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AGENDA ITEM 3: AVIATION SAFETY

**MALAYSIA’S EXPERIENCE IN IMPLEMENTING RISK-
BASED OVERSIGHT (RBO) FOR APPROVED MAINTENANCE
ORGANISATIONS AND FOREIGN APPROVED
MAINTENANCE ORGANISATION (AMO/FAMO)**

(Presented by Malaysia)

INFORMATION PAPER

SUMMARY

This paper shares Malaysia’s experience in progressively implementing Risk-Based Oversight (RBO) for its Part-145 Approved Maintenance Organisations and Foreign Approved Maintenance Organisation (AMO/FAMO). Since 2020, Malaysia has embarked on a journey to develop a risk-based surveillance framework, using an ICAO-recommended safety risk-based surveillance tool to set audit frequencies. The project began with FAMO and is now extended to local AMO. This paper outlines the implementation timeline, key challenges and the way forward for the RBO journey.

MALAYSIA'S EXPERIENCE IN IMPLEMENTING RISK-BASED OVERSIGHT (RBO) FOR APPROVED MAINTENANCE ORGANISATIONS AND FOREIGN APPROVED MAINTENANCE ORGANISATION (AMO/FAMO)

1. INTRODUCTION

1.1 Risk-Based Oversight (RBO) is recognized by ICAO as an effective means for States to allocate surveillance resources according to the relative risk posed by individual organisations, in line with the guidance contained in ICAO Doc 9734 (Safety Oversight Manual) and Doc 9760 (Airworthiness Manual) and consistent with the continuing airworthiness oversight obligations under Annexes 6, 8 and 19 to the Chicago Convention.

1.2 This paper shares Malaysia's practical journey in implementing RBO within its Part-145 Approved Maintenance Organisation (AMO) and Foreign Approved Maintenance Organisation (FAMO) oversight function, for the benefit of other States considering or refining similar approaches.

2. DISCUSSION

2.1 Background

2.1.1 Civil Aviation Authority of Malaysia (CAAM) is responsible for the approval and continuous oversight of approved organisations holding the Part-145 AMO and FAMO approvals. Growth in aircraft numbers and operations within Malaysia's aviation landscape has driven a corresponding expansion in the scope and number of approved maintenance organisations. In response, CAAM recognized the need to transition from a uniform, calendar-based surveillance interval to a risk-informed approach that aligns oversight intensity with organisational risk.

2.1.2 This shift required the development of a structured methodology to assess organisational risk, a policy basis to formalize its application, and a sustained data collection effort to populate and mature the risk model over time.

2.2 Implementation Journey

2.2.1 CAAM's implementation of RBO for AMO/FAMO has evolved progressively since 2020. Between 2020 and 2023, CAAM undertook a comprehensive study of the risk-based oversight concept and framework, resulting in the drafting of an initial risk-based surveillance framework. This work was formalized with the publication of risk-based surveillance approach on 1 November 2023.

2.2.2 In November 2023, an internal training was conducted for its inspectors on both the concept and practical application of risk-based surveillance. This training coincided with the commencement of structured data collection for Foreign Approved Maintenance Organisations (FAMO), applying an in-house Organisation Risk Profile (ORP) Assessment Checklist developed with reference to the ICAO-recommended ORP Assessment Checklist. The data collected was analyzed to determine an appropriate physical audit frequency for each FAMO, and this exercise continued through 2024 and 2025 as the risk model progressively matured.

2.2.3 In December 2025, CAAM initiated a collaboration with DGAC France to further develop its RBO methodology, resulting in a series of engagements to refine the ORP Assessment Checklist, an effort that remains ongoing. Building on this foundation, 2026 marks the extension of ORP data collection to local Approved Maintenance Organisations (AMO), representing the first expansion of RBO's scope beyond FAMO.

2.3 Challenges

2.3.1 Building a reliable risk score requires a sustained period of data collection, as an organisation's score can only be considered stable, and therefore more reliable, once it remains consistent over successive assessments or changes solely in response to a genuine change within the organisation; this maturation process takes time and cannot be accelerated without compromising data quality.

2.3.2 The concept and application of RBO may differ between divisions within the same civil aviation authority, and integrating ORP output into CAAM digital systems, such as our CAAM Aviation Reporting System (CAREs) and Enhanced Compliance Oversight (ECO) System, is more appropriately undertaken only once the RBO framework has stabilised, to avoid embedding an immature methodology into core systems.

2.3.3 It is important to ensure the data collected is reliable. This is achieved through consistent and accurate interpretation of collected risk data, which depends on the inspector's competency in data analysis. The CAAM acknowledges that the development of RBO requires deliberate capability development alongside the technical RBO framework itself.

2.4 Way forward

2.4.1 CAAM is working through several policy questions that will shape the next phase of implementation. These include how approval validity extensions (or non-expiry) should be determined under a risk-based approach, and events such as an organisation's financial health or safety occurrences should trigger an unscheduled audit outside the normal cycle.

2.5 Benefits

2.5.1 Although RBO is still a work in progress for CAAM, some benefits are already becoming clear. Instead of performing the physical surveillance annually for every organisation, the dedicated division can now focus its inspectors on the organisations that carry higher risk. This has been especially useful for FAMO, where physical audits often mean overseas travel and higher costs. A risk-based approach helps to decide which audits to prioritize. Using the organisation Risk Profile Assessment Checklist has also made decisions on audit scope and frequency more consistent and easier to explain to organisations. Overall, this work has brought CAAM's practices closer in line with ICAO's recommendations on risk-based oversight, supporting Malaysia's broader efforts to strengthen its safety oversight system.

2.6 Conclusion

2.6.1 CAAM's experience shows that implementing RBO for maintenance organisation oversight takes time. A stable methodology, sustained data collection, capable inspectors, and consistent management support are all needed before an organisation's risk score can be trusted. CAAM's extension of RBO from FAMO to local AMO, guided by its collaboration with strategic partners, reflects this careful, step-by-step approach and may be useful to other States/Administrations at a similar stage of implementing RBO.

3. ACTION BY THE CONFERENCE

3.1 The Conference is invited to note the information contained in this Paper.