# Advancing Sustainable Aviation: A Case Study on Eco-Friendly Practices at Dabolim Airport, Goa

## Executive Summary

This case study explores the sustainable aviation initiatives implemented at Goa's Dabolim Airport. The airport, as part of India's aviation network under the Airports Authority of India (AAI), has integrated eco-friendly strategies to reduce its environmental footprint while maintaining efficient operations. The study analyzes the airport's practices in energy management, water conservation, solid waste reduction, and carbon emission control, highlighting their environmental and industry-wide impacts. A structured research methodology has been employed to evaluate these practices and their implications. The findings suggest that while the airport has made commendable progress in adopting sustainability, there remains scope for improvement, particularly in renewable energy adoption and advanced waste management systems. This study underscores the vital role airports play in advancing sustainable aviation in India and beyond.

## Abstract

The aviation industry is a significant contributor to global carbon emissions and environmental stress. Airports, as central hubs of aviation, face mounting pressure to adopt sustainable practices. This case study focuses on Goa's Dabolim Airport, examining its sustainability strategies, their environmental impacts, and contributions to the aviation sector. The study presents an evaluation of eco-friendly initiatives undertaken, supported by data visualization in the form of pie charts. Findings reveal both achievements and areas requiring enhancement, offering a balanced perspective on the airport's sustainability journey.

**Keywords:** Sustainability, Aviation, Dabolim Airport, Eco-friendly practices, India

# Introduction

Airports are vital nodes in the aviation industry, but they also represent concentrated sources of energy use, emissions, and waste generation. With global focus on reducing carbon footprints, airports are now adopting sustainability measures to align with international standards such as ICAO's CORSIA and UN SDGs.

## Overview of Dabolim Airport

Dabolim Airport, Goa's sole airport until recently, operates both civilian and military flights. Managed by the Airports Authority of India (AAI), it handles millions of passengers annually, necessitating robust sustainability practices to mitigate its environmental impact.
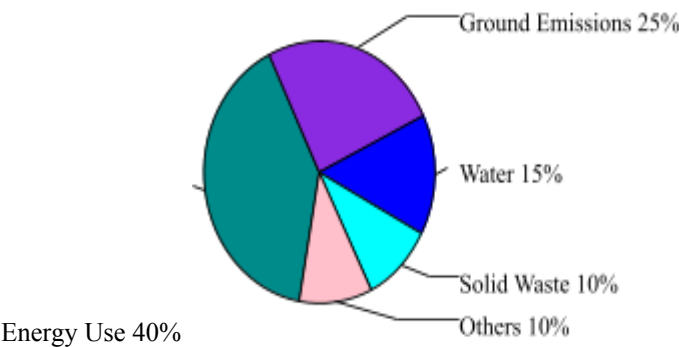
## Sustainability Practices Done at the Airport

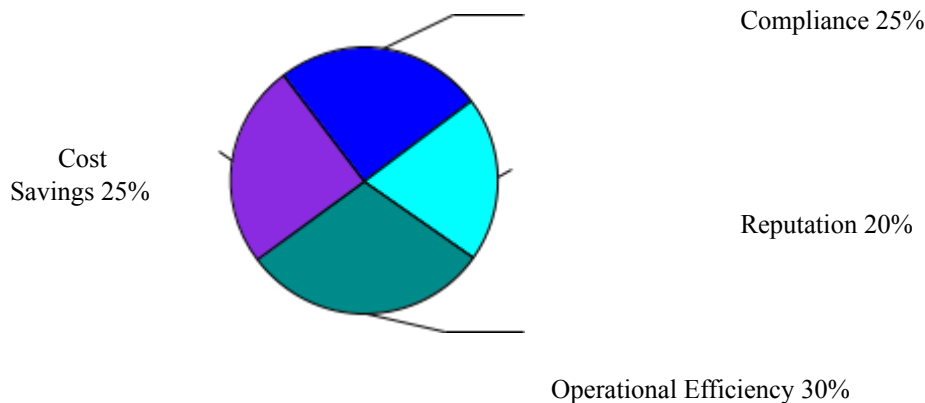| Practice Area | Initiatives at Dabolim Airport |
|---|---|
| Energy Efficiency | LED lighting, energy audits, efficient HVAC systems |
| Water Conservation | Rainwater harvesting, low-flow fixtures, recycling of wastewater |
| Waste Management | Segregation of solid waste, recycling drives, reduced single-use pl |
| Green Landscaping | Native species plantation, green belts for noise & air quality |
| Passenger Awareness | Eco-friendly campaigns, reduced plastic packaging in F&B outlets |

## Sustainable Strategies

Key strategies include renewable energy adoption, resource efficiency, integration of green technologies, and promotion of sustainable passenger behavior. These align with AAI's national sustainability framework.

## Impact on Environment



Ground Emissions 25%
Water 15%
Solid Waste 10%
Others 10%
Energy Use 40%

## Impact on Aviation Industry

Compliance 25%

Cost
Savings 25%

Reputation 20%

Operational Efficiency 30%

## Research Methodology

This study uses qualitative secondary data analysis, drawing from AAI sustainability reports, ICAO guidelines, and peer-reviewed literature. Comparative analysis of practices across Indian airports is also included.

## Scope for Improvement

While Dabolim Airport has advanced in sustainability, areas such as large-scale solar integration, digital monitoring of emissions, and waste-to-energy technologies present opportunities for further progress.

## Conclusion

Dabolim Airport demonstrates that sustainability in aviation is achievable through systematic practices and strategic planning. Although progress has been made, scaling up renewable energy adoption and enhancing waste management will be crucial for the airport's future sustainability journey.

## References

Airports Authority of India (AAI) Sustainability Reports. International Civil Aviation Organization (ICAO) Environmental Guidelines. UN Sustainable Development Goals (SDGs).