International Civil Aviation Organization

Sixth Meeting of the Asia/Pacific Wildlife Hazard Management Working Group (AP–WHM/WG/6)

Bangkok, Thailand, 14 to 17 May 2024

Agenda Item 3: Global, Regional and National Guidance/Best Practices on Wildlife Hazard Management

PROPOSAL TO SUBMIT WORKING PAPER ON WILDLIFE HAZARD MANAGEMENT TO FOURTEENTH AIR NAVIGATION CONFERENCE (AN-CONF/14)

(Presented by Chair AAWHG/Australia on behalf of the Global WHM SME Group)

SUMMARY

This paper proposes submission of a Working Paper to the AN-CONF/14 on Wildlife Hazard Management with ultimate aim to establish a multi-disciplinary/multi-panel working group to develop best practice guidance on a systemic approach to this hazard. It also seeks any like-minded APAC States who may be interested in co-sponsoring.

1. INTRODUCTION

1.1 Wildlife Hazards to aviation are as old as aviation itself. Whilst many things have continued to develop and improve over time as thinking and technology have developed, the approach to WHM in aviation has remained steady if not stagnant – disproportionately burdening aerodromes with conducting risk *assessments*[1] rather than concentrating on hazard identification, hazard management and communication (threat assessment).

1.2 Wildlife Hazard Management is a shared responsibility with each aviation stakeholder owning a part of the process but the aircraft operator/pilot being the party directly impacted by the threat and hence the ultimate authority for the assessment of risk and/or the acceptance of it.

1.3 The traditional Annex/Panel based system for the development of SARPs is single-discipline centric and a possible contributor to the current situation. The intention of the proposed paper to AN-CONF/14 is evolutionary not revolutionary and seeks to enhance and assist practices currently published within the ICAO framework, hence allowing all aviation *spheres* to move toward a better and more effective solution whilst still meeting the minimum required prescriptive standards.

2. DISCUSSION

2.1 Of ICAO's five strategic objectives, the first two objectives are the Safe and Efficient conduct of civil aviation. This is not safety at all costs nor is it a desire to be efficient at the cost of safety — it is in-fact a strategic acknowledgement and emphasis that States must seek to achieve both harmony and balance. The roadmap or plan to achieve this is ICAO's Global Air Navigation Plan (GANP) and the Global Aviation Safety Plan (GASP), each a key contributor to the achievement of ICAO's Strategic Objectives.

[1] This is reflected in the substantial material in Doc9137 under Annex 14 related to a single hazard (on WHM) while Doc9859 (under Annex 19) does not cite a single one.

2.2 Accordingly, we must seek to ensure the investment in the aviation system not only yields the effect we are desiring – minimization of risk while optimization of efficiency, but also that ineffective measures are minimized or even eliminated.

2.3 The purpose of the GANP is to equitably accommodate all airspace users' operations in a safe, secure and cost-effective manner while reducing the aviation environmental impact. To this end, the GANP provides a series of operational improvements to increase capacity, efficiency, predictability, flexibility while ensuring interoperability of systems and harmonization of procedures. The GASP supports the implementation of the GANP by promoting the effective implementation of safety oversight and a safety management approach to oversight, including to see systemic wildlife hazard management a part of safety risk management to permit innovation in a managed way.

2.4 In order to achieve both the economic and safety outcomes sought through the GANP and GASP, a harmonised and systemic approach is essential, maximising outcomes and minimising resource impost. At the heart of achieving this is effective application of risk-management and associated risk-based decision making leading to a safe and efficient aviation system.

2.5 To achieve this, the right information needs to be provided to the right stakeholders in a timely manner, avoiding any unnecessary delays or unhelpful information.

2.6 This occurs extremely well in many parts of the aviation system and across multiple disciplines from various SARPs. For example, aviation meteorological information which is gathered and quantified by scientists (forecasters) for Meteorological Service Providers (Annex 3), is transmitted via AIS/ATM systems (Annex 10, 11 & 15) to various locations, where ultimately the aircraft operator (Annex 6) makes a risk-based/informed decision based on this information – but this is not necessarily the case with respect to Wildlife Hazard Management.

2.7 It has been demonstrated that a systemic and successful approach is possible with ICAO Doc 9974 'Flight Safety and Volcanic Ash'. It was first published in 2012 and follows significant work undertaken in 2010-11 in the wake of the Eyjafjallajökull volcanic eruption that closed most of Europe's airways. Doc 9974 quite succinctly and systemically details the individuals' responsibilities related to this hazard (science, ANS/ATM, aircraft operator and Regulator), details communication requirements, discusses when it should be considered a *threat* to aviation operations and details when and how the assessment and response by the individual operator to volcanic ash contamination should occur. This document has been very successful in helping all stakeholders understand their individual roles and responsibilities and is currently in review and update by a multi-disciplinary/multi-panel task-group to ensure it continues to be as valuable a resource.

2.8 **Problem statement.** Annex 14 specifically talks to 'wildlife hazard strike reduction' and requires active and passive management of the hazard with view to reducing the likelihood of it becoming a threat to aviation – this is necessary. It should be noted though, Annex 14 does not talk to nor require 'risk assessment'.

2.9 Over the years though, the subordinate materials ('Airport Services Manual' (Doc 9137) Part 3 and 'PANS-Aerodromes' (Doc 9981) have evolved beyond the requirements of Annex 14, they have confused terminology and they have induced inefficiencies with potential to impact safety to the extent that an apparent anomaly now exists with regard to wildlife hazards and risk management in the aviation system.

