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Agenda Item 5: Presentations – State / Industry / ICAO

AEROTHAI'S REPORTING CULTURE

(Presented by Aeronautical Radio of Thailand)

SUMMARY

The purpose of this paper is to share insights into AEROTHAI's journey regarding its reporting culture. The progress in the number of safety reports since 2008 is presented. In addition, the paper notes recent development in validating the number of occurrences through applying post-operation analysis of surveillance data.

1. INTRODUCTION

1.1 Reporting culture is one of the core elements in aviation safety culture. An increasing number of safety reports is not a sign of an unsafe environment but an indicator of a healthy safety culture where people make an effort to inform the organization about unsafe situations, hazards, or their safety concerns. Nevertheless, a higher number of safety reports is not a reason for complacency. Examining new perspectives and tools can help the organization refocus on improving its safety culture.

1.2 As the main ANSP in Thailand, AEROTHAI considers safety reports priceless assets in safety management. Sharing our experiences on reporting culture can help stimulate valuable discussions among APRAST members.

2. DISCUSSION

Number of safety reports

2.1 AEROTHAI provides air navigation services in Bangkok FIR. The ATS and CNS services cover one ACC, 33 approaches, and 34 aerodromes.

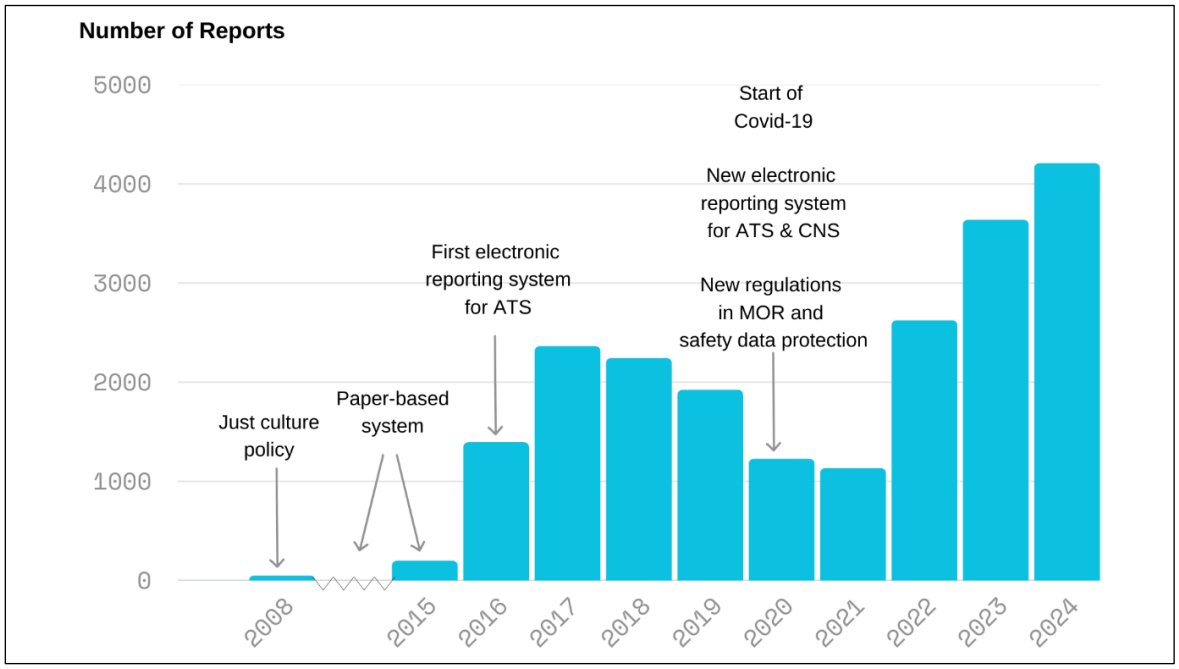
2.2 At AEROTHAI, the formal safety reporting system and Just Culture Policy were established in 2008. From 2008 to 2015, the reporting system was paper-based with approximately 200–300 reports each year.

2.3 In 2015, the first electronic reporting system for air traffic services was introduced. Safety reports increased to 1,395 within the first year and rose to approximately 2,000 per year in the following years.

