ASSAR
Adaptation at Scale in Semi-Arid Regions

University of East Anglia

AFRICAN WILDLIFE FOUNDATION

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WHY DO WE WORK IN EAST AFRICA?

The semi-arid regions of East Africa, where many people rely on the rains for their crops and livestock, are among the most food insecure regions in the world. Communal conflict, and the resulting population displacement, adds additional and ongoing challenges to regional security and peace. Climate change is bringing a new dimension to East Africa's vulnerability, partly because the institutional and economic capacity to deal with climate change impacts is often inappropriately allocated and structured. It is therefore essential to understand how to enhance the ability of communities, local organisations and governments in East Africa to adapt to climate change in a way that minimises vulnerability and promotes long-term resilience.

Already much climate change related work is being done in this region, focused on topics such as agricultural interventions, drought-resilient agriculture, and pastoralist access routes. Rather than replicate this work, ASSAR's East Africa team is harnessing its interdisciplinary strength to conduct integrated environment-development analyses at multiple scales.

Working in Awash Fentale Woreda and Amibara Woreda, Afar and Yabello Woreda, Oromia in Ethiopia, and Isiolo and Meru counties in Kenya, our research focuses on three things:

The **first** focus is land and water use/access. We examine the connection between human wellbeing, land tenure, resource access (such as water and pasture for livestock or crops for domestic use), and resource governance (including traditional mechanisms). Examples of this work include understanding pastoralist access to land for seasonal grazing and drought reserves; choices of crop type and the location of rain-fed cultivation; the potential for sustainable irrigated agriculture; and access to household water and sanitation (especially in newly-urbanised or peri-urban settlements).

Our **second** focus is on linkages at higher scales. Here the objective is to understand issues like the dynamics of pastoral mobility across larger-scale landscapes (such as districts and countries) and the process of fiscal and political decentralisation. We consider these aspects in relation to the wider development context, including regional development projects (e.g., the LAmu Port South Sudan-EThiopia (LAPSSET) Transport Corridor project in Kenya), sectoral trends such as tourism, and migration/sedentarisation.

The **third** and final distinctive element of our research is to understand how vulnerability, adaptive capacity and the implications of different adaptation responses are socially differentiated – within communities, between individuals, and according to ethnicity, gender and age. It is this analysis, building on ASSAR's core wellbeing and resilience framework, which is key to understanding trade-offs and equity dimensions of potential adaptation options.

What are the key climate patterns of the past and projected trends for the future?

- In the past 50 years, the semi-arid areas of East Africa have warmed at a rate five times greater than the rate observed during the last century.
- This warming trend is set to continue, with the number of very hot days each year projected to almost double by 2045.
- Projections for rainfall are much more uncertain, and more research needs to be undertaken to understand these trends. However, there are likely to be large increases in wet extremes in the future.

What are the expected impacts of future climate on semi-arid areas?

- Drought and flood hazards are expected to intensify the demand for food, water and livestock forage.
- Heat-stress on livestock, crops and infrastructure will be more severe in semi-arid regions than in other areas of East Africa.
- Different groups and societies will experience and cope with climate-related risks in different ways.
- Due to their more limited ability to access resources, women, disabled people, the elderly, children, and the poor, are especially vulnerable to climate change impacts.

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