2.10 Annex 14 states *'Action shall be taken to decrease the risk to aircraft operations by adopting measures to minimize the likelihood of collisions between wildlife and aircraft.'* — the emphasis here being on reduction of *likelihood*. By contrast, PANS-Aerodromes and Airport Services Manual, Part 3 stipulates that '*A wildlife safety risk assessment shall be conducted, covering the aerodrome and its vicinity'*. This may seem on the surface as appropriate, but it is a step well beyond

likelihood. This situation is compounded by near-interchangeable use of the terms of hazard and risk throughout all these documents and contrary to the 'Safety Management Manual' (Doc 9859).

2.11 In fact, another more telling example exists in PANS-AD; Attachment B to Chapter 3 (I-3-Att B-1) which states *'The risk assessment takes into account the probability of **occurrence** of a hazard and the severity of its consequences; the risk is evaluated by combining the two values for severity and probability of occurrence.* This contrasts with the ICAO 'Safety Management Manual' (Doc 9859) Chapter 9 and Figure 9-1 (cited as the reference source) which says, *'Analyse the likelihood of the **consequences** occurring'*. The imperative here, the likelihood of a hazard occurring is vastly different to the likelihood of an outcome from a wildlife strike (the given consequence).

2.12 Further, the risk associated with a single threat (i.e. the same wildlife species, at the same location) actually varies across different aircraft types (rotorcraft to light aircraft to turbo-prop to high-capacity jet). Therefore, the effort in making these assessments are consuming substantial resources at the aerodrome level and generating a false sense of safety with aircraft operators and provide no direct benefit to anyone.

2.13 To help address this dilemma and bridge the gap between the known hazard and the possible risk a term such as 'threat' is beneficial. The term is not new and has featured in 'PANS-Training' (Doc 9868), specifically is the area of Threat and Error Management where it says — *'Threats are defined as events or errors that occur beyond the influence of the flight crew, increase operational complexity, and must be managed to maintain the margins of safety. During typical flight operations, flight crews have to manage various contextual complexities, for example, adverse meteorological conditions, airports surrounded by high mountains, congested airspace, aircraft malfunctions, and errors committed by other people outside of the cockpit, such as air traffic controllers, flight attendants or maintenance workers'*.

2.14 Wildlife management adapts perfectly into this concept. It can be as simple as saying the Hazard is Wildlife; the Threat is Wildlife in airspace potentially needed by aircraft for operations (termed Critical Airspace) and the Risk is when aircraft are in critical airspace in the presence of Wildlife.

2.15 Accordingly, and instead of substantial effort and expenditure of time and resources into risk-assessments, effort should be placed into quantifying the extent of the threat to operations and ensuring effective and consistent communication of this threat across the system (to all parties involved but specifically ATC and onwards to the aircraft operators and /or pilots) in a similar manner to the transmission of MET information. Thus, facilitating and, in fact, requiring the aircraft operator to consider the risk to their operation and aircraft and accordingly make an appropriate risk-based/informed decision.

3. CONCLUSION

3.1 Wildlife Hazards to aviation are as old as aviation itself. Whilst many things have continued to develop and improve over time as thinking and technology have developed, the approach to WHM in aviation has remained steady if not stagnant – disproportionately burdening aerodromes with conducting risk assessments rather than concentrating on hazard identification, hazard management and communication (threat assessment).

3.2 The Annex/Panel based development of SARPs is discipline centric and a possible contributor to the current situation. The intention of the proposed paper to AN-CONF/14 is evolutionary not revolutionary and seeks to enhance and assist practices currently published within the ICAO framework, hence allowing all aviation *spheres* to move toward a better and more effective solution whilst still meeting the minimum required prescriptive standards.

3.3 Wildlife Hazard Management is a shared responsibility with each aviation stakeholder owning a part of the process but the aircraft operator/pilot being the party directly impacted by the threat and hence the ultimate authority for the assessment of risk and/or the acceptance of it.

3.4 While all stakeholders need to *consider* the potential for risk (i.e. the threat to aviation operations), the ULTIMATE responsibility for the assessment of risk and acceptance lies with the aircraft operator/pilot themselves.

3.5 Accordingly, the proposed paper seeks ANC support to establish a multi-disciplinary SME Group whose primary focus is on the consideration of systematic cross-disciplinary management of wildlife hazards, and the development of a best-practice guide[2] to address the roles, responsibilities and accountabilities with this regard. The elements/parameters that may be considered are:

a) The need for a system-based approach to WHM, including delineation of hazard, threat and risk and the appropriate authority for the acceptance of risk,

b) The opportunity to move away from prescriptive, hard limits (3km, 8km and 13km) surrounding airports that do not necessarily consider local factors or operational parameters. This may include a move toward the development of and application of *critical* airspace to allow for local adapted flexibility whilst retaining a robust system-based approach to risk,

c) A structured process assigning clear responsibilities for all stakeholders involved; and

d) Need for holistic education and promotion, a shared understanding and acceptance of responsibilities for all involved stakeholders.

4. ACTION BY THE MEETING

4.1 The meeting is invited to:

a) note the information contained in this paper,

b) discuss any relevant matters as appropriate; and

c) advise of interest to co-sponsor a paper on this matter to AN-CONF/14.

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[2] Possibly similar to ICAO Doc9974 *'Flight Safety and Volcanic Ash'*