An Intensity Analysis of land-use and land-cover change in Karatu District, Tanzania: community perceptions and coping strategies

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Abstract

Land-use and land-cover changes (LULCCs) are the result of complex interactions between the human (cultural, socio-economic and political) and the biophysical environment at different spatial scales. The present study assessed the spatial distribution of LULC (1976–2008) in the high and low altitude zones in the northern highlands of Karatu, Tanzania, using both qualitative (in-depth interviews and focus group discussions) and quantitative techniques (Intensity Analysis). The qualitative approach was used to elicit information on the coping strategies adopted by land users as transitions occurred with time and the Intensity Analysis was used to assess the systematic land losses, gains and persistence of the various land categories with time. The results of the Intensity Analysis show that overall land transformation is decelerating in both agro-ecological zones across the two time intervals. In the low altitude zone, woodland, settlements and bushland are active categories unlike cultivated and grassland, which are dormant. In the low altitude zone, grassland systematically loses to cultivated areas during both time intervals. However, in the high altitude zone, forest systematically loses to woodland during both time intervals. In both agro-ecological zones, land change was rapid during the first interval and slowed during the second. We suggest that the fast change in land during the first interval may be attributed to the villagization policy in the 1970s that sought to drive the population towards rural settlements.

Keywords
LULCC,
complexity,
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