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WORKING PAPER

ASSEMBLY — 42ND SESSION

TECHNICAL COMMISSION

Agenda Item 24: Aviation Safety and Air Navigation Priority Initiatives

STRATEGIC APPROACH TO BIRD STRIKES FOR AVIATION SAFETY

(Presented by the Republic of Korea)

EXECUTIVE SUMMARY

As bird strike risks grow due to climate-driven changes in bird habitats and migratory patterns, many States are adopting bird detection radar systems as proactive safety tools. However, the absence of ICAO -defined technical specifications and operational guidance has led to inconsistent implementation and operational challenges. To enhance the global effectiveness of bird strike prevention, ICAO is invited to develop internationally harmonized technical specifications and operational guidance for these systems

Action: The Assembly is invited to:

a) acknowledge the need for standardized technical specifications and operational guidance for bird detection radar systems in the context of growing bird strike risks;
b) urge ICAO to strengthen global responses to bird strike risks by developing technical specifications and operational guidance for bird detection radar systems, clearly defining responsibilities across detection, analysis, alerting, and flight decision-making; and
c) request ICAO to incorporate such specifications and guidance into the *Airport Services Manual* (Doc 9137), Part 3 — *Wildlife Hazard Management,* Chapter 6.4 (Detection Systems) enabling Member States to implement harmonized, scalable, and locally adaptable models for collaborative response.

Strategic Goals:	This working paper relates to *Every Flight is Safe and Secure.*
Financial implications:	Not determined
References:	Annex 14 – *Aerodromes*, Volume 1 — *Aerodrome Design and Operations* Doc 10004, *Global Aviation Safety Plan* Doc 9981, *Procedures For Air Navigation Services — Aerodromes* Doc 9137, *Airport Services Manual*, Part 3 — *Wildlife Hazard Management*

1. INTRODUCTION

1.1 Structural changes in ecosystems driven by climate change are increasingly influencing aviation safety. In particular, shifts in bird habitats and migratory behaviour are raising the risk of bird strikes in and around airports.

1.2 Bird strikes are now a serious safety and economic issue, contributing to multiple fatal accidents and over USD 1 billion in annual losses to the aviation industry. Approximately 96 per cent of strikes occur on or near airports, highlighting the urgent need for advanced monitoring and response mechanisms.

1.3 Many Member States have begun introducing bird detection radar systems, which represent a shift from traditional physical deterrence toward technology-based, near real-time monitoring and risk analysis. These systems are gaining attention as a scientific and pre-emptive approach to enhancing aviation safety.

1.4 Bird strike risks are closely aligned with the six strategic objectives of the Global Aviation Safety Plan (GASP), requiring a global, integrated response combining technology, procedures, and institutional coordination.

2. DISCUSSION

2.1 Despite growing global adoption, ICAO has not yet established dedicated technical specifications or operational guidance for bird detection radar systems. The absence of such materials poses practical challenges in system evaluation, deployment, and integration.

2.2 The Republic of Korea has experienced these challenges first-hand through pilot projects and subsequent full-scale implementation. To overcome this, the Republic of Korea developed and applied its own “National Technical Specifications for Bird Detection Radar Systems,” but acknowledges the need for global harmonization to support other States.

2.3 Moreover, bird detection radar systems are not standalone tools. An integrated response mechanism—linking airport operators, air navigation service providers, and airline operators—is essential. This should enable real-time information sharing, alert dissemination, and coordinated operational decision-making. A comparable model is a Global Reporting Format (GRF) for runway condition assessment, which fosters multi-stakeholder coordination.

2.4 In addition, Artificial Intelligence (AI)-powered bird risk analysis solutions are playing an increasingly important role. These tools leverage historical and real-time data from radar systems to forecast bird activity based on time and weather, improving early warnings and operational planning. Such capabilities enhance both precision and efficiency in bird strike prevention.

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