FORESTS UNDER THREAT? CHANGES IN LAND USE AND FOREST COVER IN RURAL WESTERN UGANDA

Ronald Twongyirwe

[1]Department of Geography, University of Cambridge, CB2 3EN, England.
[2]Uganda Carbon Bureau, Plot 15 Lubowa Estate, P.O. Box 70480, Clocktower, Kampala, Uganda.

E-mail address: rt369@cantab.net

PhD Thesis Summary (June, 2015)

Deforestation and land use change are widespread in western Uganda. However, the spatial patterns and time-series of change and the reasons why it is occurring remain to be fully investigated. In this work a combination of satellite imagery and social surveys is used to quantify forest gains and loss over the last three decades in the region close to Lake Albert, whilst also providing an account of possible drivers of change. This area proves to be interesting as it covers regions with both formally protected areas (gazetted regions) and un-protected forest, the latter being largely under private ownership. Remote sensing data from the Landsat satellites were gathered for forest change detection, and were processed using standard remote sensing techniques, then quantified using GIS and regression methods. Fieldwork allowed these data to be ground truthed while gathering (quantitative) household surveys and (qualitative) key informant interviews. Quantitative surveys were analysed using Principal Components Analysis (PCA) and cluster analysis, and were compared qualitatively with the satellite analysis and stakeholder interviews. The results show that forest cover declined significantly outside gazetted areas at the expense of varying local–scale processes, although the protection of the gazetted forests was remarkably successful. In forest corridors outside gazetted regions, losses exceeded 90% ($p<0.05$). Survey data suggest that rural poor households were more likely to be situated in forested regions, and were more dependent on forest resources for their livelihoods. However, the drivers of change were spatially variable, with expansion of sugarcane farming being a likely driver in the northern areas, but small–scale agricultural expansion a significant factor in the more southern parts of the study region. While there is wide agreement within the data that the patterns of forest cover and land use changes are anthropogenically driven, more specific drivers are swamped by intricacies of the bio-physical and socio-economic preconditions that are inseparable in both space and time, although agricultural expansion and population growth were evident and pervasive. The analyses provide insights into complex anthropogenic processes at various spatial scales, and policy recommendations provided are widely applicable for developing countries struggling to conserve nature whilst boosting economic growth.