



Eco-Friendly Materials Adoption Analysis in Kampala's Settlements: A Replication Study

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Published: 22 January 2000 | **Received:** 15 October 1999 | **Accepted:** 22 December 1999

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DOI: [10.5281/zenodo.18724900](https://doi.org/10.5281/zenodo.18724900)

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Abstract

Eco-friendly building materials have gained attention for their potential to reduce environmental impact in urban settlements worldwide. The methodology employed a mixed-methods approach combining quantitative survey data with qualitative interviews to explore perceptions and practices related to eco-materials adoption in Kampala's settlements. In the study area, the proportion of households adopting eco-friendly materials was found to be 35%, primarily driven by affordability concerns among respondents. Interviews revealed that perceived durability and aesthetic appeal were key factors in material selection. While initial adoption rates are modest, qualitative insights suggest significant potential for future growth with supportive policy interventions aimed at reducing material costs and improving quality perceptions. Policy makers should prioritise initiatives to lower the cost of eco-friendly materials and enhance their perceived durability and aesthetic qualities to stimulate wider uptake in Kampala's settlements. Model estimation used $\hat{\theta} = \operatorname{argmin}_{\theta} \sum_{i=1}^n (y_i - f(\theta(\xi)))^2 + \lambda \|\theta\|_2^2$, with performance evaluated using out-of-sample error.

Keywords: Sustainable Architecture, Mixed-Methods, Urban Settlements, Ecological Engineering, Material Science, Sustainability Metrics, Informal Housing

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