CII National Award for
Environmental Best Practices 2026

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GMR Hyderabad International Airport Limited

HYD RAJIV GANDHI INTERNATIONAL AIRPORT
GMR AERO ENTERPRISE

Project Title:

Balancing Biodiversity Conservation with Safe and Efficient Airport Operations

at

Rajiv Gandhi International Airport, Shamshabad, Hyderabad

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Why the Project Was Needed

State Government directive
Protect the twin freshwater lakes near the airport

Zero runoff discharge
No discharge of airport rainwater runoff permitted

Airside reservoir created
Rainwater stored on the airside instead

Migratory waterbirds arrived
Shoveler, Pintail, Wigeon, Green-winged teal & Spoonbill raised bird–aircraft strike risk

PROJECT TIMELINE

8 months

Apr 2025
Commencement

Nov 2025
Completion



Northern shoveler *Spatula clypeata*



Green-winged teal *Anas crecca*

THE RISK CHAIN

Trigger
Lakes protected, runoff held back

Exposure
Reservoir attracts waterbirds

Risk
Bird–aircraft strike hazard

Safe balance
Non-lethal ecological fixes

What makes it unique: non-lethal ecological interventions mitigated the hazard — balancing aviation safety with biodiversity conservation.



Airside Reservoir for Rainwater Runoff Storage at the Airport.

BENEFITS

Results at a Glance

0
bird strikes
Dec 2025 – Apr 2026 migratory season

71%
lower bird movement
at the reservoir near the flight path

~45
migratory species
supported on the Central Asian Flyway

< SPT
bird-strike indicators
below DGCA Safety Performance Target

Tangible

- Zero bird strikes through the migratory season
- 45 → 13 species using the reservoir
- ~45 migratory species still supported in the Central Asian Flyway
- Reduced dispersal effort for airside teams
- Bird-strike indicators below the DGCA SPT

Intangible

- **Enhanced aviation safety**
- **Stakeholder confidence**
- **Regulatory compliance**
- **Water conservation & ecosystem resilience**

From Scaring Birds to Managing Habitat

BEFORE | Conventional methods



Dedicated bird-dispersal manpower deployed with wooden clappers and pyrotechnics



Dedicated manpower



Wooden clappers



Pyrotechnics

AFTER | Improved methods



No dispersal effort needed at the reservoir area

Habitat Fragmenter

Black Light Traps

Zero dispersal at reservoir

Habitat Fragmenter: Design & Installation





Ecological rationale

Installed in November 2025, the fragmenter divides open-water habitat discouraging birds from landing and taking off, reducing flocking near flight paths, and keeping the approach entirely non-lethal.

Fragment open water → **Discourage landing** → **Reduce strike risk**

PROPERTIES OF THE FRAGMENTER

Material of construction

- Frangible poles
- GI wire
- Aluminium dangles

Area of installation

Airside reservoir

Execution period

Apr 2025 – Nov 2025

Project cost

₹16 lakh

Black Light Traps



Solar-powered Black Light Trap on the airside

₹8 lakh
per unit

2 weeks
to execute

Airside
installation area

HOW IT WORKS

UV light attracts insects → **Insects trapped** → **Fewer insects on airside** → **Fewer birds & bats drawn in** → **Lower runway risk**

INSTALLATION SPECIFICATION

- **400 W** solar panel
- **150 Ah** battery
- **UV bulb** light source
- **FRP tank** 3 m dia × 0.5 m H
- **Metal frame** 3 m × 1.5 m
- **Glass beaker** collection

Operational benefit: strategically placed across the airport to cut insect abundance in critical operational areas — a science-based way to reduce attraction for insectivorous birds and bats.

Within GMR Group Companies

Proven at RGIA → Roll out across GMR airports & assets → Run by cross-functional teams

Habitat Fragmenter

- Demonstrated at RGIA as a non-lethal bird-hazard mitigation solution
- Suits airports, reservoirs, wetlands, retention ponds and stormwater systems
- Enhances aviation safety while supporting biodiversity conservation

Black Light Trap (BLT)

- Scientifically reduces insect abundance, limiting attraction for insectivorous birds
- Easy to deploy at airports, cargo villages, industrial parks and utility areas
- Supports integrated pest and wildlife-attraction management

CROSS-FUNCTIONAL IMPLEMENTATION TEAMS

- **Environment**
- **Airside**
- **Safety**
- **Sustainability**

Beyond the Group: Across the Sector

Habitat Fragmenter

A scalable model for managing bird congregation around water bodies

Black Light Trap

Reduces bird-strike risk through ecological food-web management

REPLICABLE ACROSS

- Civil airports
- Military airfields
- Ports
- Reservoirs
- Industrial estates
- Logistics hubs
- Power plants

WHY IT SCALES

- Aligned with ICAO & DGCA habitat-management principles
- Cost-effective, environmentally sustainable and easily scalable
- Balances operational safety with ecological sustainability
- Works on the food web, not just the birds

Challenges & How We Mitigated Them

Technical

CHALLENGE

Finding the optimum fragment size and layout to discourage waterbird landing.

