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Cost-Benefit Analysis of Land-Use Alternatives in Malawi

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Abstract

Against the background of land scarcity, prevailing poverty and increasing demand for food and fuel wood, there is a high pressure on the Miombo forest margins of the Liwonde Forest Reserve (Machinga District, Malawi). Rural livelihoods substantially rely on the exploitation of natural resources to satisfy their daily needs, and this leads -combined with lacking enforcement of legal restrictions- to unsustainable land use and land degradation with negative long-term consequences. Co-management of natural resources under participation of the forest administration and local stakeholders seems to be a promising approach for changing this situation. Our study focuses on a comparison of four land-use alternatives, two agricultural and two forestry ones, in and adjacent to the Liwonde Forest Reserve. We include biodiversity, inventory, socio-economic and political aspects and summarise our findings in a comprehensive cost-benefit analysis. Net present value and annuity are used as evaluation criteria supplemented by a sensitivity analysis of the most important variables. The results are meant to give support and background information in the co-management decision process. We conclude that agricultural land uses, such as maize or cassava, are economically attractive, thus, partly explaining pressure on forest margins. However, sustainable restoration/ management of Miombo woodlands could be a promising alternative, performing better than extensive managed eucalypt plantations used for fuel wood production in our study region. The project has been conducted and organised by students of the Master course Tropical and International Forestry of Göttingen University in cooperation with researchers from the Forest Research Institute of Malawi (Zomba).

Keywords: Co-management, cost-benefit analysis, miombo