Changing land-use patterns and farming strategies in the degraded environment of the Irangi Hills, central Tanzania

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Abstract

The approaches adopted by local farmers to put the degraded landscape of the Irangi Hills in central Tanzania to productive agricultural use are analysed. The area has been extensively affected by severe soil erosion, thereby reducing its potential for agriculture. While soil erosion in the upper and middle reaches of the slopes has resulted in extensive gullies, sedimentation in the lower reaches has created extensive sandfans and buried some of the fertile, clayey soils.

The changes in the present land-use practices were assessed by means of group discussions and transect walks, household interviews, field observations, and by archival research. The results of the study indicate that farmers have responded to the evolving land degradation by using more intensive and more productive forms of land-use. Crops are grown in diverse mixtures, aiming at increasing farm productivity and avoiding the risk of crop failures. Many farmers have also responded to land degradation by employing on-farm conservation practices such as ridge cultivation and tree-planting. There has also been a general shift from cultivation and settlement on hillslopes to less steep, middle and lower pediments and footslope areas.

Land-use patterns have constantly changed over the last few decades. One major intervention to try to rehabilitate the worst degraded areas came in 1979, when all livestock were evicted. The quarantine still remains, but since the early 1990s free-grazing livestock have gradually, but illegally, been brought back into the area. Although the return of livestock has increased the availability of manure, it is likely to reverse the trends of ongoing land recovery. To complement the limited availability of animal manure more than 85% of farmers make and use compost to fertilise fields close to homesteads. Evidence is also presented to demonstrate that farmers have been quick to grasp whatever chances they had to make use of new land-use opportunities. When some of the sandfans in the area stabilised, following soil-conservation initiatives, farmers immediately realised that there were new niches in the landscape that could be utilised. Today the total cultivated area has increased considerably, compared to the early 1970s, when intensive conservation efforts were begun.

Keywords: Soil degradation; Farming strategies in degraded lands; Land-use changes; Agricultural intensification; Utilisation of rehabilitated lands; Central Tanzania