

Abstract

89% of Kenya, inclusive of Matungulu Sub-County, is arid or semi-arid, with serious socioeconomic, environmental and developmental challenges. Rapid population growth has led to an increasing demand for land, over-exploitation and degradation of local natural resources. The objective of this study was to identify and analyse tree cover trends that have taken place in Matungulu Sub-County between 1987 and 2017, with a view to providing data that can be used to mitigate the situation. Satellite images from mid 1980s and 2000s were used for a time series analysis of the land use/cover change in the study area with emphasis on the forest resource change. Changes were assessed by applying cross tabulation of the sequence maps of land use for the various periods used in the study based on the image classifications. Results showed that forest cover reduced by 64% over the 30-year period (from 17,044 ha to 6,136 ha) while all other land uses increased (farming by 34%, shrubs by 9%, water by 245% and urban settlements by 600%) in the same period. The study recommends institutionalization of land use planning and indigenous knowledge in climate change adaptation interventions for long-term sustainable development in Matungulu Sub-County.