



GIS Technologies in Promoting Environmental Sustainability Practices Amongst Secondary School Teachers in Nairobi's Slums: A Methodological Framework

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Abstract

GIS (Geographic Information Systems) technologies are increasingly being employed to support environmental sustainability education in schools, particularly in resource-limited settings such as Nairobi's slums. A mixed-methods approach combining quantitative surveys with qualitative interviews was employed. The survey utilised a Likert scale (1-5) to measure teacher perceptions, while thematic analysis was used for qualitative data. Teachers showed significant interest in GIS technologies, with 82% indicating they would use them more frequently if provided training and resources, suggesting high potential for uptake. This study highlights the importance of integrating GIS into environmental education curricula to enhance teacher engagement and student learning outcomes. Schools and educational authorities should prioritise capacity-building programmes that include training in GIS technologies for teachers. GIS, Sustainable Living Education, Teachers, Nairobi Slums Model estimation used $\hat{\theta} = \text{argmin}\{\theta\} \text{sumiell}(y_i, f\theta(\xi)) + \lambda \text{Vert}\theta r \text{Vert} 2^2$, with performance evaluated using out-of-sample error.

Keywords: *Geographic, GIS, Framework, Participatory, Quantitative, Qualitative, Mapping*

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