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

**MEASURES IMPLEMENTED TO MITIGATE BIRD & FRUIT BAT HAZARDS AT
CHENNAI INTERNATIONAL AIRPORT, CHENNAI**

(Presented by India)

SUMMARY

This paper will explore the strategies implemented by Chennai International Airport—one of India’s busiest civil airports in India—to mitigate wildlife hazards, particularly bird and fruit bat intrusions, which posed significant risks to flight safety. The study focuses on two innovative deterrent methods:

- a) Reflective Compact Disks (CDs) – Deployed as a visual deterrent to scare away fruit bats, leveraging light reflections to disrupt their roosting patterns near Airport Vicinity.
- b) Compressed Air-Assisted Horn – Used to disperse birds and other wildlife from the Airport vicinity through controlled auditory stimuli.

1. INTRODUCTION:

1.1 Chennai International Airport is the 4th busiest airport in India in terms of passenger traffic and Aircraft movements. Established in 1930, it is one of the oldest airports in the country and serves as a major gateway for South India, handling both domestic and international flights.

1.2 Chennai Airport operates two runways: the primary runway (07/25) and the secondary runway (12/30), each influenced by unique geographical and infrastructural characteristics that impact both airport operations and wildlife risks. The primary runway is mainly in use. On the southern side of primary runway, a highly developed, densely populated area attracts scavenger birds like kites and rock pigeons, drawn by high human activity and waste generation. In contrast, the northern side features a grassy expanse that appeals to ground-nesting birds, along with the Adyar River flowing nearby, which creates wetlands that attract water bird and other wildlife. To the southeast of the runway, old residential quarters, surrounded by dense trees, serves as a roosting site for large colonies of Fruit Bats (Indian flying foxes), posing collision risks during dawn/dusk flights.

Chennai International Airport



1.3 The migration of fruit bats from the southern side to the northern side of the primary runway (approach path of RWY 25) at night in search of food, followed by their return to roosting sites in the early morning, has led to an increase in bird strikes, creating a serious safety risk for aircraft operations. Furthermore, pigeons and egrets are drawn to the northern side of the primary runway during the day, attracted by the grassy expanse and the wetlands of the Adyar River, which are rich in insects and other small creatures.

1.4 Fruit bats are classified as "vermin" under Schedule V of the Indian Wildlife Protection Act, 1972, meaning they are not legally protected and are considered pests. Similarly, the Blue Rock Pigeon (*Columba Livia*) is also excluded from protection under the same Act. However, using firearms to kill these animals remains prohibited by law in India.

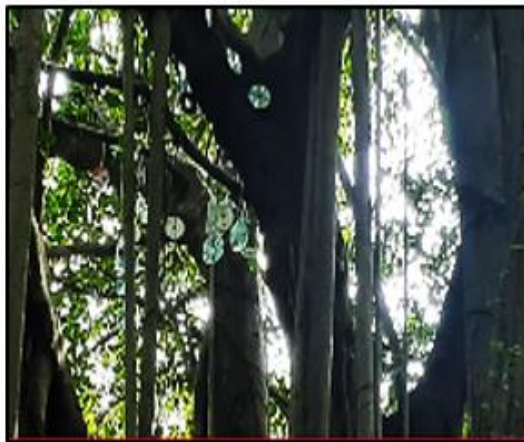
1.5 Fruit bats (also called megabats or flying foxes) actually have good eyesight. Unlike smaller insect-eating bats (which often rely heavily on echolocation), fruit bats have large, well-developed eyes that give them excellent visual acuity. They can see clearly in both daylight and low-light conditions like twilight. Most fruit bats don't echolocate at all, they depend on their eyesight and sense of smell to find food. (A few species like the Egyptian fruit bat can echolocate, but it's different from the high-frequency sonar of smaller bats.)

