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## Achieving the SDGs in the East African drylands: Pathways and challenges towards a social-ecological transformation

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### Abstract

Drylands cover 40% of the global land area, host 2 billion people, and support 50% of the world's livestock population. In the East African drylands, pastoral and agropastoral livelihoods are prominent. Drylands Transform is a trans-disciplinary research project addressing synergies and trade-offs realising the SDGs in rangelands, focusing on SDGs 2 (zero hunger), 15 (life on land) and 16 (peace, justice and strong institutions). We work in the Karamoja cluster with field sites in West Pokot and Turkana Counties, Kenya, and Napak and Moroto Districts, Uganda.

The Land Degradation Surveillance Framework (LDSF) was used to assess soil and land health. The prevalence of soil erosion, soil-water infiltration capacity, soil organic carbon, vegetation cover, structure and species composition were measured in four 10 × 10-km<sup>2</sup> sites. The results showed large spatial variation, from severely eroded landscapes with low water infiltration capacity to less degraded areas. Land cover and species diversity differed across the areas. The survey findings guide the technical interventions for rangeland restoration tested in Livestock Cafés (knowledge sharing hubs), such as half-moons for water harvesting and reseedling of grass and legumes for hay and grazing.

A household survey (n=944) revealed dominant livelihoods to be 70% livestock keeping (pastoralism) in Turkana; 90% livestock and crops (agro-pastoralism) in West Pokot; 45% livestock and crops, and 50% crops in Napak; and 30% livestock and crops, and 50% other (mining, brewing, fire wood, charcoal) in Moroto. Conflicts and other challenges contributed to livelihood changes. The health and nutrition study showed that malnutrition among mothers were common (one-third in Kenya and half in Uganda), while 50–70% of children aged 6–59 months were healthy, 25–35% at risk of malnutrition, and up to 15% showed moderate or severe malnutrition.

Through stakeholder workshops at local/community and district/sub-county level, alternative future scenarios for rangeland development have been developed and discussed in relation to land governance, land tenure, land use, dryland health and human wellbeing. The scenarios called ‘renewed mobile pastoralism’ and ‘innovative agro-pastoralism’ integrate and explore options for governance, land use, rangeland management, and human well-being towards a sustainability transformation of landscapes, livestock and livelihood in the EA drylands.

**Keywords:** Drylands, food systems, Kenya, rangeland restoration, social-ecological systems, sustainability transformations, Uganda