

Land Cover Change in the Abuja City-Region, Nigeria: Integrating GIS and Remotely Sensed Data to Support Land Use Planning

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Abstract

Rapid urban expansion is a significant contributor to land cover change and poses a challenge to environmental sustainability, particularly in less developed countries. Insufficient data about urban expansion hinders effective land use planning. Therefore, a high need to collect, process, and disseminate land cover data exists. This study focuses on urban land cover change detection using Geographic Information Systems and remote sensing methods to produce baseline information in support for land use planning. We applied a supervised classification of land cover of LANDSAT data from 1987, 2002, and 2017. We mapped land cover transitions from 1987 to 2017 and computed the net land cover change during this time. Finally, we analyzed the mismatches between the past and current urban land cover and land use plans and quantified the non-urban development area lost to urban/built-up. Our results indicated an increase in urban/built-up and bare land cover types, while vegetation land cover decreased. We observed mismatches between past/current land cover and the existing land use plan. By providing detailed insights into mismatches between the regional land use plan and unregulated urban expansion, this study provides important information for a critical debate on the role and effectiveness of land use planning for environmental sustainability and sustainable urban development, particularly in less developed countries.

Read the article in [Sustainability](#) [1].

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