2. DISCUSSION:

2.1 Use of Visual Deterrents: Reflective CDs and Focused Lighting:

2.1.1 To deter fruit bats roosting in the banyan trees near the residential colony close to the airport, reflective compact disks (CDs) were strategically hung from the branches. The CDs scatter sunlight, creating flashing reflections that disturb the bats. To amplify the effect at night, focused lights were installed around the trees, ensuring continuous light reflection in all directions.

2.1.2 This method has successfully repelled the bats, forcing them to abandon the trees long-term without returning and no bird strikes involving fruit bats were reported till date. It is environmentally friendly and has no negative impact on the ecosystem. However, the CDs lose their reflective efficiency over time and must be replaced every six months to maintain effectiveness.



2.2 Limitations of Conventional Sound-Based Bird Deterrents:

2.2.1 To deter rock pigeons, egrets, kites and other seasonal birds, the conventional approach involved using firecrackers deployed by bird scarers. However, this method presents several significant drawbacks:

- Security Risks – Carrying firecrackers within operational areas raises security concerns.
- Safety Hazards – The storage of firecrackers within the operational area presents a fire risk and may also lead to injuries among bird scaring personnel if not handled properly.
- Grass Fires – The use of firecrackers has led to unintended grass fires, jeopardizing aircraft safety and causing operational delays.
- Given these risks, alternative bird deterrent methods are necessary to ensure both safety and operational efficiency.

2.3 Sound Deterrents: Compressed Air-Assisted Horn

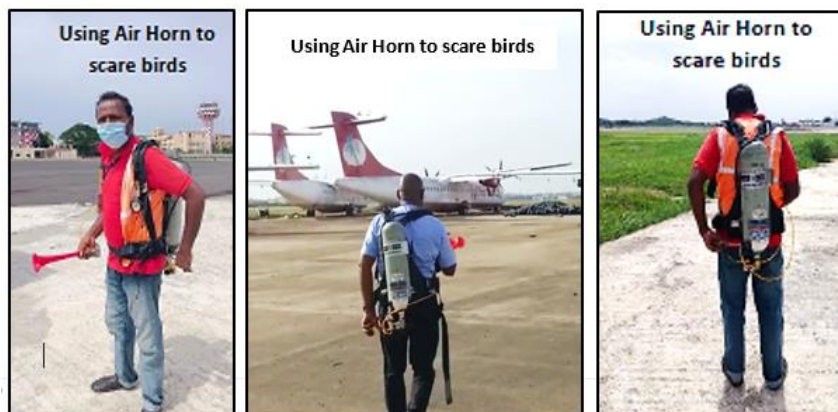
2.3.1 To effectively deter rock pigeons, egrets, kites and other seasonal birds within Airfield, an in-house modified air horn system was developed using decommissioned Breathing Apparatus (BA) sets that had been replaced by newer, lightweight models in the Airport Fire Service.

Design & Functionality:

- The Breathing Apparatus sets, with a cylinder capacity of 6 litres at 300 bar pressure were retrofitted with high-decibel air horns (capable of producing sound up to 150 dB) at their pressure regulated (10 bar) air outlet. With a fully filled cylinder, the air horns can be activated over 100 times.
- The BA set cylinders can be refilled using the existing facilities (Air Compressor) at the airport fire station, with no additional financial cost.
- The device is ergonomically designed for comfortable wear and operation by bird scarers.

Key Advantages:

- Highly Effective – Produces loud, startling sounds that effectively disperse birds.
- Eco-Friendly – No explosive materials or fire risks.
- Cost-Efficient – Repurposes unused equipment, reducing procurement costs.
- Operationally Safe – No grass fires or security concerns, ensuring uninterrupted airport operations.
- This innovative solution has proven to be a sustainable, safe, and efficient alternative to firecrackers for wildlife management in airport operational areas.



3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) note the effective practices implemented by Chennai International Airport, Chennai, aimed at deterring Fruit Bats by using reflective Compact Disks and scaring away Road Pigeons, Egrets and other seasonal birds by using Compressed Air- Assisted Horn; and
- b) discuss any relevant matters as appropriate.

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