



Pathways and challenges towards a transformation of landscapes, livestock and livelihoods

- A research project in the East African Drylands



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

However, drylands have inherently challenging biophysical characteristics: degradation-prone soils and vegetation, water scarcity, and high rainfall variability both in time and space.

In the drylands of East Africa, pastoral and agropastoral livelihoods are prominent. With increased political and economic interest

in East Africa's dryland regions, pastoralists find themselves increasingly confronted by processes of privatization, fragmentation and commodification of land based resources.

This has led to pasture scarcity, resource conflicts and changes in land tenure that limits mobility of people and livestock.

Sustainable development in the East African drylands

Drylands Transform aims to address complex challenges in the East African drylands, such as climate change, food insecurity, land- and ecosystem degradation, and weak institutions.

Drylands Transform investigates the interlinkage between land health, livestock-based livelihoods, human well-being and land governance mechanisms in order to contribute to transformative change and sustainable development of the social-ecological system in drylands of East Africa.

The overall goal of Drylands Transform is to **contribute with knowledge for the implementation and achievement of the global Sustainable Development Goals (SDGs)**, while optimizing synergies and minimizing trade-offs between the SDGs, in the East African drylands by developing transformative pathways through policy and practice.



Geographical focus

The geographical focus of Drylands Transform will be the **Karamoja cluster**, in the cross-boundary area between Kenya, Uganda, South Sudan and Ethiopia.

The field studies will take place in four sites providing variation in livelihood strategies, land management and climate: Chepareria (West Pokot, Kenya) and Matany (Napak, Uganda) in the south are dominated by agro-pastoralist communities, whereas Lokiriama-Lorengippi (Turkana, Kenya) and Rupa (Moroto, Uganda) in the north are dominated by pastoralists.



Research approach

Our research will adopt an **interdisciplinary approach**. The project will be carried out by international scientists in close collaboration between six universities (the Swedish University of Agricultural Sciences (SLU), Gothenburg University, Linnaeus University, Makerere University, University of Nairobi, Umeå University), two international organisations (Intergovernmental Authority on Development (IGAD) and World Agroforestry (ICRAF)), rural communities, local authorities and other stakeholders at national and East African regional level. Stakeholders and end-users will be involved in all stages of the project, using a co-learning, knowledge exchange and partnership approach. An external international advisory panel will also guide the project's development towards realisation of the targeted SDGs.



We aim to reach the **scientific community** through conference presentations and peer-reviewed publications, as well as through capacity development and student theses.



Global and African level

We envisage that our research results will inform government and intergovernmental agencies and contribute to stronger development strategies for dryland areas.



Regional and national level

Communication and engagement with regional and national policy makers will be through policy briefs, blogs, scenario workshops, participation in conferences/meetings, etc.



County/district level

Officials, the private sector and non-governmental organisations will be engaged through stakeholder platforms, policy briefs and scenario workshops.



Local level - Villagers, farmers/herders women, men and youth will be the co-creators of knowledge at the Livestock Cafés. With local extension and other actors research results will be translated into practice in trainings, demonstrations and technical tools and materials.





