5th World Conference on
Climate Change and Global Warming
07 - 09 March 2025 Vienna, Austria

Integrating Green Technology in Airport Terminal Design: A Pathway to Sustainable Passenger Experience and Operational Efficiency

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ABSTRACT

The aviation industry faces mounting pressure to adopt sustainable practices, with airport terminals emerging as critical nodes for implementing green technologies. This study explores the integration of green technology in airport terminal design to enhance passenger experience while reducing environmental impact. Using Kochi International Airport as a case study, the research identifies key attributes influencing passenger satisfaction, such as energy-efficient lighting, optimized HVAC systems, and sustainable materials. A Revised Importance Satisfaction Analysis (R-ISA) framework is employed to prioritize these attributes based on their importance to passengers and current performance levels. The findings emphasize the potential of green technologies to streamline passenger flow, reduce resource consumption, and align terminal operations with global climate goals. By linking operational efficiency with environmental sustainability, this research provides actionable insights for airport management and policymakers aiming to balance passenger satisfaction with climate resilience. The study contributes to the broader discourse on green production by demonstrating how sustainable infrastructure can drive meaningful change in the aviation sector.

Keywords: airport sustainability; green technology; operational efficiency; passenger satisfaction; sustainable infrastructure