

A social-ecological systems framework for enabling a sustainability transformation of food systems, livelihoods and landscapes in East African drylands

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Drylands cover 40% of the global land area, host **2 billion people**, and support about **50% of the world's livestock population**.

In **East African drylands, pastoral and agropastoral livelihoods are prominent** (Fig. 1). With increased political and economic interest in these regions, pastoralists find themselves increasingly confronted by processes of privatization, fragmentation and commodification of land based resources.



Photo: Malin Planting



Photo: Johan Heurgren



Fig.1. Drylands Transform is working in the Karamoja cluster. Field sites are in West Pokot and Turkana Counties, Kenya, and Napak and Rupa Districts, Uganda

Fig.2. Herder with livestock in West Pokot (above) and view of fodder grass (below), experimental site (left) and land with no interventions (right)

Drylands Transform address complex challenges such as climate change, food insecurity, land- and ecosystem degradation, and weak institutions.

We investigate the **interlinkage between land health, livestock-based livelihoods, human well-being and land governance** to contribute to transformative change and sustainable development of the social-ecological system in drylands of East Africa (Fig. 2).



Our objectives

1. Assess **land health** (soil and vegetation) at the landscape scale. Explore the **links with human health and well-being** (Fig 3).

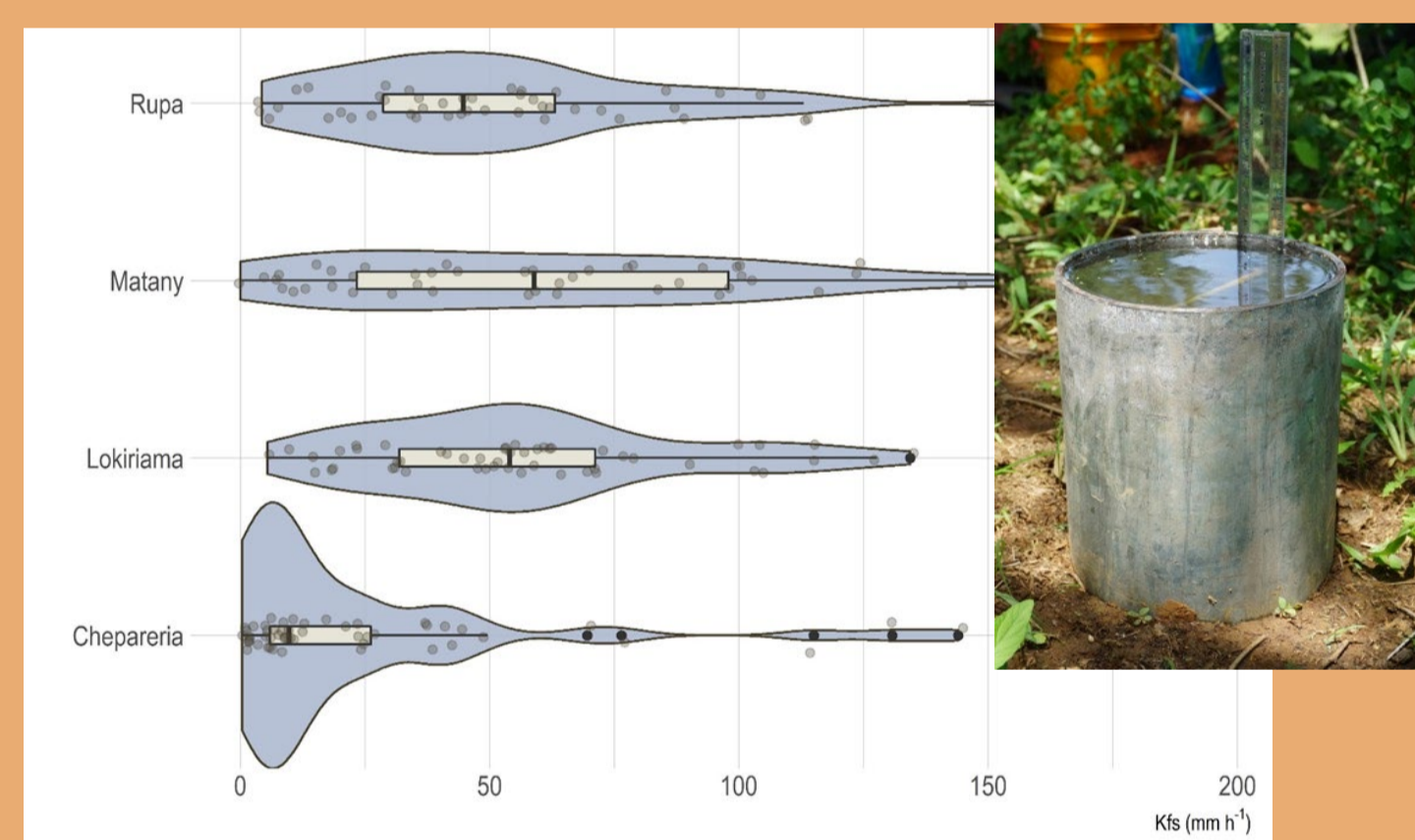


Fig.3. Soil infiltration capacity – part of the Land Degradation Surveillance Framework (LDSF)

