



ICAO

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RASG-APAC/10-WP/26

Agenda Item 5

Agenda Item 5: Member State/Industry /ICAO Presentations

**UPDATE ON THE AP-SHARE DEMONSTRATION PROJECT
AND THE WAY FORWARD**

(Presented by Singapore on behalf of the AP-SHARE members [including China, Indonesia, Japan, Singapore, Airbus, Association of Asia Pacific Airlines (AAPA), Flight Safety Foundation (FSF), International Air Transport Association (IATA), Japan Airlines, Jetstar Asia Airways, MITRE, Scoot, Singapore Airlines and Sriwijaya Air])

SUMMARY

This paper provides an update on the regional data collection, analysis and information sharing (AP-SHARE) Demonstration Project, and describes concepts of a future operating model for the long-term sustainability of an AP-SHARE Programme.

Action by the Meeting is at Paragraph 3.

1. INTRODUCTION

1.1 The three-year AP-SHARE Demonstration Project is an initiative to establish a State-Industry regional data collection, analysis and information sharing system in the Asia Pacific region by harnessing data analytics to enhance aviation safety. To date, the AP-SHARE has five member States, namely China, Indonesia, Japan, the Philippines and Singapore and 18 industry partners, with the Flight Safety Foundation and MITRE as Secretariat.

1.2 Since its launch in September 2017, AP-SHARE has made significant progress. A key building block is the establishment of a robust governance framework which has been instrumental in building trust and confidence among participants in sharing safety data and information. AP-SHARE conducts one safety study per year, using a four-step methodology – Identification, Characterisation, Validation and Mitigation.

- a) In the first safety study on mid-air collision risk, AP-SHARE studied TCAS RA events as a precursor of mid-air collision. The insights into possible mitigations for TCAS RA were presented in APRAST/13-WP12.
- b) The second safety study focused on approach and landing risk. Analysis on approach energy profiles and unstable approach performances was performed for one airport in each Member State. Potential contributing factors to unusual approach energies as well as unstable approaches were identified, which together with their possible mitigations, were presented in RASG-APAC/9-WP21.
- c) The third safety study on go-arounds is underway with the events categorisation and analysis completed. Go-around initiation points have been identified

for each of the airports selected in the second safety study and compared against a 3-degree glideslope. The next steps include finalisation of the potential contributing factors and the assessment of the candidate mitigations.

1.3 In view of the COVID-19 pandemic, AP-SHARE activities took a pause and the planned conclusion of the Demonstration Project is expected to be postponed by half a year to mid-2021. In resuming activities, AP-SHARE intends to bring the ongoing third safety study on go-arounds to a conclusion and concurrently study flight operations issues and unusual conditions that have surfaced in the pandemic e.g. unstable approaches with egregious contributory factors.

1.4 With aviation safety a top priority and based on the good progress made in the AP-SHARE Demonstration Project, the Asia Pacific aviation community should build upon the good work done to consider establishing a permanent and sustainable regional safety data collection, analysis and information sharing initiative. As an extension of the Demonstration Project, an AP-SHARE Programme would deliver advantageous outcomes such as:

- a) Supporting the implementation of global, regional and national safety plans including ICAO's Global Aviation Safety Plan (GASP) and RASG-APAC regional safety priorities and targets particularly on predictive risk management, data-driven mitigation and advanced regulatory oversight;
- b) Further enhancing the collaboration among airlines, industry associations and international organisations, aviation manufacturers, regulators and ANSPs on safety risk management;
- c) Enabling early detection and possible prevention of high-risk incidents and accidents by providing monitoring and analysis of precursors to these high-risk occurrences with data from normal operations; and
- d) Supporting the prioritisation of regional safety enhancement initiatives through the establishment of an integrated, operational picture of commercial air transport in the Asia Pacific region.

1.5 Furthermore, it was agreed at the 40th Session of the ICAO Assembly that States and industry partners should harness and optimise resources to develop safety data collection and analytics capabilities for the fulfilment of regional and global aviation safety priorities and objectives in relation to the GASP. Traditional known safety risks are best understood through the examination and study of operational safety data. The analysis of operational data gives the best picture of dynamic accident risks that exist and must be met with sizeable reductions to achieve the GASP objectives and targets. The AP-SHARE demonstration project is one of only a few programs in the world conducting collaborative data collection and analysis across multiple states sharing analytical results and mitigation plans to address the risks of study.

2. DISCUSSION

2.1 A survey conducted amongst AP-SHARE members in early 2020 indicated overwhelming interest from all respondents to continue participation beyond the demonstration period. A subcommittee comprising State and industry members, supported by the Secretariat, has therefore reviewed suitable future operating models for the long-term sustainability of an AP-SHARE Programme. The subcommittee has assessed initial concepts for the i) governance; ii) participation and cost sharing; iii) secretariat role; iv) technical capabilities; and v) sources of data for such a programme.

2.2 *Governance.* The governing structure should comprise a governing board (GB), which presides over the activities of the programme, technical working groups (TWG), and a secretariat. Both the GB and TWGs are to be led by co-chairs, one representing State/Administration and the other representing the Industry. The co-chairs will ensure that all activities align with a Governance Plan and the consensus decisions of the programme members. The co-chair (States) and co-chair (Industry) shall be nominated and elected by the members.