2.4 In 2020, the company implemented a new reporting system to integrate investigation information and risk assessments into the reported occurrences. The new system also allowed CNS occurrences to be reported and processed on the same platform. In the same year, new regulations on

mandatory occurrences and the protection of safety data and information came into effect. These factors were expected to support an increase in reporting levels. However, the Covid-19 pandemic negatively impacted traffic volume which was reflected in a lower number of reports.

2.5 Since 2022, safety reports in AEROTHAI have increased significantly. Although no one can be certain why safety reports rose, the Safety Management Department estimates that the increase may be attributed to the increase in air traffic, a more positive environment for safety reporting, heightened regulatory surveillance, and the aviation challenges following Covid-19.



Number of safety reports from 2008-2024 in AEROTHAI

2.6 It is important to note that, due to the nature of the services, safety reports in ANSPs can be exceptionally diverse and are relevant to many aviation stakeholders. For AEROTHAI, efforts have been made – and will continue to be made – to filter and analyze which occurrences should be reported to the regulator, shared with other stakeholders, or further investigated internally based on their relevance to our services. Currently, we estimate that 12% - 20% of AEROTHAI safety reports have a bearing on services. These reports may be characterized by coordination and communication issues, procedural problems, technical interference, system failures, mistakes and errors during service delivery, as well as workload and fatigue issues.

Post-operations analysis of surveillance data to support safety assurance

2.7 Since May 2022, AEROTHAI's data analytics team has developed a system that captures and stores surveillance data from the ATM system in a secure, centralized database for various post-operations analysis needs. The captured surveillance data includes traffic properties such as callsign, flight level, speed, and time. The data is recorded every five seconds, which is sufficient for conducting various analytical studies.

One day of surveillance tracks in Bangkok FIR.

A snapshot of surveillance targets with flight level

2.8 "Loss of Standard Separation" (LOS) is one of the most critical occurrence types requiring detailed analysis or investigation by ANSPs and regulators. At AEROTHAI, the investigation process has been improved to focus on weaknesses of the system as a whole, rather than assigning blame to individuals. Safety data and information are protected, and punitive measures for acceptable errors are prohibited.

2.9 Despite systematic investigation efforts and the emphasis on just culture, factors such as capacity pressure, social pressure, and team pressure may influence staff members' decisions to report their involvement in an occurrence.

2.10 This raises an important question: Were all LOS occurrences reported? To what extent was under-reporting occurring? Like many ANSPs, the company relies on controllers to report safety concerns and occurrences. Automatically capturing many types of occurrences is still not practical.

2.11 In 2023, with support from the data analytics team, AEROTHAI began applying post-operation analysis to LOS occurrences. Using the stored surveillance data and geospatial analysis techniques, the team was able to detect past potential LOS occurrences more efficiently and effectively. After successfully fine-tuning the parameters, including the LOS detection criteria, and performing verification tests, the Safety Management Department was able to compare potential LOS occurrences in the analysis system against LOS reports from controllers on a weekly basis.

Post-operation analysis of two targets in proximity

2.12 From the start of the project, only a small group of technical and safety staff was involved. This project touched on sensitive issues related to safety culture. Therefore, mismanagement or miscommunication on this project could jeopardize trust between the operation units and the safety department. Contingency plans were outlined in case we found confirmed cases of under reporting.

2.13 To our pleasant surprise, since the verification test of the project, the under-reporting concern has been put to rest. The program found no instances in which LOS cases were intentionally unreported. There were a few rare situations where controllers may not have been aware of the loss of separations when they occur. For example, a loss of separation that occurred after the two aircraft had already passed or a loss of separation that occurred near the boundary area where different separation standards are required.

2.14 The post-operation analysis of LOS will continue to be part of AEROTHAI's safety management process. Future safety initiatives in other areas are to be expected.

3. ACTION BY THE MEETING

3.1 The Meeting is invited to:

a) Note the information contained in this paper,

b) Discuss the safety culture relevant to this paper,

c) Encourage ANSPs to share ideas and practices in safety cultures.

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