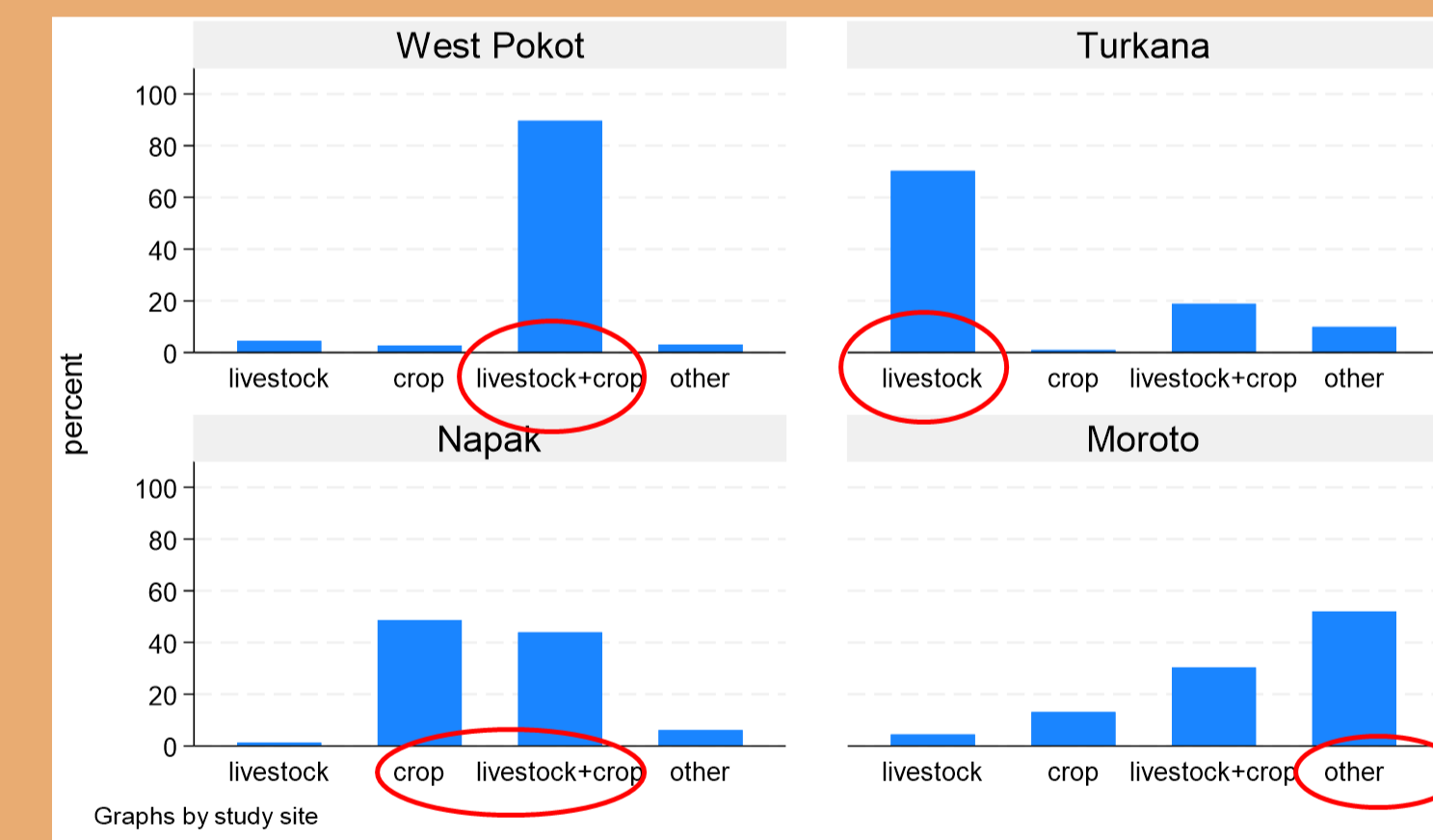
2. **Co-develop sustainable rangeland restoration and management options** with local communities in knowledge sharing hubs ('Livestock Cafés') (Fig 4).



