

**59th CONFERENCE OF
DIRECTORS GENERAL OF CIVIL AVIATION
ASIA AND PACIFIC REGIONS**

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AGENDA ITEM 3: AVIATION SAFETY

**MEETING OF ASIA-PACIFIC REGULATORS ON
ADVANCED AIR MOBILITY AND UNMANNED AIRCRAFT
SYSTEMS**

(Presented by Singapore)

EXECUTIVE SUMMARY

This paper recognises that rapid advancements in Advanced Air Mobility (“AAM”) and Unmanned Aircraft Systems (“UAS”) are expected to transform the way people work, live and play. To reap the full benefits of these new platforms, regulators and regulation need to keep pace with technology to ensure public and aviation safety, and security. This is challenging because the technology is novel, the speed of adoption is rapid, resources available to the regulators are limited and there are competing priorities. The challenges confronting regulators are similar and one approach to address regulators’ challenges is to pool resources. To this end, Civil Aviation Authority of Singapore (“CAAS”) convened the Meeting of Asia-Pacific Regulators on AAM and UAS on 9 November 2023 to foster collaboration amongst regulators, and between regulators and industry. As an outcome of the Meeting, CAAS and 23 Asia-Pacific civil aviation authorities are co-developing reference toolkits that regulators can consider and adapt to facilitate AAM and complex UAS operations. Such collaboration will help regulators to build capabilities and capacities, streamline regulatory processes, speed up approval, adoption across States, and support public education and outreach. This paper encourages States to actively participate, support the platform, and to co-develop the reference toolkits.

MEETING OF ASIA-PACIFIC REGULATORS ON ADVANCED AIR MOBILITY AND UNMANNED AIRCRAFT SYSTEMS

1. INTRODUCTION

1.1 The aviation industry is seeing rapid advancement in AAM and UAS technology. Electric Vertical Take-Off and Landing (eVTOL) and UAS will transform the way we work, live and play. Regulators and regulations would need to keep pace with the evolving technology to reap its full benefits while ensuring security, public and aviation safety. This is a challenging proposition given the novelty of technology, the speed of adoption, resource constraints and competing priorities.

1.2 So far one eVTOL company already offering limited commercial service since 2023, while others are planning for commercial service around 2025/2026. On the regulatory front, one civil aviation authority (“CAA”) has certified an eVTOL platform and a few are in the process of doing so. Given the rapid pace of developments in the eVTOL industry, regulators who are not the State of Design are challenged to put in place regulations and operating rules to validate or accept entry into service of eVTOL aircraft. However, the absence of international standards and recommended practices (“SARPs”) and the need to develop regulatory capabilities pose challenges to CAAs aiming to facilitate these operations. In the area of UAS, more novel and complex use cases are being introduced. States are increasingly finding it challenging to regulate and provide safety oversight over such use cases, especially those involving beyond-visual-line-of-sight (BVLOS) operations.

1.3 It is notable that ICAO had formed the AAM Study Group to develop a vision and framework to address challenges posed to the existing aviation ecosystem. The outcome of the work of the Study Group that could lead to the publication of international standards will take some time to be established.

1.4 To address the challenges, it would be difficult for States to work alone. A better approach is to pool resources and share common practices to accelerate promulgation and implementation of regulations. To this end, CAAS convened the Meeting of Asia-Pacific Regulators on AAM and UAS on 9 November 2023 to foster collaboration amongst regulators, and between regulators and industry. As an outcome of the meeting, CAAS and 23 Asia-Pacific civil aviation authorities are co-developing reference toolkits which regulators can consider, adapt, and use to facilitate AAM and complex UAS operations. The Meeting was initially attended by 17 Asia-Pacific civil aviation authorities (“CAAs”), 24 AAM and UAS institutes and companies. The Meeting aimed to (i) raise awareness on new technologies and regulatory approaches and practices, (ii) facilitate alignment on regulatory approaches and practices, and (iii) support adoption of policies and regulations.

2. DISCUSSION

2.1 As an outcome of the Meeting of Asia-Pacific Regulators on AAM and UAS, 24 Asia-Pacific CAAs are co-developing reference toolkits which regulators can take reference, adapt/adopt to facilitate AAM and UAS operations. The reference toolkits are divided into the eight focal areas and work-streams.

| Toolkit | Work-stream |
|------------|--|
| AAM | (1) Certification, validation and acceptance; |
| | (2) Entry into service |
| | (3) Facilitation |
| | (4) Economic policies and regulations |
| | (5) Capability building and |
| | (6) Public education. |
| UAS | (1) Technical Guidance – Beyond Visual Line of Sight (BVLOS) |
| | (2) Personnel Training – BVLOS |

2.2 The eight work-streams are led by representatives from China, Cook Islands, Indonesia, Malaysia, Philippines, Thailand, and Singapore, and participated by 127 representatives from 24 Asia-Pacific States. Development of the AAM and UAS reference toolkits would cover (i) a global view of the AAM and UAS technologies; (ii) key principles or considerations related to each topic; and (iii) an action plan detailing steps that a CAA may take to achieve readiness in the topic. The work of each work-stream can be divided into 4 phases; (i) introduction and alignment – to understand each other’s approach towards AAM and UAS, and agree on the scope and structure of the work-stream, (ii) fact finding – determine the corresponding data required and conduct studies/surveys to collect them, (iii) development of materials – based on the data collected, develop the necessary materials on considerations for approval of entry into service; and (iv) consolidation – consolidation within the work-stream for submission to the secretariat of the Meeting of Asia-Pacific Regulators.

2.3 All the work-streams have completed (i) introduction and alignment and (ii) fact-finding. The remaining works are ongoing. The aim is to complete the remaining drafting work by end-2024. The completed reference document would be circulated to CAAs and industry for comments, and finalised by mid-2025.

2.4 As the secretariat of the Meeting of Asia-Pacific Regulators on AAM and UAS, Singapore takes this opportunity to thank the work-stream leads/co-leads and members for their role in developing the necessary materials. When the reference toolkits are completed in mid-2025, Singapore will also share the reference toolkits to ICAO AAM Study Group for further consideration.

3. ACTION BY THE CONFERENCE

3.1 The Conference is invited to:

- a) Note the formation of the meeting of Asia-Pacific Regulators on AAM and UAS where the key undertaking is to develop reference toolkits on AAM and UAS that could be referenced and adapted by regulators when evaluating entry into service of AAM or regulating complex UAS operations; and
- b) Encourage States to actively participate and support the meeting and the development of reference toolkits

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