Land Conversion in Kenya[1]

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Land Conversion is the activity through which natural landscapes are developed and transformed by people into less natural and more managed states. This process of conversion is driven primarily by land rents, the net returns from land to landowners and land users[2]. Figure 1 demonstrates the close relationship between land conversion and land rents in Kenya: where land rents are higher, a greater proportion of land is converted to agriculture.

Land Rents are themselves influenced by many factors, primarily rainfall. Along the gradient of increasing rainfall in Kenya, land rents rise steeply up to 1200mm before falling in the face of lower temperatures and higher altitudes (Figure 2). In contrast, the amount of land available for conversion[3] decreases along this same gradient.

To some extent the process of land conversion creates opportunities for conservation. For example, Figure 3 demonstrates how landscape diversity[4] initially increases along the gradient of land conversion before falling again at very high levels. However, to a greater or lesser extent, there is an inevitable loss of biodiversity values with land conversion, especially with respect to natural vegetation and the larger wildlife species.

Clearly, the rates of land conversion should be slowed if land rents from conservation, as opposed to development, were to be made more equitable. In areas of lower rainfall, rents from conservation activities – specifically consumptive and non consumptive wildlife operations - may well equal or exceed those from converting land to agricultural production. The real challenge lies in areas of higher rainfall, for example around forest areas, where land rents are potentially very much higher. Here, massive interventions in the form of external subsidies to conservation may be required.

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[1] This work is in progress, and neither the graphics, analyses or inferences should be considered as finalised. If necessary, reference as Norton-Griffiths (2002, work in progress).

[2] See Norton-Griffiths, M. (1988). "Aerial Point Sampling for land use surveys." Journal of Biogeography 15: 149-156; Norton-Griffiths, M. and C. Southey (1994). "The opportunity costs of biodiversity conservation in Kenya." Ecological Economics 12: 125-139; Norton-Griffiths, M. (1996). "Property rights and the marginal wildbeest: an economic analysis of wildlife conservation options in Kenya." Biodiversity and Conservation 5: 1557-1577; Norton-Griffiths, M. (2000). "Wildlife losses in Kenya: an analysis of conservation policy." Natural Resources Modelling 13 (1): 13-34.

[3] Total area of land less land already converted, land used for infrastructure (roads, houses etc) and land formally set aside by Government for conservation (Parks, Reserves and Forests).

[4] This index of landscape diversity (Shannon Weiner) reflects the 'patchiness' of the landscape, in terms of the mosaic of crops, intercrops, hedgerows, woodlots and areas of natural and managed vegetation.

Figure 1

Land Conversion & Land Rents In Kenya

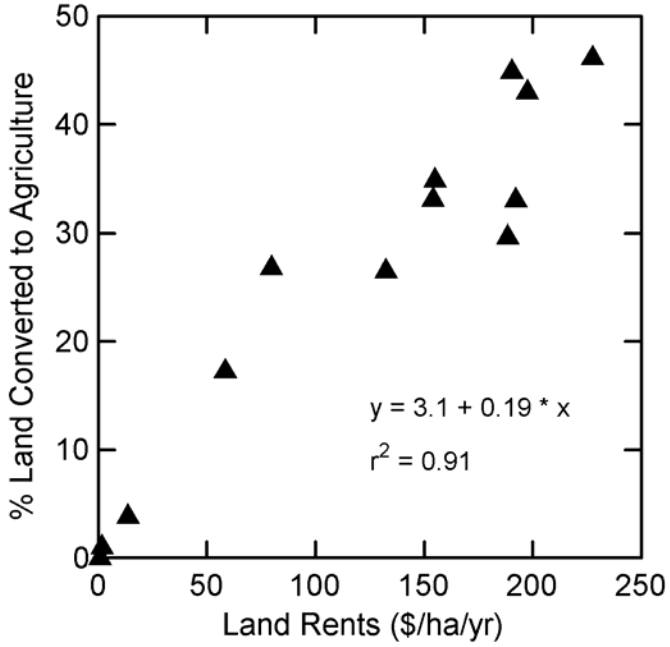

Figure 2

Rainfall and Land Rents in Kenya

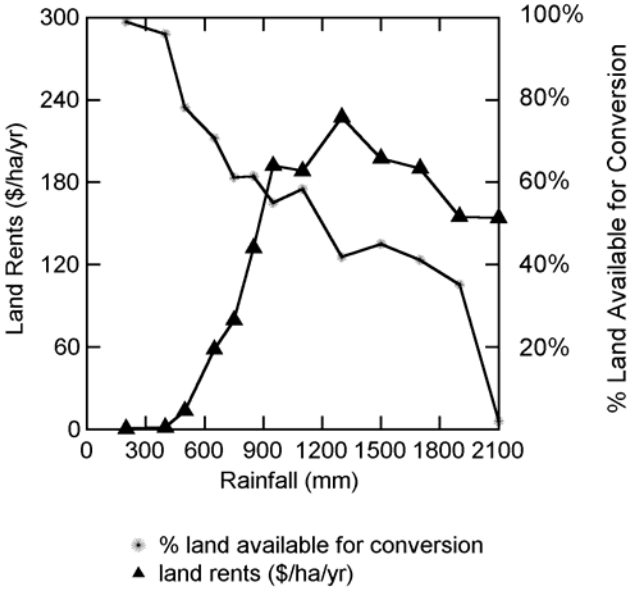

Figure 3

Landscape Diversity and Land Conversion in Kenya