



## ICAO SIXTEENTH MEETING OF THE ASIA PACIFIC REGIONAL AVIATION SAFETY TEAM (APRAST/16)

Bangkok, Thailand, 17 to 18 March 2021 on Virtual Platform

### Agenda Item 5: Presentations – State / Industry / ICAO

#### UPDATE ON THE AP-SHARE DEMONSTRATION PROJECT AND THE FUTURE AP-SHARE PROGRAMME

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

##### 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 At the 40<sup>th</sup> Session of the ICAO Assembly, States and industry were encouraged to 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. 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. The Demonstration Project is one of few programmes in the world conducting collaborative data collection and analysis across multiple States sharing analytical results and mitigation plans to address the risks identified. 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 initial list of causal factors identified and preliminary mitigations developed. The initial assessment on the causal factors include unstabilised approach, cross/tailwind, adverse weather conditions, and ATC communication and pilot judgement. The next steps would be to finalise the list of causal factors and development of associated mitigations.

1.3 Due to the COVID-19 pandemic, AP-SHARE activities took a pause and the planned conclusion of the Demonstration Project was postponed by half a year from end 2020 to mid-2021. The AP-SHARE has resumed and made good progress through the Technical Working Group (TWG) and Governing Board (GB) virtual meetings in January 2021 and is on track to bring the ongoing third safety study on go-arounds to a conclusion.

## **2. DISCUSSION**

2.1 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.

2.2 The AP-SHARE GB, supported by the Secretariat, is looking into suitable future operating models for the long-term sustainability of an AP-SHARE Programme. At its meeting in January 2021, the GB discussed the 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.

2.3 *Governance.* The governing structure should comprise a GB, which presides over the activities of the programme, TWG, and a secretariat. Both the GB and TWG are to be led by co-chairs, one representing States/Administrations 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.

2.4 The AP-SHARE Governance Plan version 9.0 has guided the work of the Demonstration Project and could be adapted by an AP-SHARE Programme as a living document. The established terms of reference and working processes of the Demonstration Project could also be used in an AP-SHARE Programme.

2.5 *Participation and cost-sharing.* A regional data sharing programme like AP-SHARE relies on States’ active participation and contribution to ensure effectiveness and long-term sustainability. To cater to differentiation of members’ needs, the AP-SHARE Programme should provide for tiered membership status with different levels of participation and corresponding privileges. The following participation categories, and contribution structure and minimum number of members can be considered for an AP-SHARE Programme:

PARTICIPATION CATEGORY	DESCRIPTION & ELIGIBILITY	CONTRIBUTION
<p><b>Member, which can include:</b></p> <p>a) <b>Asia Pacific States/Administrations and their ANSPs (Target of at least 8 members);</b></p> <p>b) <b>OEMs;</b></p> <p>c) <b>Airlines (Target of at least 1 airline per State/Administration);</b></p> <p>d) <b>Associations &amp; international organisations; and/or</b></p> <p>e) <b>Aviation solutions service providers</b></p>	<ul style="list-style-type: none"> <li>• Members are accorded voting rights</li> <li>• 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</li> <li>• Airlines who wish to be members must be operating under the authority of a participating State/Administration</li> </ul>	<ul style="list-style-type: none"> <li>• States/Administrations to contribute annual participation fees, with tiered levels of contribution</li> <li>• Similarly, industry members to contribute an annual participation fee with tiered levels of contribution</li> <li>• 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</li> </ul>
<p><b>Associate member</b></p>	<ul style="list-style-type: none"> <li>• 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</li> <li>• Associate members do not have voting rights</li> <li>• 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</li> </ul>	<ul style="list-style-type: none"> <li>• Financial and in-kind contributions from associate member organisations are strongly encouraged</li> </ul>

<p><b>Observer</b></p>	<ul style="list-style-type: none"> <li>• Candidates who fulfil the eligibility criteria to become a member, but have not decided to become one, may be invited by the GB to observe up to two GB meetings</li> <li>• Observers do not have voting rights</li> <li>• 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</li> </ul>	<ul style="list-style-type: none"> <li>• Observers are not obliged to provide financial or in-kind contributions</li> </ul>
------------------------	---	---

2.6 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. With higher participation rate, the financial contribution required from each member would be lower. Adjustments to the annual participation fee by members could be adjusted as additional members join the programme.

2.7 *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 may also take on this secretariat function, on a rotational basis.

2.8 *Technical capabilities.* There could be more than one entity, 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.

2.9 *Sources of data.* The data and safety information could be provided by members (e.g. safety reports) and their partner airlines (e.g. FDM analysis information and pilot reports), ANSPs (e.g. radar or ADS-B tracks, airspace and airport configurations and weather) and commercial data sources. 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. 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.

2.10 The value of APRAST for enhancing region safety is validated by a survey conducted amongst AP-SHARE members in early 2020, which indicated an overwhelming interest from all respondents to continue participation beyond the demonstration period. As the AP-SHARE thrives on collective participation and contribution to sustainably develop quality analysis, States/Administrations are strongly encouraged to consider participation in the next phases of the AP-SHARE Programme beyond the Demonstration Project to establish a critical mass of participation. 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 a permanent and sustainable 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](mailto:tay_tiang_guan@caas.gov.sg)), Secretariat ([millam@flightsafety.org](mailto:millam@flightsafety.org)) or subcommittee member ([nick\\_leow@caas.gov.sg](mailto:nick_leow@caas.gov.sg)) on suitable future operating models of an AP-SHARE Programme.

— END —