

# **Dynamics of Land Use Changes in Otamiri Watershed of Owerri, South East Nigeria**

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**Key words:** Geoinformation/GI; Spatial planning;

## **SUMMARY**

Otamiri watershed in Owerri, South East Nigeria is an urban watershed that is faced with serious ecological stresses due to intense landuse conversion. Siltation of the river, threatening gully erosion and devastating flooding are some of the consequences of this landuse and land cover change. This paper analyses the dynamics of land use changes in Otamiri watershed using the technologies of Remote sensing and GIS. Datasets were obtained from classified Aerial photographs of 1977, IKONOS satellite image of 2006 and 2012 Google Earth satellite image. Images were resampled and registered to Universal Transverse Mercator, zone 32. Post-classification change detection was employed, using vector data structure model. Analysis of dynamic land use changes was performed using land use transfer analysis, quantitative spatial position conversion and land use dynamicity models. Results show a dramatic fast rate of change in built-up land class in 2006 and 2012 with dynamicity indices of 11.51% and 10.11% respectively. Farmland/light vegetation and thick vegetation/shrubs were the most converted land use classes into built-up. In between 1977 and 2006, sand excavation site showed a dramatic fast rate of change with 25.78% dynamicity index. Riparian vegetation and water body landuse classes were converted more into excavation sites. The major driving forces for these changes were high population density, increase in economic activities and infrastructural developments. These factors results in various pressures and strong effects to change the quantity and quality of the land use.