



Socio-Economic Determinants of Land Use/Cover Change in Wetlands in East Africa: A Case Study Analysis of the Anyiko Wetland, Kenya

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In East Africa, wetlands are steadily converted to agriculture for food security reasons. This study analyzed high spatial resolution panchromatic and color photographs in the Anyiko wetland in Kenya to reveal wetland conversions between 1966 and 2018. In addition, socio-economic determinants of land use/cover change are assessed in the Anyiko wetland. Socio-economic data was collected through a questionnaire survey of 226 households. A Chi-squared Automatic Interaction Detector (CHAID) decision tree approach is utilized to assess determinants of wetlands conversion. The results showed that between 1966 and 2018, the wetland area reduced by 55%, mostly attributed to agricultural development. Households were more likely to cultivate the wetland if they did not harvest papyrus for artisanal products, were male-headed and lacked alternative sources of income. The perceptions that wetland is “wasteland” and conversion to agriculture provides higher net monetary benefit did not influence wetland cultivation. Hence, the conversion of the wetland was determined by the socio-economic status of the households rather than perceptions on its value.

Keywords: CORONA, ecosystem services, agriculture, livelihoods, wetlands

INTRODUCTION

Wetlands provide a wide range of ecosystem services (ESS) including provisioning (e.g., food, fresh water, biochemicals, genetic materials, fiber, and fuel), regulating (e.g., climate regulation, water purification and waste treatment, erosion and flood control), supporting (e.g., primary production, nutrient cycling, and soil formation), and cultural services (e.g., recreation, aesthetics, education, spiritual, and religious values) (MEA, 2005; Russi et al., 2013). These ESS are not only important in supporting livelihoods, but also human well-being (MEA, 2003, 2005). The significance of the ESS, however, vary between temperate and tropical regions (Rebelo et al., 2013). In tropical regions, wetlands mainly serve for provisioning ESS, spiritual and biodiversity purposes, and for biodiversity, recreational and educational purposes in temperate regions. Despite the importance of these ESS to many people, wetlands continue to be degraded and have been identified as one of the most threatened ecosystems globally (MEA, 2005). This is majorly attributed to drainage and conversion to agricultural land and increased withdrawal of water due to economic development