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Abstract
This study investigated drivers of gully formation and development using participatory geographic information systems (PGIS) with the local communities. Changes in land use and land cover for 1985-2000, 2000-2011 and 1985-2011 were determined using PGIS. The results showed that land use and land cover changes occurred in the 4 villages (Eluai, Olepolos, Olesharo and Enkiloriti) in the study area. There were significant changes in shrubland which decreased in Eluai village ($p < 0.002$) and no significant changes in built up areas, bareland, agricultural land, waterbodies, grassland and shrubland in the 3 villages (Enkiloriti, Olepolos and Olesharo). It was observed that between 1985 and 2011 (26 years), there was an overall increase in built up area and bareland and decrease in shrubland and grassland in the 4 villages (Olepolos, Enkiloriti, Eluai and Olesharo).
Land use change benefits noted by communities included increased access to grazing areas and firewood. Undesirable land use change effects noted were a decrease in shrubland, food production, grazing area and rainfall, and an increase in wind erosion, gully formation and flooding. Community recommendations included afforestation programmes, construction of terraces for water harvesting, training on soil conservation measures and use of appropriate alternative sources of energy other than charcoal. PGIS maps produced will help to understand the driving forces of gully erosion (built up areas, bareland, agricultural land, grassland and shrubland) that are heavily affecting the study area over the years. Participatory mapping of land use and land cover changes is therefore useful for targeting land management interventions.

Key words: Land use and cover change, Soil Erosion, Narok County, PGIS