and the regulator in an environment set up to encourage achieving the primary objective of improving safety in the sector. The outputs from the workshops include risk registers, causes of risks, and treatment strategies or actions. Treatment strategies are developed to minimize the likelihood, consequences, or both, from the identified risks. Such strategies may include regulation reform, safety promotion or emphasis on improved supervision and mentoring.

2.6 In the large aircraft SRP, CASA elected to host and facilitate its own workshops, while CAANZ chose to contract an independent consultant. The CAANZ took this approach as anecdotal evidence suggested participants might be more open with their thoughts and concerns if they were confident that information put forward would not be used in regulatory activity. The hope was that a neutral venue and facilitator would build that confidence.

2.7 Evaluation of the outcome of the workshops identified that the contractor approach used by CAANZ was very effective in encouraging open and honest communication between all attendees. Participants provided positive feedback and maintain a firm interest in the CAANZ SRP activity, and returned in equal numbers for a follow up workshop.

2.8 The CASA approach elicited more specific and detailed causes of risks and treatments due to a combination of a larger data set and being hosted by aviation professionals who could more deeply explore risks as they were raised. CASA initially utilised independent consultants in 2011 to develop a risk profile for the charter sector, however found that whilst half-day workshops at five locations across the country encouraged communication, the workshop outputs did not provide adequate details for developing risk mitigation measures. Since shifting to in-house development of risk profiles for several sectors, CASA has observed an increase in sector participants' engagement, a more robust critical review of functional areas within sectors, and an increase in valuable feedback in identifying emerging issues, exchanging safety information, and suggestions for improving the effectiveness of the regulatory system.

#### Expert consultation

2.9 Drawing on expert judgement of sector participants and key stakeholders to validate the hazards and associated risks is critical to the SRP. At CASA, inspectors and standards officers participated in the review and validation, and the SRP Project Team maintained regular interaction with the expert group of analysts. Likewise, the CAANZ SRP Project Team consulted with internal subject matter experts when working with the consultant and compiling the data. Following this internal check, CAANZ undertook consultation with sector participants to review the risk register. The responsiveness of the internal expert group and the sector participants was essential to ensure the production of a risk profile that had wide acceptance and use by all stakeholders.

#### ***SRP outputs***

2.10 To get the most benefit from an SRP, it must include a set of safety performance indicators to monitor safety performance. Information on incidents from sector participants' risk registers and Safety Management Systems (SMS) can be used to report trends in the sector's safety performance and through annual sector safety forums. For the large aircraft SRP, CASA was able to

undertake substantial data analysis, aided by the Event Risk Classification<sup>1</sup> (ERC) system used by the ATSB. This system allowed for quantifiable analysis of risk related occurrences and a possible method of safety performance measurement. However, an ERC system is not currently used by the CAANZ. This has presented an opportunity for both safety agencies to work together to find a system of safety performance measurement that can be used when an ERC is not available, or when the available data is not suitable to support performance measurement.

2.11 When the consultation and analysis is complete, the SRP is communicated to sector participants as a framework of risks and actions, including action ownership, timelines and review process importantly, safety performance information is exchanged with sector participants on a continuing basis until the profile is due for a review. Both agencies are in the process of sharing the completed profiles back to the participants. Ongoing meetings between the project teams will assess the effectiveness of the SRP and the implementation of safety actions/treatments.

2.12 The outputs generated from the SRP will assist CASA, CAANZ, sector participants and primary stakeholders in Australia and New Zealand to:

- Continually identify and understand safety risks;
- Ensure relevant risks are incorporated in a participant's SMS;
- Identify system vulnerabilities which can inform the aviation authority where to target its resources;
- Reduce safety risk within the sector; and
- Maintain confidence of the public and key stakeholders.

Both authorities have agreed to continue jointly developing the sector risk profiling methodology.

2.13 The way forward for SRPs is to collaborate and engage more with all stakeholders to increase understanding, promote safety improvement opportunities, and work on solutions together. This is underpinned by creating a culture that encourages open and honest communication listening to others, showing respect and maintaining trust.

### **3. CONCLUSION**

3.1 SRP is a proven method of identifying, understanding, and addressing risks within a sector. While there may be differences between definitions of sectors, data collection and workshop facilitation, the fundamental factors can be common across similar aviation authorities. The collaborative efforts of the project teams of CASA and CAANZ have been highly beneficial to the ongoing development of the SRP methodology.

3.2 By undertaking the SRP exercise, and working together collaboratively, both CASA and CAANZ now have a greater opportunity to identify the most important safety risks to address as a matter of priority.

### **4. ACTION BY THE CONFERENCE**

4.1 The Conference is invited to note this paper.

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<sup>1</sup> The ERC System assigns a risk to every aviation occurrence reported to the ATSB, based on the type of operation and type of occurrence. Through a series of rules that depend on data coded by the ATSB for each occurrence, this system rates both the worst credible accident outcome for the occurrence (in terms of injuries to people and then aircraft damage), and the effectiveness of the remaining defences or barrier between the actual occurrence and the rated worst credible accident outcome. The process ends with a single risk score and level for every occurrence. (Event Risk classification development, ATSB.gov.au. Retrieved 26/06/2017).