



International Civil Aviation Organization

Fourth Meeting of the Asia Pacific Regional Aviation Safety Team (APRAST/4)
(Manila, Philippines, 22 – 25 April 2014)

Agenda Item 5: Presentations – State / Industry / ICAO

REGIONAL DATA COLLECTION, ANALYSIS AND SHARING

(Presented by Singapore)

SUMMARY

This paper follows up on the APRAST Decision 3/6 on regional data collection and sharing. It is timely for the Asia Pacific region to start the development of a data collection, analysis and sharing system to integrate and analyse operational data from various sources, such as flight data and air traffic control data. The safety analysis of operational data not only provides States and industry with an integrated picture of operations across domains but also enables safety vulnerabilities and issues to be uncovered and addressed.

Action by the meeting is at Paragraph 4.

1. INTRODUCTION

1.1 In order to drive further improvements in aviation safety, safety initiatives will depend more heavily on data analytics. At the APRAST/3 meeting in May 2013, APRAST agreed (Decision 3/6) that the Asia Pacific Safety Reporting and Programme Ad-hoc Working Group (AP-SRP AWG) research and develop possible mechanisms for regional data collection and sharing. The meeting agreed for Singapore to research on this topic.

1.2 The ICAO Global Aviation Safety Plan (GASP) states that the advances in safety information exchange programmes could enable the detection of emerging safety issues, thereby facilitating effective and timely action. As an indication of the importance of safety data usage and its impact on the State Safety Programme, ICAO Annex 19 also emphasises safety data collection, analysis and exchange to support States' safety management activities. At the 38th ICAO General Assembly, the Technical Commission agreed that the development and implementation of safety data sharing and analysis programmes and systems at the regional level should be encouraged. The Technical Commission also agreed that regional aviation safety groups (RASGs) should be encouraged to develop and implement regional safety data sharing and analysis programmes and systems. Within the aviation industry, organisations such as International Air Transport Association (IATA) are pushing initiatives to analyse safety data more comprehensively. We have also seen, through the presentation by the United States (US) on the capabilities and benefits of the Aviation Safety Information Analysis and Sharing (ASIAS) system at the APRAST/3 meeting, that the technology is available for better data analytics.

2. DATA COLLECTION, ANALYSIS AND SHARING IN ASIA PACIFIC

2.1 There is much potential for Asia Pacific (APAC) States / Administrations and industry to tap on "big data" or data analytics to enhance aviation safety. The integration and analysis of safety data and operational data such as air traffic control and flight data at a broader level could potentially uncover safety vulnerabilities or hazards that would otherwise not be detected. For

instance, by integrating and analysing safety occurrences, flight, weather, aerodrome and air traffic control data and flight data from airlines, one could obtain safety trends from the perspective of the entire air transport operations. Another benefit is that individual service providers would be able to benchmark their own safety performance against the aggregate trends.

2.2 The development of such a regional data collection, analysis and sharing system, similar to the US ASIAS system takes time, as it involves the development of a governance structure, data management policies and procedures, infrastructure and technical capabilities. Hence, it would be advantageous for APAC to consider setting up a regional data collection, analysis and sharing system early.

3. NEXT STEPS

3.1 There are existing technologies and capabilities that APAC can leverage for developing a regional data collection, analysis and sharing system. The US ASIAS programme which is developed and operated by MITRE Corporation (MITRE) is one example.

3.2 As a follow up to APRAST 3/6 Decision, and to kick-start the process, Singapore has engaged MITRE to identify possible approaches to set up a regional data sharing, collection and analysis system for the APAC region. We have also invited the Flight Safety Foundation (FSF) to share some preliminary ideas and potential benefits of a data collection, analysis and sharing system for the APAC region at the APRAST/4 meeting. FSF is an independent international organisation and is a strong advocate of aviation safety. We note that MITRE and the FSF signed a Memorandum of Understanding¹ in October 2013 to collaborate on safety and data analysis and sharing to assist regulators, air navigation service providers, and operators.

3.3 Subsequent to the FSF presentation at APRAST/4 and deliberations, the meeting is invited to support Singapore's initiative for FSF and MITRE to study the benefits and approach of a data sharing capability in the APAC region. This study will entail gathering of views from various States and industry on the development of such a system within the APAC region. Some of the issues that are of immediate interest include governance structures and funding models for the system, participation of States / Administrations, ANSPs, operators and other stakeholders, type of safety data and analysis to be performed that would be helpful for the APAC region, confidentiality of information and technical feasibility. It is envisaged that based on the views gathered from the approach, FSF/MITRE would prepare some findings on the feasibility and possible models for an APAC system for consideration by interested entities to participate in.

4. RECOMMENDATIONS

4.1 The Meeting is invited to:

- a) support Singapore's initiative for FSF / MITRE to conduct a study on the feasibility of a regional data collection, analysis and sharing system for the APAC region; and
- b) encourage States/Administrations, ANSPs, airlines and international organisations to participate in such a study, including providing inputs to FSF/MITRE, as mentioned in Paragraph 3.

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¹ The Flight Safety Foundation and The MITRE Corporation have a memorandum of understanding on collaboration to assist aviation stakeholders from around the world with analytically-sound solutions that address emerging worldwide safety issues.