



Theoretical Foundations of Green Roof Performance in Lagos High-Rise Districts: An Energy Savings and Urban Heat Island Analysis

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Abstract

Green roofs are increasingly recognised for their potential to mitigate urban heat islands (UHIs) and enhance energy efficiency in high-density buildings. In Lagos, Nigeria, a growing number of high-rise commercial districts face challenges associated with rapid urbanization and climate change. Theoretical analysis will be employed to model the performance of green roofs under various climatic conditions and architectural configurations. A comprehensive review of existing literature will inform the development of theoretical propositions that can guide future empirical research in this field. The theoretical framework provides a robust foundation for understanding the potential benefits of green roofs in mitigating urban environmental issues, particularly in Lagos's high-rise districts where such interventions are underexplored. Future research should validate these theoretical findings through empirical studies and pilot projects. Policy recommendations will focus on incentivizing green roof installations by leveraging existing government programmes for sustainable building practices.

Keywords: *Sub-Saharan, Lagos, Urbanization, Sustainability, Climate Change, GIS, Empirical*

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