Fig. 4. Restoration of degraded land in with half-moons for water harvesting (left) and kitchen gardens for family nutrition (right)

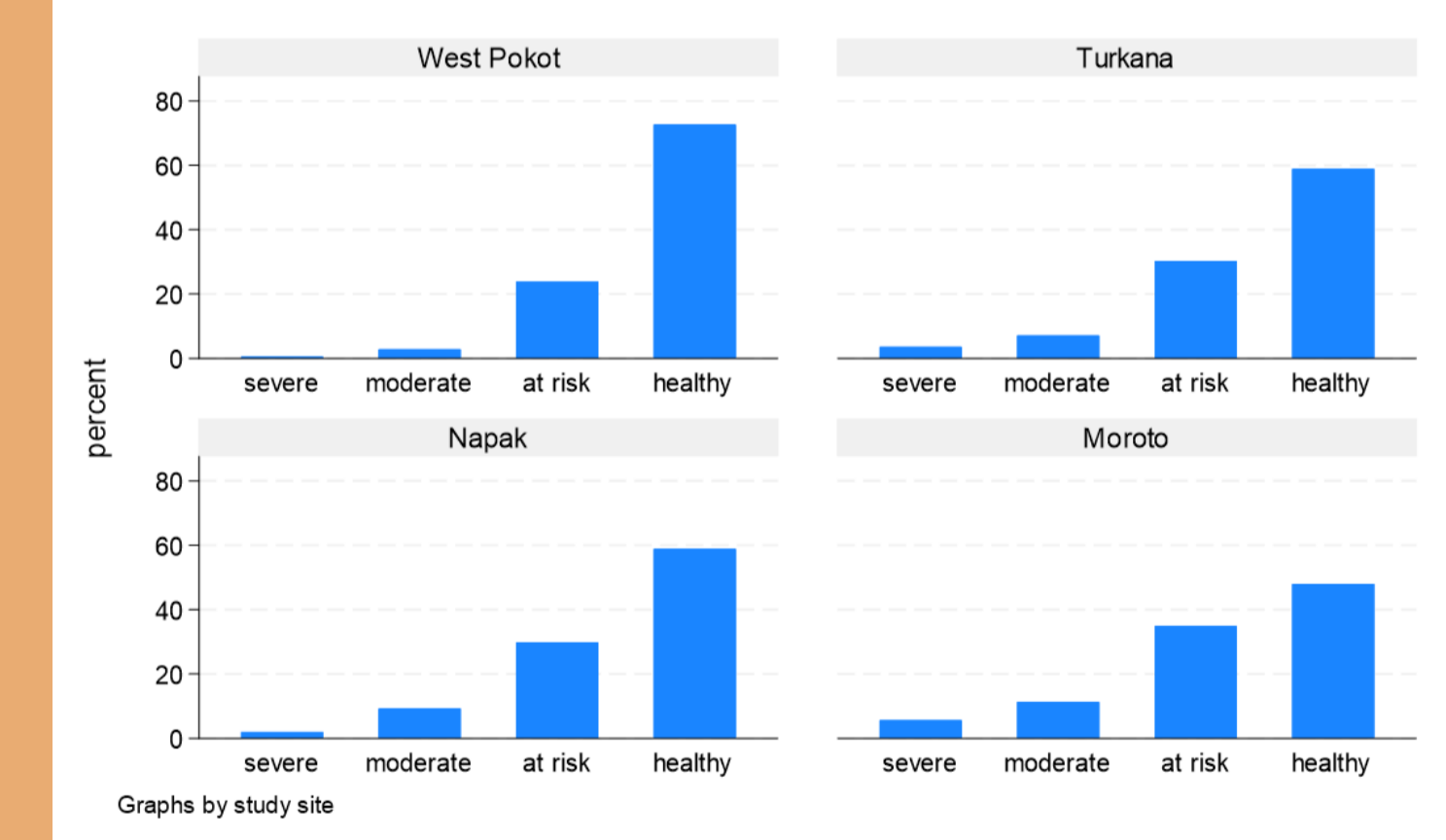
3. **Livelihood strategies for food security and human wellbeing.** Understand the **resilience of communities** to seasonality and climate variability (Fig.5)

Household livelihoods



4. **Innovative land governance mechanisms and practices.** Livestock-keepers' dependence on both **flexible and secure rights to land**

Children <5 years at risk of malnutrition



5. **Co-design and evaluate alternative scenarios for sustainable dryland transformation** with stakeholders at local to national scales (Fig. 6)



Fig. 6. Focus Group Discussion with women exploring options for future scenarios



Fig. 5. Household livelihoods (above) and children <5 years at risk of malnutrition (middle) Based on survey with women and men (n=944) (below)