

## Land Use/Cover Changes in Masai Mara Ecosystem: A Threat to Wildlife Sanctuary in East Africa.

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Masai Mara in Kenya is a leading tourist destination because it supports some of the most spectacular and diverse wildlife species in the world. While the Masai Mara National Reserve is well preserved and protected, beyond it is a vast area of the Masai community land, which forms an important part of the Masai Mara eco-system. Because this land is a vital breeding and dispersal area for the wildlife species, tourism survival in Masai Mara depends on it. The Masai Mara ecosystem comprises contrasting land use zones with different land tenure arrangements, ranging from state controlled Masai Mara game reserve to private and non private tracts with multiple land uses, some with community-based group ranches conservation initiatives.

The Growth of Tourism in Masai Mara has stimulated the growth of a variety of allied infrastructure and facilities such as lodges, hotels and camps. This has led to socio-economic and environmental impacts as a result of its interactions with other land uses such as pastoralism, farming, wildlife conservation, and environmental conservation. The local Masai people who have for many years co-existed with wildlife are now facing considerable challenges arising from a number of factors such as human population increase, changing land tenure policy from communal to individual land holding, and in-migration. These and other factors have led to expansion of farming, growth in the number of permanent settlements, modernization, and diversification of land use activities around wildlife conservation areas leading to human wildlife conflicts. Some of the consequences of these changes are declining ecological, economic and socio integrity of Masai Mara ecosystem because of fragmentation of landscape, declining rangeland productivity, truncated wildlife migratory corridors, declining wildlife populations and diversity, and cultural and economic diversification arising from immigration.

To analyze the long term outcomes of these different land use practices (and policies) on environment, wildlife, demography and socio-economic conditions in Masai Mara, we used multi-temporal satellite images (1975, 1986, 2000, and 2007) together with physical and socio-economic data in a post classification analysis with GIS. In addition to detailed field survey, land use and economic assessment information, the other data we used included human and livestock population data, rainfall data, and wildlife aerial census data. This study has also examined those factors that are potentially driving these changes (i.e. Climate factors (rainfall), demographic factors, pastoralism, modernization, wildlife population trends, tourism activities, social economic trends, land tenure and agricultural activities).

The results show rapid land use/cover changes and drastic decline in a wide range of wildlife species. Further, preliminary analysis suggests that these changes could be driven by private land tenure policy which together with market conditions encourages major land use changes and wildlife decline. A new land use and management strategy would have to be adopted if the wildlife conservation areas are to continue coexisting successfully with local users.