Our key objectives

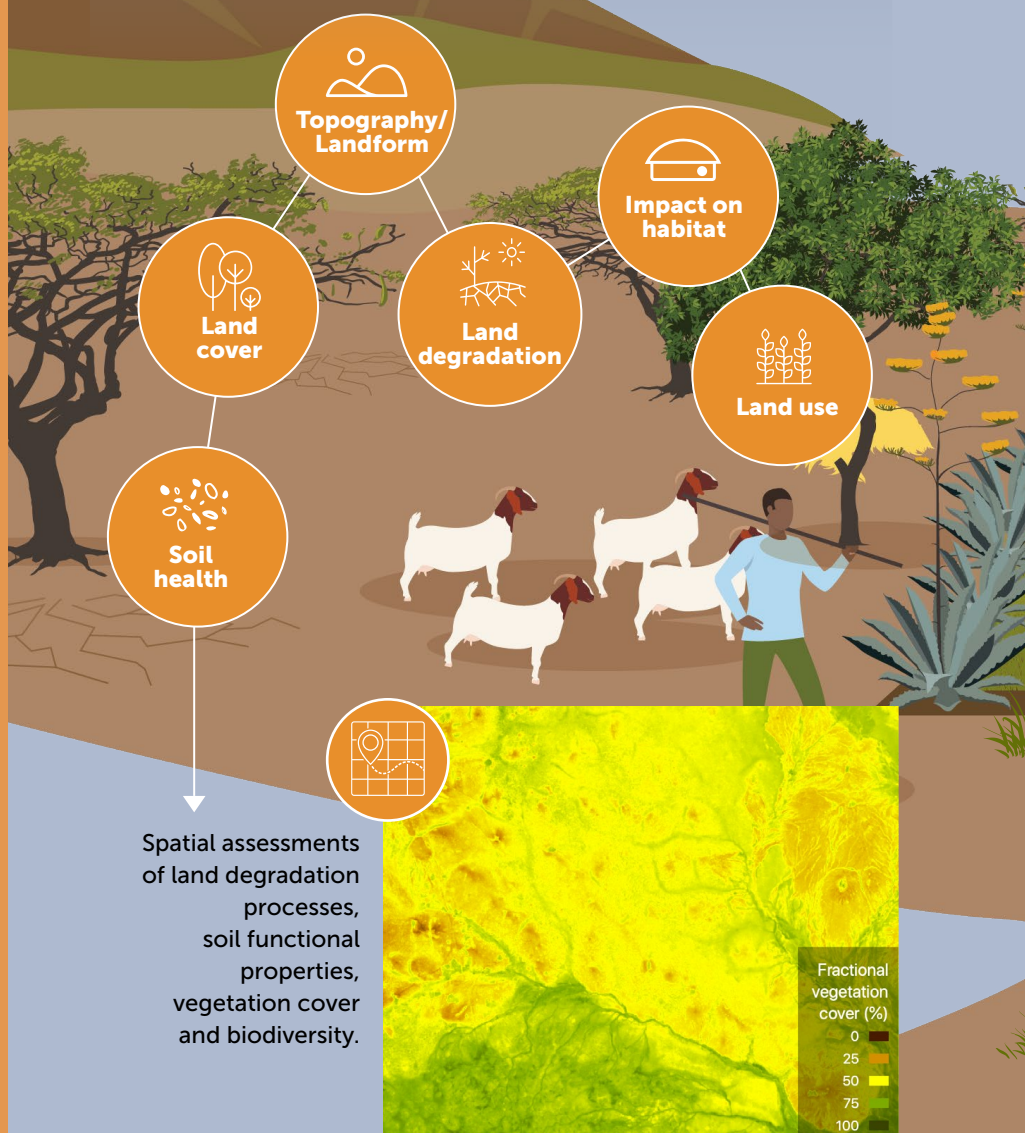
- 1 Assess land health at the landscape scale and explore the links with human health and well-being.
- 2 Co-develop sustainable rangeland restoration and management options with local communities in knowledge sharing hubs ('livestock cafés').
- 3 Understand the resilience of communities to seasonality and climate variability, and how livelihood strategies contribute to food security and human wellbeing in the face of environmental hazards.
- 4 Identify innovative land governance mechanisms and practices that effectively address livestock-keepers' dependence on both flexible and secure rights to land.
- 5 Co-design and evaluate alternative scenarios for sustainable dryland transformation in East Africa with stakeholders at local to national scales.

Mixed methodological approaches used for data collection

Field surveys of land and ecosystem health

The Land Degradation Surveillance Framework (LDSF) will be applied to assess land health at the landscape level. The framework is built around a systematic biophysical field survey and sampling protocol, where multiple georeferenced land health indicators are measured within 10 x 10 km sites.

From the analysis of soil samples and field data, we will assess land and ecosystem health at multiple scales using statistical modelling and machine learning methods based on the data from the LDSF network of sites, which consists of more than 300 sites across the global tropics.



Livestock cafés: local knowledge sharing hubs

Livestock cafés will be the experimental sites to study forage productivity, establish novel co-learning and knowledge exchange centres and create opportunities for milk and fodder value chains and kitchen garden development.

