

*East African Futures: Impacts of Land Cover Change on Achieving Sustainable Development
Targets*

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African drylands occupy more than 50 percent of the terrestrial land mass and offer numerous ecosystem services to the human populations and animal biomass they support. The expansive nature of African drylands, the high biodiversity, and numerous livelihoods they support, make them sensitive to climate and land cover change. Future projections show a reduction in their coverage with associated implications on biodiversity, ecosystem services and human welfare. Human impact, manifested in land use transformations, is a major factor that changes the ecology of African drylands and is driven by the demand for ecosystem services. In East and southern Africa, the biodiversity-rich drylands are further threatened by climate variability, high population growth along boundaries of protected areas, unsustainable expansion of agriculture, wildlife hunting, and high poverty levels. Climate change intensifies the impact of land use transformation while national policies, governance structures, and economies drive land use options. The multiple interactions between natural and social factors driving land cover changes due to land use are complex, uncertain, and nonlinear challenging the accurate assessment of drivers and impacts of future land use transformations. Consequently, a scenario analysis is a preferred approach of analyzing how a range of human-environmental interactions could change in the future. As Africa's total population is expected to double by 2050 affecting food, energy, and infrastructure demands, there is need to explore sustainable development pathways for the continent's future. This project is interested in using scenario analyses to assess the impact of future environmental change on biodiversity and ecosystem services in East and southern Africa.

Focusing on the Amboseli ecosystem in southeastern Kenya and the rangelands surrounding the Okavango Delta in northern Botswana as case studies, this project will assess scenarios of future environmental change developed for these areas and integrate them with modelling to assess the impact of future land use change on wildlife conservation, national development, and human well-being. The Amboseli and the Okavango ecosystems were selected for study as they have similar historical land uses, high wildlife biodiversity, diverse natural vegetation, and support many livelihoods. They also experience similar challenges like loss of wildlife habitats, encroachment at protected area boundaries, community land privatization and land subdivision, land use change, and poverty. However, given their different locations, conservation and land management strategies, future trajectories of environmental change and its impacts are expected to vary between the two areas. By establishing a baseline of developed future environmental change scenarios under projected climate and socio-economic trends and assessing the impacts of the scenarios on biodiversity and ecosystem services, this project will also identify sustainable adaptation pathways for rural livelihoods in the two ecosystems at hand.