Monitoring Restoration of the Eastern Usangu Wetland by Assessment of Land Use and Cover Changes

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Abstract

Conflicting interests in the use and management of wetlands have always resulted in their degradation. The degradation of wetlands affects their natural functioning, environmental health and livelihood of the people who depend on them. The eastern Usangu wetland has suffered a lot from multiple-use pressure arising from both national and local interests. As a result, the government banned the use of the wetland in 2006 to support its restoration process. The aim of the current study was to assess the restoration process of the eastern Usangu wetland using time-series Landsat images over a 20-year period, from 1995 to 2015. Cross-tabulation of composite NDVI images was used to examine the changes. The results indicate that the land cover declined by 20% between 1995 and 2005, and increased by more than 25% between 2005 and 2015. The size of the permanent swamp increased consistently, by more than 15% between 1995 and 2015. Wetland use has declined to about 15% over the 20 years. Wetland restoration seems to be a slow process that depends on multiple factors. It thus is important that wetlands are managed well for sustained benefits, rather than waiting to rescue them in a crisis. The well-being of the people depending on the wetlands should be considered when implementing measures to protect the wetlands. Awareness creation among the users, diversification of sources of income and enforcement of the laws and policies governing the use of wetlands by the government may improve status of wetlands.

Keywords: Tanzania, NDVI, Change Detection, Perennial Swamps