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

WILDLIFE HAZARD MANAGEMENT AT VELANA INTERNATIONAL AIRPORT

(Presented by Maldives)

SUMMARY

Since the earliest days of flight, aircraft have encountered wildlife both in the air and on the ground. Encounters with birds and other animals have become increasingly frequent with the advent of faster, quieter aircraft, elevating the risk of serious damage to aircraft and threats to human lives.

To mitigate these risks, Velana International Airport (VIA) has implemented a comprehensive Wildlife Hazard Management Plan (WHMP), supported by a dedicated Wildlife Hazard Management Team that proactively manages wildlife risks to enhance aviation safety.

This paper outlines the strategies, ongoing initiatives, and plans adopted at VIA to address wildlife hazards, including developments related to the certification of the world's largest water aerodrome and specialized SOPs for wildlife management in marine environments

1. INTRODUCTION

1.1 Wildlife strikes continue to pose a significant threat to aviation safety globally. At Velana International Airport (VIA), ensuring safe operations is a top priority, with comprehensive wildlife hazard management measures actively implemented.

1.2 In recognition of VIA's unique operational environment—encompassing both land-based and water aerodrome operations—a proactive, data-driven Wildlife Hazard Management Plan (WHMP) has been established. A dedicated Wildlife Hazard Management Team is responsible for the daily implementation, monitoring, and continual improvement of mitigation strategies.

1.3 Additionally, with the ongoing development and certification process of the world's largest water aerodrome at VIA, Standard Operating Procedures (SOPs) for Wildlife Hazard Management specific to the water aerodrome environment are currently being developed. This initiative ensures that WHM practices at VIA remain at the forefront of global aviation safety standards.

2. DISCUSSION

Wildlife Hazard Management Program at VIA

2.1 The WHMP at VIA is designed to systematically identify, assess, and mitigate risks posed by wildlife, with birds representing the primary hazard. The program complies with ICAO Standards and Recommended Practices (SARPs) and incorporates global and regional best practices.

2.2 Key components of the WHMP include:

- Routine wildlife hazard assessments and surveys.
- Monitoring the attraction of marine wildlife, including fish schools and surface-feeding birds, near operational areas.
- Deployment of wildlife dispersal techniques, such as auditory deterrents, visual scare devices, and habitat management.
- Regular training and awareness programs for operational staff.
- Coordination with key stakeholders, including airlines, air traffic control (ATC), and ground handling teams.
- Systematic data collection, analysis, and reporting of wildlife strike incidents to inform continuous improvement efforts.

2.3 The Wildlife Hazard Management Team conducts daily aerodrome patrols, focusing on preventive actions and immediate intervention where wildlife hazards are detected.

2.4 VIA collaborates closely with the Maldives Civil Aviation Authority (MCAA) to ensure regulatory compliance and to develop wildlife management strategies tailored to the island ecosystem. This work is further supported by partnerships with national environmental agencies to balance operational needs with environmental sustainability.

2.5 VIA is an active member of the National Wildlife Committee (NWC). In 2024, VIA participated in two NWC meetings and one working group session, contributing to national strategies on wildlife hazard management.

Risk Assessment and Wildlife Monitoring

2.6 VIA has adopted a risk-based approach to wildlife management. A dedicated Wildlife Control Unit conducts daily patrols, records sightings and strike incidents, and performs species-specific risk assessments to prioritize mitigation activities.

2.7 Wildlife hazard assessments are conducted regularly, with a comprehensive wildlife strike database maintained in coordination with national reporting systems.

2.8 Seasonal variations and migratory patterns are continuously monitored in collaboration with local environmental authorities to support adaptive management strategies.

Wildlife Control and Deterrence Measures

2.9 VIA employs a combination of active and passive control measures:

1. Active control measures include distress calls, laser deterrents, mobile patrols, gas cannons, and use of live firearms where necessary.
2. Passive control measures focus on habitat modification, including grass height management, water drainage improvements, and robust waste management protocols to eliminate wildlife attractants.



Figure 1 Clappers



Figure 2 Laser



Figure 3 Gas Cannon



Figure 4 Removing of Nests

Capacity Building and Stakeholder Engagement

2.10 VIA prioritizes the training of its wildlife management personnel through workshops, and ICAO-endorsed courses.

2.11 Cross-agency cooperation is a key component, with joint efforts involving air traffic control, local airlines, ground handling, and environmental authorities. These partnerships support a coordinated response to wildlife threats and help embed a safety culture across airport operations.

2.12 Awareness programs are also planned for implementation in 2025 across all airports in the Maldives to promote Wildlife Hazard Management. A comprehensive syllabus has been jointly developed by Velana International Airport (VIA), the Maldives Civil Aviation Authority (MCAA), and the Environmental Protection Agency (EPA).

Data-Driven Improvement and Future Plans

2.13 VIA is exploring the adoption of solutions to enhance early detection and response capabilities.

2.14 Future initiatives include the development of a dynamic hazard map, enabling real-time decision-making support for airport operations teams.

2.15 VIA remains committed to continuous improvement by participating in regional wildlife management forums, sharing best practices, and benchmarking against international airports operating in similar environments.