2.3 The AP-SHARE Governance Plan has guided the work of the Demonstration Project and could be adapted by an AP-SHARE Programme as an essential living document. The established terms of reference and working processes of the Demonstration Project could also be adapted for use in an AP-SHARE Programme.

2.4 *Participation and cost-sharing.* By signing a Statement of Intent to participate in the programme, participants agree to abide by a set of core guiding principles outlined in the Governance Plan. To encourage maximum participation, and resource optimisation for the continued sustainability of safety data collection and analytics capabilities for the Asia Pacific region, the following participation categories and contribution structure can be considered for an AP-SHARE Programme:

| PARTICIPATION CATEGORY | DESCRIPTION & ELIGIBILITY | CONTRIBUTION |
|--|--|---|
| <p>Member, which can include:</p> <p>a) Asia Pacific States/Administrations and their ANSPs;</p> <p>b) OEMs;</p> <p>c) Airlines;</p> <p>d) Associations & international organisations; and/or</p> <p>e) Aviation solutions service providers</p> | <ul style="list-style-type: none"> • Members are accorded voting rights • Open to all government and private sector aviation safety organisations that are involved in Asia Pacific commercial aviation operations and that can collaborate without any international sanctions • Airlines who wish to be members must be operating under the authority of a participating State/Administration | <ul style="list-style-type: none"> • States/Administrations to contribute annual participation fees, with tiered levels of contribution • Similarly, industry members to contribute an annual participation fee with tiered levels of contribution • The tiering of States/Administrations as well as industry; the quantum of annual fee; and the possibility for in-kind contributions in lieu of financial contribution are to be agreed upon |
| <p>Associate member</p> | <ul style="list-style-type: none"> • On determination from the GB, an associate membership can be extended to organisations which possess the knowledge and experience in conducting safety data sharing programs and are willing to assist in on-going participation in GB meetings • Associate members do not have voting rights | <ul style="list-style-type: none"> • Financial and in-kind contributions from associate member organisations are strongly encouraged |

| | | |
|------------------------|---|---|
| | <ul style="list-style-type: none"> • Associate members are expected to support the common responsibilities in the Governance Plan, share experiences, analysis of their own, and lessons learned through the process of governance in their own programmes | |
| <p>Observer</p> | <ul style="list-style-type: none"> • Candidates who fulfil the eligibility criteria to become a member, but have not yet made a decision to become one, may be invited by the GB to observe up to two GB meetings • Observers do not have voting rights • Observers are expected to support the common responsibilities in the Governance Plan and are not allowed to participate in TWG meetings due to the sensitivity of the information shared | <ul style="list-style-type: none"> • Observers are not obliged to provide financial or in-kind contributions |

2.5 The programme is expected to operate at a fixed annual cost, which may be reviewed. As a reference, the annual operating cost of the Demonstration Project is USD300,000/year, based on the conduct of one safety study per year. The main cost drivers of the programme are i) data infrastructure development and sustainment; ii) data processing and integrated analysis; and iii) programme management and meeting organisation. Nominally, the higher the participation rate, the lower the financial contribution required from each member. Adjustments to the annual participation fee by members could be adjusted as additional members join the programme.

2.6 *Secretariat role.* The secretariat is responsible for coordinating studies in alignment with the priorities set by the GB and performing administrative programme management duties, including reporting of the programme financial status to the GB. Member States/Administrations could take on this secretariat function, on a rotational basis.

2.7 *Technical capabilities.* There could be more than one entities, selected through open market tenders, to perform the technical functions of the programme in accordance with the governance principles. One entity could be a dedicated data collection and integration provider (DCIP) while the other, a data analytics provider (DAP). The DCIP will be responsible for establishing a data fusion platform to collect and integrate inputs from multiple data sources and organisations. It will also manage these data assets in a secure manner. The DAP will be responsible for the provision of expertise and analytics methods to analyse the data contained in the data fusion platform. Safety data and information is to be used to advance safety goals only, with the focus on addressing systemic issues and high risk aviation incident categories, as agreed by the GB.

2.8 *Sources of data.* The data and safety information could be provided by member States/Administration (e.g. safety reports) and their partner airlines (e.g. FDM analysis information and pilot reports) and ANSPs (e.g. radar or ADS-B tracks, airspace and airport configurations and weather). Other industry members may also contribute data, information or reports from their respective safety programmes. All data and information should be provided directly to the DCIP, and will be stored and accessed using secure information technology capabilities. As directed by the GB, other data sources may be acquired by the DCIP and integrated with all other relevant information to support the programme studies. Protection and use of all data will be in accordance with principles outlined in the Governance Plan.

2.9 The AP-SHARE Demonstration Project GB will further deliberate on the options for a future AP-SHARE Programme, taking into consideration discussions with the members, associate members and observers on the i) governance; ii) participation and cost sharing; iii) secretariat role; iv) technical capabilities; and v) sources of data. More details on a Programme concept of operations can be expected in future updates.

3. ACTION BY THE MEETING

3.1 The Meeting is invited to:

- a) Support the initiative to establish an AP-SHARE Programme, as a State-Industry safety data collection, analysis and information sharing collaborative initiative for the APAC region; and
- b) Encourage States/Administrations and Industry to provide comments and suggestions to the AP-SHARE Governing Board Co-chair (State) (tay_tiang_guan@caas.gov.sg), Secretariat (millam@flightsafety.org) or subcommittee member (nick_leow@caas.gov.sg) on suitable future operating models of an AP-SHARE Programme.
