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Abstract

Contextualizing the Role of Population Growth in Forest Cover Change in Malawi

After a century of formal forestry management, deforestation in Malawi is widely considered an "irresolvable problem." Despite growing evidence that the link between population growth and environmental degradation is not straight-forward nor unidirectional, and often weak or non-existent, macro-scale Malthusian explanations dominate "crisis narratives" of deforestation. Many studies ignore the interplay of population with social, institutional, economic, and ecological factors that shape environmental change in specific locations, or focus too narrowly on population growth. This paper uses multiple research methods, in particualr 1) remote sensing analysis of satellite data and geographic information systems (GIS) to determine the spatial extent and pattern of forest cover nationally since 1972; 2) geospatial logistic regression models to identify the main drivers of such change and their relative importance; and 3) social surveys and participatory rural appraisal (PRA) tools to examine local perceptions and the interplay of socio-economic and biophysical factors in shaping such change in 58 villages in southern districts of Blantyre and Chikwawa. Independent variables included spatially explicit population variables (growth and density), poverty levels, land tenure system, roads network (road density, distance from roads), distance to main urban centers, topography (elevation, slope, aspect), and land suitability for agriculture. Early findings highlight importance of sociospatial specificity in explaining deforestation, mediation of the population-degradation relationship by factors including poverty, land tenure, and economic forces, and the role of social difference in determining differentiated forest resource use locally. The integrative and spatially explicit role of geospatial technologies was important in contextualizing population in environmental analysis.