Challenges in Wildlife Hazard Management at VIA

2.16 Unique Environmental Conditions: VIA's location in a tropical island ecosystem presents distinctive challenges. The surrounding marine environment naturally attracts a variety of bird species and marine life, creating a persistent risk of wildlife encounters, particularly near the water aerodrome.

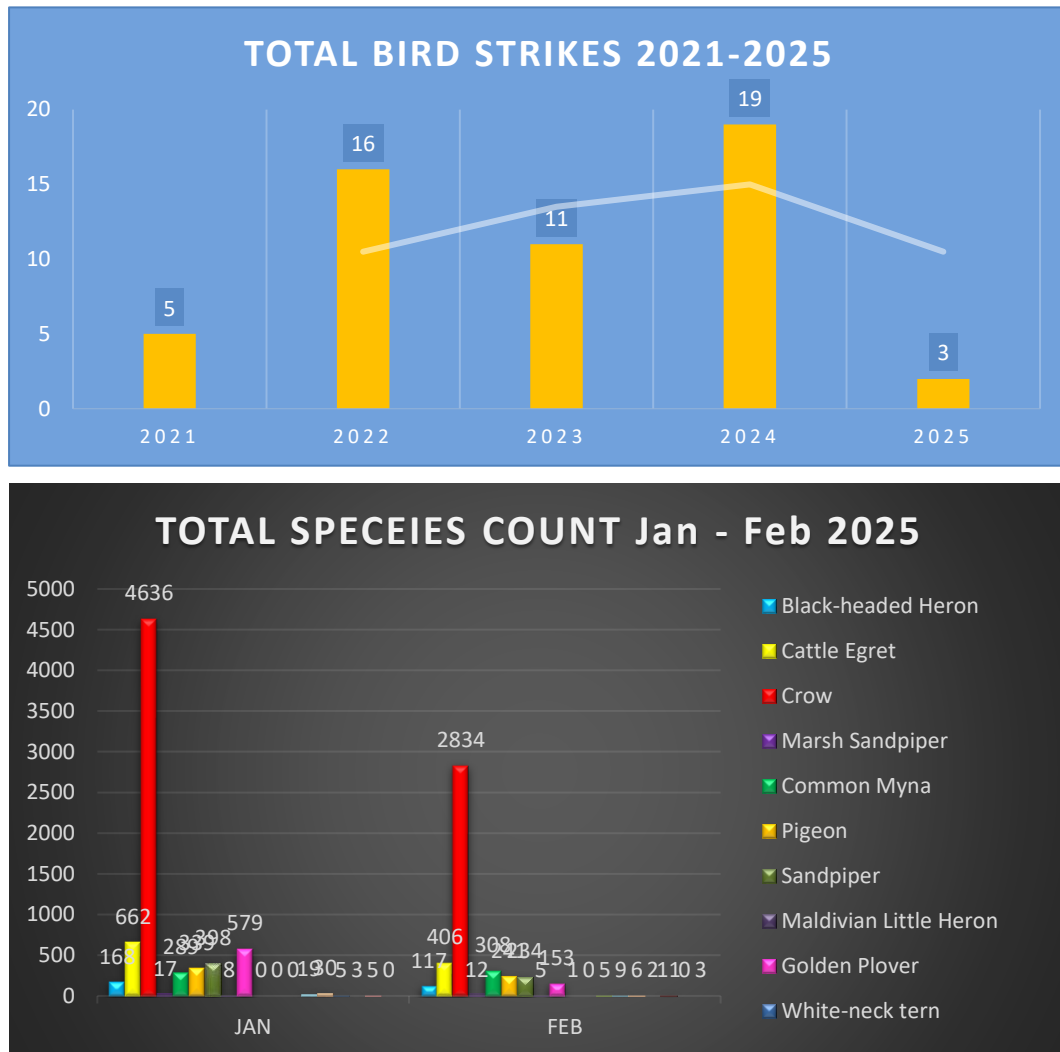
2.17 Weather and Seasonal Variations: Monsoon seasons and migratory patterns lead to fluctuating wildlife populations, necessitating flexible and dynamic hazard management approaches to address seasonal spikes in wildlife activity.

2.18 Balancing Environmental Conservation and Safety: As a hub in a highly sensitive natural environment, VIA must balance aviation safety priorities with environmental protection mandates. This requires close coordination with environmental authorities to ensure wildlife control measures are effective yet environmentally responsible.

2.19 Resource Constraints: Expanding wildlife control operations to cover both land and water aerodrome areas demands significant resources, including specialized equipment, training, and personnel, which presents operational and financial challenges.

2.20 Rapid Expansion of Operations: The growth in air traffic at VIA, including the expansion of seaplane operations, increases the complexity of wildlife hazard management and the need for more sophisticated detection and deterrence systems.

2.21 Data Gaps and Species Behavior Knowledge: Limited scientific research on certain local and migratory bird species' behavior in the Maldives can hinder predictive risk assessments and the development of targeted mitigation measures.



3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- note the information contained in this paper; and
- discuss any relevant matters as appropriate.

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