

Abstract

Human population growth is considered together with climate warming as major driver of change in Sub-Saharan Africa. Research on the implications of increased population densities often utilises community knowledge but without incorporating the view of local stakeholders. In this study, we applied a community-centred approach to assess direct and indirect consequences of population growth in drylands of north-western Kenya. Combined social, agricultural and geo-spatial analyses allowed us to identify major system transitions, determine their linkage to population growth and deduce consequences for local livelihoods and community resilience.

Community-members reported positive and negative consequences of fourfold population growth since 1974 but evaluated its overall effect as clearly beneficial. This overall positive effect was based on both, positive developments and the successful mitigation of potential system stressors. First, food security was maintained despite high growth rates because a shift from migratory pastoralism to a more labour-intensive agro-pastoralist system helped to increase agricultural productivity. Additionally, land-use changes were linked to land privatisation and improved erosion protection on private land, decoupling population growth from environmental degradation. We detected, however also early warning signs of reduced community resilience as households were unable to fully recover livestock densities after catastrophic events. A population-growth driven reduction in household land-sizes and the decreased monetary value of agricultural production were identified as drivers of this development. The extrapolation of our results to establish a general relationship between population densities, land-use and household resilience in Sub-Saharan drylands suggest that further system transformations will be required to ensure regional food-security.