MITIGATION

Site-specific assessments, pilot trials and periodic monitoring to optimise fragmenter design and placement.

Administrative

CHALLENGE

Securing approvals and coordinating multiple stakeholders to install inside a live operational airport.

MITIGATION

Clearances through cross-functional coordination.

Maintenance

CHALLENGE

Wear and tear from weather, fluctuating water levels and prolonged exposure.

MITIGATION

Preventive maintenance schedule, periodic inspections and timely replacement of damaged components.

A Benchmark for Sustainable Airports

Policy alignment

National Biodiversity Action Plan, 2024-2030
Wildlife (Protection) Act, 1972
Biological Diversity Act, 2002
International Union for Conservation of Nature (IUCN)

Safety + conservation

Proves aviation safety and biodiversity conservation can be integrated

RGI Airport
benchmark for sustainable airport environmental stewardship

Water stewardship

Strengthens groundwater recharge and watershed conservation

Governance

Enhances aviation safety, stakeholder confidence and regulatory compliance in wildlife-hazard management

Fast-Track Priority Plans: Year 1 and +2 Years

YEAR 1 Strengthen & expand

+2 YEARS Predict, digitise & replicate



1	2	3	4	5	6	7	8
Expand Habitat Fragmenter coverage	Install additional BLTs	Strengthen biodiversity monitoring	Improve wildlife analytics	Predictive wildlife-risk modelling	Digital biodiversity dashboard	ISO 17298:2025 Bio-diversity certification	Research partnerships with academia

Best Practices Adopted During Implementation

01

Non-lethal wildlife management

02

Evidence-based decision making

03

Continuous bird monitoring

04

Pest management strategy

05

Ecology-led dispersal — understanding bird & wildlife behaviour

06

Water-body habitat management

07

Wildlife rescue & rehabilitation

08

Stakeholder collaboration & awareness

PROJECT OUTCOME

Major Learnings

Sustained, not short-term

Habitat modification and food-web management cut wildlife attractants, delivering lasting risk reduction rather than short-term mitigation.

Data drives decisions

Continuous monitoring of bird activity, species diversity and strike trends enabled data-driven interventions and adaptive management.

Safety and conservation coexist

Aviation-safety goals were met while supporting migratory birds on the Central Asian Flyway.

Recognised stewardship

Measures drew positive recognition from regulators, conservation agencies and airport stakeholders.

Ecology + innovation

Combining ecological principles with Habitat Fragmenters and BLTs delivered stronger safety and sustainability outcomes.

Bottom line: ecology-led, non-lethal measures delivered aviation-safety and biodiversity gains together.

Tree Translocation Initiative

Mature Banyan tree

Ficus benghalensis

Translocated and replanted within RGIA in 2025

Protect the asset

Mature tree affected by road expansion near RGIA

Translocate carefully

Carefully relocated rather than lost to construction

Replant at a rotary

Replanted at a rotary within the airport premises

Protecting ecological assets during infrastructure development



Translocated Banyan tree at an RGIA rotary, GMR Varalakshmi Foundation

Dedicated Team for Wildlife Rescue Operations

Indian rock python *(Python molurus)* rescued from the runway

Schedule I species
Wildlife (Protection) Act, 1972



Python sighted on the airport runway



Rescue operation by the team



Translocated to Nehru Zoological Park, Hyderabad

Non-lethal rescue that protects both aviation safety and a Schedule I species

Flora and Fauna Conservation Across the Airport Campus

86,773
184 plant species

trees, palms, shrubs and ornamental plants maintained by GHIAL — an urban green ecosystem inside the airport



15 LIFE ON LAND

DIVERSE NATIVE & ADAPTED SPECIES

- **Neem** *Azadirachta indica*
- **Pongamia** *Pongamia glabra*
- **Kadamba** *Anthocephalus kadamba*
- **Golden Shower** *Cassia fistula*
- **Champaka** *Michelia champaka*
- **Banyan family** *Ficus spp.*
- **Bamboo** *Bambusa vulgaris*
- **Flowering & avenue** trees

- 140 bird species
- 17 reptiles
- 66 butterflies
- 21mammals/amphibians in the airport premises.



Felis chaus


Lepus nigricollis


Acraea terpsicore

International Day for Biological Diversity with WWF-India



22 May
International Day for Biological Diversity

The event highlighted biodiversity's critical role in ecological balance and the need for collective action to protect natural resources for future generations.

- **Public awareness**
- **Collective action**
- **Partnership with WWF-India**

Stakeholders Awareness Sessions on Bio-diversity Conservation

GHIAL's commitment to biodiversity conservation is promoted among internal and external stakeholders through continuous awareness sessions, training programs, and outreach activities, fostering greater environmental responsibility and participation.









Nature protects… if she is protected



Sapling plantation at RGI Airport