Changing land use/cover patterns and implications for sustainable environmental management in the Irangi Hills, central Tanzania

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ABSTRACT
This article examines the changes in land-use/cover types in the Irangi Hills, central Tanzania during the last 45 years and how such changes have influenced environmental and agricultural sustainability in the area. The spatial and temporal changes of land-use/cover were analysed through aerial photographs interpretation. Local perceptions and experiences of changes were addressed through household interviews and field observations. Results from this study show that during the last 45 years open and wooded grasslands, and other tree-cover types covered about 40% of the land area, ranging from 29% in 1960 to 43–45% between 1977 and 1992. Also, during the same period both the total area and spatial distribution of cultivated fields varied greatly. The cultivated area increased from 31% in 1977 to 35% in 1992, mainly due to agricultural expansion into areas formerly used for grazing and in sandy watercourses that shrunk by 55% between 1977 and 1992. The spatial distribution of the different land-use/cover types is influenced by variations in the scale of soil erosion and soil-conservation initiatives implemented in the Irangi Hills since the early 1970s. However, with increasing pressure on the land, and the declining capacity of the soil conservation authority, sustaining agricultural production in the area remains a major challenge.

Keywords: Land-use/cover changes Land degradation Soil conservation Sustainable agriculture Environmental management Irangi Hills