Livestock cafés will function to:

- **Engage with local communities** to test novel land restoration and management options in grazing areas for enhanced forage, food and income. These experimental plots are managed for forage production and can be utilized for controlled grazing by the local communities. Restricted timing and intensity of grazing is key to their management. Kitchen gardens will be established together with women in the nearby communities.



- **Develop fodder value chains.** At the livestock cafés, the project will pilot value chain improvement activities and orient the communities towards value addition. Groups of local women, men and youth will be trained and familiarized with livestock products, e.g. hay and milk, and their value chains. This will prepare them to take over the operations by the end of the project.



Household surveys, qualitative interviews and focus group discussions

In order to understand the resilience of food and livelihood strategies in a variable climate and how they can be improved, **interviews and focus group discussions will be conducted in the same areas as the four LDSF sites and in neighbouring control sites.** These will be carried out with different social groups and different household typologies, and explore nutrition and diets, land use and livestock management and violent local conflicts, gender and equality.

Nutrition, health and child anthropometry data, as well as weather and drought data

will be collected over 2 years. Aspirations and historical changes in production forms, environment and human wellbeing will be assessed with elderly.

Results will show patterns of vulnerability across households and communities, and pathways how to improve resilience to external drivers of human wellbeing.

Collected data will also show in which way migration and displacement are triggered by climate hazards such as droughts in dryland communities.

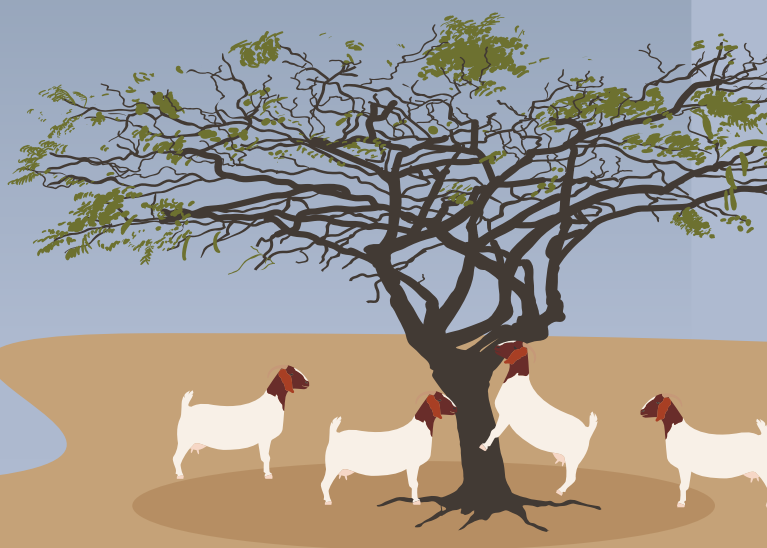


Identification of innovative land governance mechanisms

Interviews, participatory observation, and focus group discussions will reveal how regional and national governance mechanisms influence local land use and land tenure practices.

A choice experiment survey will be completed in the four study sites, in which respondents will be asked to state a preference between different combinations of attributes. The survey allows an understanding of attributes central to household welfare and collective action in a pastoralist context, such as livestock health, cattle-raids, climate variability and change, labour cost, tenure security and flexible access to seasonal grazing land.

Secondary data and desk reviews of national policies and statistics will include land use changes, grazing pressure, economic development, changes in governance, markets and institutions, and government policy instruments for improving livelihoods of livestock keepers.



Scenarios for sustainable drylands development

The research findings will be synthesized into a set of future scenarios describing possible drylands development pathways. Scenarios will be evaluated through interactive platforms and engagement workshops with policy makers and practitioners at local to global scale.

Scenarios will be based on socioeconomic and biophysical data collected within the four field sites, and scaled up into generic scenarios relevant for drylands in the wider East African region.

Joint scenario design and analysis will function as a tool for scientific synthesis of different research components and insights as well as for feeding future research ideas into science. The scenarios will also be used as a concrete method for the translation of empirical results into policy-relevant pathways towards a sustainable dryland transformation.





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 www.slu.se/drylandstransform

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