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Agenda Item 24: Aviation Safety and Air Navigation Priority Initiatives

MALAYSIA'S PREPARATION FOR ADVANCED AIR MOBILITY IMPLEMENTATION

(Presented by Malaysia)

EXECUTIVE SUMMARY

This information paper explores the development of the advanced air mobility (AAM) Concept of Operation (ConOps) for Malaysia. This AAM ConOps will provide general information on how to realise and conceptualise the implementation of AAM in Malaysia.

<i>Strategic Goals:</i>	This working paper relates to <i>Every Flight is Safe and Secure</i> and <i>The Economic Development of Air Transport Assures the Delivery of Economic Prosperity and Societal Well-Being for All</i> .
<i>Financial implications:</i>	Nil
<i>References:</i>	Nil

1. INTRODUCTION

1.1 Malaysia is actively taking steps towards integrating advanced air mobility (AAM) into the State's transportation ecosystem. Recognising the potential application of AAM to revolutionise regional or urban mobility, logistics, and others, the State is in a crucial phase of preparing the Concept of Operations (ConOps) to ensure safe, efficient, and sustainable implementation.

1.2 Civil Aviation Authority Malaysia (CAAM) is spearheading in preparation of the necessary regulatory frameworks to be implemented for AAM operations. CAAM has established the AAM Steering Committee (AAM - SC) tasked to navigate the regulatory direction of the AAM industry in Malaysia. CAAM partnered with Futurise, an agency mandated to lead regulatory intervention, leveraging its expertise in regulatory sandboxes and to co-develop the AAM ConOps, as the catalyst in the development of the AAM ecosystem for Malaysia.

2. DISCUSSION

2.1 The AAM ecosystem development approach in Malaysia

2.1.1 The AAM technology can be considered at the infancy stage from the regulatory point of view. Unlike other certified aircraft, the development of AAM technology is rather rapid, and it is far-fetched for any Civil Aviation Authority to play catch-up and align it with existing regulatory instruments. Due to this uncertainty, CAAM took an 'incremental approach' in the development of the AAM Ecosystem approach in Malaysia.

2.1.2 Currently, there is no Malaysian AAM OEM; however, there are many aviation-related services and MRO players for existing certified aircraft, which can potentially support the AAM operations in future. Hence, the purpose of using the incremental approach, to allow CAAM to learn and understand the AAM technology, whilst ensuring available resources as well as potential investment are utilised and sustainable.

2.2 Key Milestones of AAM Malaysia ConOps development

2.2.1 List of activities for the development of AAM Malaysia ConOps for 2025:

Activities	Period
NRS-AAM Project Kick-off & 1 st AAM-SC Meeting	1Q2025
1 st NRS-AAM Internal Workshop (within CAAM divisions)	3Q2025
2 nd NRS-AAM Inter-Ministerial Workshop / Engagement	3Q2025 or 4Q2025
3 rd NRS-AAM Workshop / Engagement with other stakeholders	4Q2025

2.2.2 The AAM Malaysia ConOps is expected to be released by the first quarter of 2026. The ConOps will be a strategic living document that guides the safe introduction and growth of AAM services by defining operational scenarios, stakeholder roles, airspace usage, and regulatory needs, thereby enabling the transition from concept to real-world deployment.

2.3 Challenges in Implementing AAM in Malaysia

2.3.1 Challenges in implementing new technology, such as AAM, in the existing ecosystem are inevitable. Below are a few and not limited to challenges that Malaysia will face:

- a) Definition of AAM: Since the AAM still falls in the grey area of the law, i.e. it is not yet recognised by the majority of Aviation Authorities, other local authorities, and the public in Malaysia, believed that the same ‘mould’ to develop the UAS ecosystem should be applied the same for AAM. Hence, a clear definition of AAM needs to address the misunderstanding between AAM and UAS.
- b) Regulatory framework development: Establishing comprehensive and adaptive regulations that ensure safety, security and efficient airspace management for AAM operation is a complex undertaking.
- c) Infrastructure development: The creation of vertiports and the necessary ground infrastructure, including charging stations and maintenance facilities, requires significant investment and strategic planning.
- d) Air traffic management: Integrating AAM aircrafts into the existing air traffic control system and developing a robust Unmanned Aircraft System Traffic Management (UAS TM) system to manage a high volume of aircraft presents technological and operational challenges.
- e) Public acceptance and trust: Addressing public concerns regarding safety, noise, and privacy is crucial for the widespread adoption of AAM. Public engagement and education will be essential to build trust.
- f) Technological maturity and certifications: Ensuring the reliability, safety, and certification of AAM aircraft, especially eVTOLs, requires ongoing technological advancements and rigorous testing.
- g) Cybersecurity and data management: As AAM relies heavily on digital systems and data communication, ensuring cybersecurity and the secure management of flight-critical information is paramount.
- h) Integration with existing transportation systems: Seamlessly integrating AAM with existing ground transportation networks to create efficient multimodal mobility solutions requires careful planning and coordination.
- i) Capacity development: Since the AAM is still in the infancy phase, new capacity development programs and training would be challenging for existing resources (e.g. pilots) to undergo a new syllabus to ensure the readiness and operability of the new type of aircraft (i.e. AAM) and its ecosystem.

3. **CONCLUSION**

3.1 Malaysia is making significant strides in preparing for the advent of Advanced Air Mobility. The establishment of the AAM Steering Committee, the development of a regulatory sandbox, and the UAS TM system demonstrate a proactive approach. While challenges related to regulations, infrastructure, public acceptance, and technology remain, the potential benefits of AAM for Malaysia's economy, connectivity and sustainability are substantial. The continued collaboration between government agencies, industry stakeholders, and research institutions will be crucial in successfully developing and implementing a comprehensive concept of operations that paves the way for a safe and transformative AAM ecosystem in Malaysia.

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