61ST CONFERENCE OF DIRECTORS GENERAL OF CIVIL AVIATION ASIA AND PACIFIC REGION

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AGENDA ITEM 3: AVIATION SAFETY

STEPS TAKEN BY DGCA ON PREVENTION OF RUNWAY INCURSION IN INDIA

(Presented by India)

INFORMATION PAPER

SUMMARY

This paper presents the initiatives and regulatory actions undertaken by the Directorate General of Civil Aviation (DGCA), India, to mitigate the risks associated with runway incursions. Aligning with the Global Aviation Safety Plan (GASP) 2026-28 and AP-RASP 2026-2028, India has designated Runway Incursions as one of the National High-Risk Categories (N-HRC) in National Aviation Safety Plan (NASP) 2024-28. The paper highlights the promulgation of guidance circular, which outline comprehensive mitigation strategies including standard phraseology, technological interventions, and human factors management to prevent runway incursion.

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1. INTRODUCTION

1.1 Runway incursion is defined as any occurrence at an aerodrome involving the incorrect presence of an aircraft, vehicle, or person on the protected area of a surface designated for the landing and take-off of aircraft. The International Civil Aviation Organization (ICAO) Global Aviation Safety Plan (GASP) identifies runway incursions among the five Global Highest-Risk Categories of occurrences that must be addressed to mitigate the risk of aviation fatalities.

1.2 In alignment with the ICAO Global Aviation Safety Plan (GASP) 2026-2028, and Asia Pacific Regional Aviation Safety Plan (AP-RASP) 2026-2028 which emphasizes the management of operational safety risks and the implementation of Safety Enhancement Initiatives (SEIs) to reduce global high-risk categories, India has prioritized runway safety. The India National Aviation Safety Plan (NASP) 2024-2028 identifies runway incursions as a National High-Risk Category of occurrence. To effectively monitor and reduce these incidents, NASP-India incorporates specific safety performance indicators, such as the rate of runway incursions per 10,000 movements, alongside targeted SEIs. Mitigating these risks requires a collaborative approach involving regulators, aircraft operators, air navigation service providers (ANSPs), and aerodrome operators.

2. DISCUSSION

2.1 Global Context: Recent Accidents and Preventive Actions (2023–2026)

2.1.1 Over the last three years, the global aviation community has witnessed critical runway incursion events that underscore the persistent vulnerability of aerodrome surface operations. In early 2023 and 2024, a series of serious Category A and B runway incursions where aircraft came significantly close to one another occurred at major commercial airports globally, prompting urgent regulatory scrutiny. Furthermore, tragic accidents, such as the fatal high-speed collision between a commercial airliner and a coast guard aircraft at a major international airport in January 2024, highlighted the catastrophic potential of these events.

2.1.2 An analysis of accident and serious incident for the period year 2020 to year 2024 revealed that runway incursion falls under the top ten categories of occurrences in Asia-Pacific region. During this period one accident and six serious incidents occurred involving runway incursion.

2.2 Indian Context: Trend Analysis and Causal Factors

2.2.1 Analysis of runway incursion data in India indicates that no risk is associated with Category A and B of runway incursions, while Category C runway incursions have shown a significant decreasing trend.

2.2.2 Analysis of runway incursion data further provided critical insight into the systemic issues driving these events. The trend data consistently pointed to a complex combination of human and procedural factors.

2.2.3 The top three causative factors identified over this five-year period were:

- Loss of situational awareness by pilots, often compounded by a lack of familiarization with the specific aerodrome layout.
- Incorrect instructions issued by Air Traffic Control (ATC) to pilots or vehicle drivers.
- Failure by the pilot to obtain explicit clearance prior to entering the runway.

2.3 Alignment with NASP and Measured Indicators

2.4.1 As India has identified runway incursion as one of the National- High Risk Categories of Occurrences, the corresponding to Safety Performance Indicators (SPIs) along with the comprehensive action plan which includes Safety Enhancement Initiative (SEIs) have been defined in NASP 2024-2028. DGCA actively monitors following Safety Performance Indicators (SPIs), which are analyzed and presented in the Annual Safety Review:

- Number of runway incursions (aircraft) per 10, 00,000 movements.
- Number of runway incursions (vehicle) per 10, 00,000 movements.
- Number of runway incursions (person) per 10, 00,000 movements.
- Number of runway incursion incidents involving loss of situational awareness by pilots, non-familiarization with aerodrome layout, distraction per 10,00,000 movements

2.3 Implementation of Good Practices and Reduction in 2025

2.3.1 To mitigate the root causes identified in the trend analysis and operationalize the SEIs listed in NASP-India, the DGCA promulgated Air Safety Circular (ASC) 02 of 2024. This directive established a collaborative, multi-stakeholder framework.

2.3.2 This circular outlines several action items from the Global Action Plan for the Prevention of Runway Incursions (GAPPRI) to mitigate the major causative factors identified during the analysis and further it encourages stakeholders to implement all the action items of GAPPRI.

2.3.2 The rigorous enforcement of these safety measures, combined with a sector-wide commitment to continuous improvement, led to a measurable reduction in runway incursions across Indian aerodromes in 2025. Key implemented practices included:

- Flight Deck Procedures: Aircraft operators enforced policies to minimize "heads-down" activities and mandated a "sterile flight deck" during taxiing. Pilots were required to obtain explicit clearance before crossing any runway and strictly prohibited from crossing illuminated red stop bars.
- Communication and Clearances: ATC eliminated communication ambiguity by strictly enforcing standard ICAO phraseologies and rigorous read-back procedures. Explicit clearances, including the specific runway designator, were mandated.

- Infrastructure and Technology: Aerodrome operators maintained highly visible and unambiguous signage and markings. The adoption of the Advanced-Surface Movement Guidance and Control System (A-SMGCS) was promoted to improve ATC's situational awareness.
- Runway Safety Teams (RST) & Collaborative Safety: India mandated the establishment of effective RSTs at all licensed aerodromes to conduct routine assessments using the ICAO runway safety maturity checklist. Furthermore, DGCA's Safety Seminar in 2025 fostered crucial cross-sector collaboration, directly addressing runway incursions and strengthening the national safety culture.

3. ACTION BY THE CONFERENCE

3.1 The Conference is invited to:

a) note the information and mitigation strategies promulgated by India to prevent runway incursions; and

b) encourage Member APAC States to align their National Aviation Safety Plans with the ICAO GASP 2026-28 and AP-RASP 2026-2028 to actively address high-risk category of runway incursion through collaborative, data-driven Safety Enhancement Initiatives.

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