International Civil Aviation Organization

MIDANPIRG/22 & RASG-MID/12 Meetings

(Doha, Qatar, 4 – 8 May 2025)

Agenda Item 4.2:   **Outcomes of the RASG-MID Groups (SEIG Meeting)**

STATE SAFETY RISK MANAGEMENT

(Presented by the Kingdom of Saudi Arabia)

SUMMARY
This paper presents the phases of effective risk management implementation in KSA State Safety Program (SSP) and describes the interaction with SSP stakeholders to enhance aviation safety.
REFERENCE
- **KSA STATE SAFETY PROGRAM (ISSUE 2)** - **ICAO ANNEX 19**

1. **INTRODUCTION**

1.1   Effective risk management is a fundamental component of a State Safety Program (SSP), ensuring that aviation safety risks are systematically identified, assessed, and mitigated. KSA SSP provides a structured framework to fulfill its safety oversight responsibilities in compliance with ICAO requirements. This paper explores the key phases of effective risk management implementation within KSA's SSP, highlighting its role in proactive safety management and continuous improvement. Additionally, it describes the interactions between risk management processes and SSP stakeholders, emphasizing the collaborative efforts required to enhance aviation safety at a state level.

2. **DISCUSSION**

2.1   State Safety Risk Management (SSRM) is a structured, data-driven approach to identifying, assessing, and mitigating aviation safety risks. It involves multiple phases, from data collection to national-level safety planning, ensuring alignment with KSA State Safety Program (SSP). A key aspect of SSRM is its interaction with SSP stakeholders, who play a crucial role in identifying and managing risks effectively.

2.2   The process begins with collecting safety data from various sources, including Mandatory and Voluntary Occurrence Reports, Operational statistical safety data, Oversight activities, Incident and Accident Investigations, and Flight Data Analysis (FDA) reports. The data set used for risk assessment must be validated, conditioned, corrected, and managed to ensure it is accurate, reliable, and aligned with the scope of the assessment. This includes verifying data integrity, filtering out inconsistencies, standardizing formats, and ensuring completeness. Additionally, the data must be contextualized to reflect the operational environment and regulatory framework, ensuring that risk assessments are based on relevant and high-quality information. Proper data management practices also ensure alignment with national safety objectives and ICAO requirements, enhancing the effectiveness of risk mitigation strategies.

2.3   GACA works with SSP stakeholders through the relevant State Safety Progrm (SSP) Working Groups (WG) to analyze this data, identifying emerging risks and trends that require further assessment. This involves:

-    Working Groups and Workshops, bringing together airlines, airports, service providers and GACA to discuss operational hazards.

-    State Safety Performance Indicators (SPIs): Set collaboratively with industry partners to monitor key safety concerns.

-    Data Sharing Agreements: Facilitating better risk identification across different aviation sectors.

Stakeholder engagement ensures that hazards are identified from multiple operational perspectives, improving risk visibility.

2.4   Once hazards are identified, risk assessments are carried out to determine the likelihood and severity of potential safety risks. This occurs at three levels:

-    GACA Technical Oversight Departments Level: The first level of risk assessment is conducted within the technical oversight departments, such as Flight Operation, Airworthiness, Aerodromes and Air Navigation. These departments analyze hazards related to their respective areas, using safety data, audit findings and industry reports. They assess compliance gaps, operational issues and emerging risks, recommending initial mitigation measures.

-    Working Group Level: Technical and operational risks assessed by relevant working groups, with mitigation strategies developed and monitored collaboratively. Cross collaboration between different Working Groups is sometimes required to ensure mitigation strategies are aligned.

-    State Level: The third level of risk assessment addresses state-level operational and organizational risks that impact the broader aviation system. This includes risks affecting multiple aviation sectors and systemic regulatory challenges. The assessment process involves high-level discussions among National Aviation Safety Committee (NASC) stakeholders that lead to the establishment or amendment of the National Aviation Safety Plan (NASP).

2.5   To reduce the likelihood of potential safety events, risk mitigation actions are developed based on risk assessment, regulatory requirements, safety management principles and industry best practices such as Global Action Plan for the Prevention of Runway Incursions (GAPPRI) and Global Action Plan for the Prevention of Runway Excursions (GAPPRE). These mitigations may include:

-    New safety regulations or amendments to existing rules.
-    Implementing procedural changes and operational adjustments by Airlines, Airports and ANSPs.
-    Technology enhancements such as the adoption of safety systems like runway surveillance or leveraging data machine learning and artificial intelligence to achieve predictive analytics.

Stakeholder collaboration and monitoring progress are critical at this stage, ensuring that mitigation measures are feasible and effectively implemented.

2.6   State-level risks and their corresponding mitigations are systematically integrated into the National Aviation Safety Plan (NASP) to ensure a coordinated, data-driven approach to enhancing aviation safety, aligning with global safety objectives, and addressing emerging threats proactively.

2.7   All state-level risks, mitigation plans, and safety performance monitoring activities are governed by the National Aviation Safety Committee (NASC) and supporting SSP Working Groups.

3. **ACTION BY THE MEETING**

3.1   The meeting is invited to note the information contained in this paper.

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