

**Technical progress report from
International Livestock Research Institute
(ILRI) for period 1 November 2012 to 30
October 2013
Year 2 Report**

**PROJECT ON “CLIMATE-INDUCED VULNERABILITY AND
PASTORALIST LIVESTOCK MARKETING CHAINS IN
SOUTHERN ETHIOPIA AND NORTHEASTERN KENYA
(CHAINS)”**

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Preface

This is the second annual technical progress report from the “Climate-Induced Vulnerability and Pastoralist Livestock Marketing Chains in southern Ethiopia and northeastern Kenya (CHAINS)” project, which is part of the Feed the Future Innovation Lab: Adapting Livestock Systems to Climate Change (ALS-CC) based at Colorado State University and supported by AID Grant No. EEM-A-00-10-0001. It represents the second year of research activities of the International Livestock Research Institute (ILRI), one of the key partners of the CHAINS project. Other partners in Ethiopia include the Institute of Development Studies and Addis Ababa University, and in Kenya, include Mombasa Technical University. The CHAINS’ project objectives are to: (1) understand the ways in which climate variability and change affect livestock marketing chains in southern Ethiopia and northeastern Kenya; (2) assess which social groups (for example, low-income pastoralists and small- and large-scale traders) benefit the most from different market chains and climate risk scenarios; (3) examine the effects of increased market commercialization and climate variability on pastoral livelihoods and land use; and (4) recommend policy-based solutions to improve livestock markets and the benefits that low-income pastoralists and traders derive from them.

As part of the CHAINS project, IRLI focuses on the spatial and environmental parameters of pastoral livestock production systems and in facilitating field research and linkages with key policy makers and projects. This technical progress reports on recent contributions of IRLI in assessing how climate and land use information relates to market and movement decisions. This technical progress report details activities that IRLI took on in Ethiopia and Kenya during the second year of the CHAINS project. Rather than wait several months or even years until these materials are published in a formal format or journal, we are making the materials available in a field research report series with only light editing.

Peter D. Little,
Principal Investigator (PI)
Emory University, Atlanta, GA, USA

Climate-induced Vulnerability and Pastoralist Market Value Chains in Southern Ethiopia and Northeastern Kenya (CHAINS)

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Introduction

ILRI is a participating institution in the above-mentioned project and a sub-awardee under the Emory University-led CHAINS research project, which is part of the USAID-funded Feed the Future Innovation Lab: Adapting Livestock Systems to Climate Change (ALS-CC). CHAINS focuses on the role of livestock markets in pastoralists' climate risk management strategies. ILRI's initial contributions focused on the spatial and environmental parameters of pastoral livestock production systems (see the ILRI 2012 technical report). However in 2013, ILRI's contributions have included connections to other ongoing projects in both Ethiopia and Kenya. ILRI hosts the Ethiopia-based project staff at its Addis campus. ILRI has continued to manage the subcontract with a Kenyan University Pwani University, through which Dr. Hussein Mahmoud has collected interview and survey data in Garissa and Marsabit markets. Last year it was Pwani University (part of Kenyatta University) and this year it is the Mombasa Technical University.

Administrative support to project staff and consultants

ILRI hosts CHAINS Post-doctoral Research Associate, Dr. Waktole Tiki, at its Addis campus. This has allowed Tiki to have access to computing and other facilities, including GPS units for field work. This also allows for interaction with other work ILRI has ongoing in the Borena rangelands, including the Index-based Livestock Insurance project, the Rangelands Governance Initiative, and the Technical Consortium for Resilience and Growth in the Horn of Africa. ILRI is also providing direct support to the Ethiopian Ministry of Livestock and the Ethiopian Institute for Agricultural Research, both of which have made pastoral livestock production and rangeland management a priority for 2014.

Mapping and spatial analysis work

In 2013, ILRI has collected information on rangeland management practices under a project entitled "Livelihood diversifying potential of livestock based carbon sequestration options in pastoral and agro-pastoral systems in Africa" funded by the German institute BMZ. The study area encompasses nine sites in Dida-Hara in Yabello district. Maps of rainfall and potential ET have been developed as shown below (figure 1). Information on land cover indicates the following: shrublands (open shrubland 19%, dense shrubland 11%), woodland (open woodland 11%), bushland (open bushland 8%, dense bushland 3%) and grassland (wooded grassland 15%, bushed shrubbed grassland 16%, open grassland 6%). There are few areas especially in the high mountains that are cover by forest (dense coniferous high forest 3%). Cultivated areas occupy about 8% of the areas. Please refer to Figure 2. The study also entailed participatory mapping of 18 enclosures in a 20 Km area around Dida Hara, in order to compare these with open grazing areas.

In addition, ILRI has access to 30 years of historical NDVI data for the area as well as the forage biomass and biomass deviation data from the LEWS project (2000 to

present) that is making available to the CHAINS program. These products allow for analysis of variation over time and space of grazing vegetation, as illustrated in the attached Figure 3.

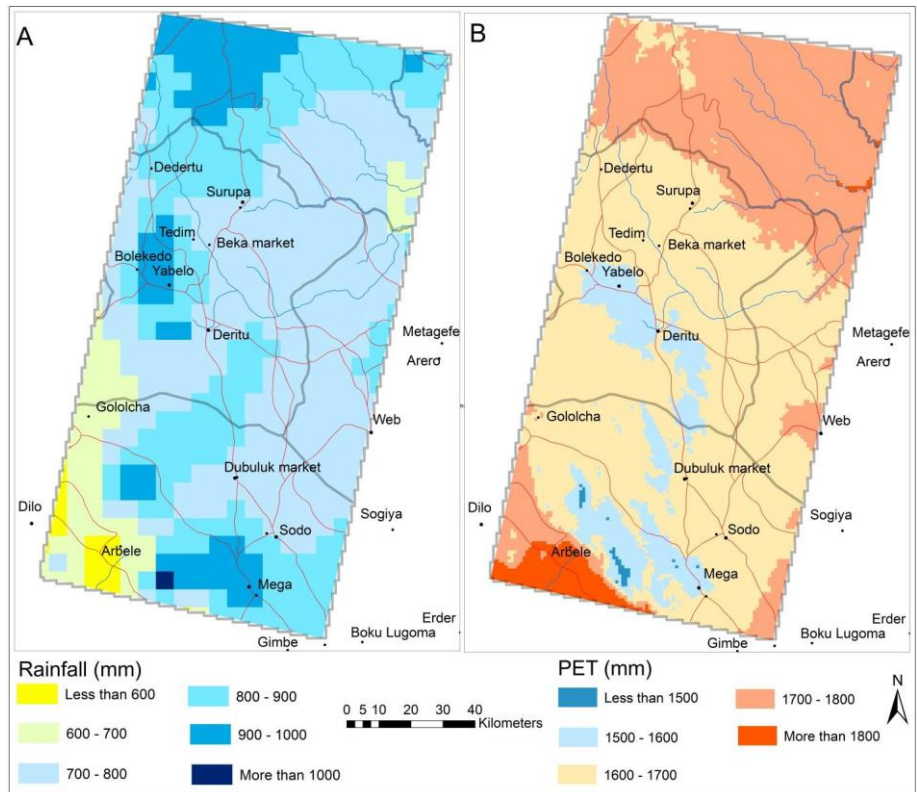


Figure 1: Rainfall and potential evapotranspiration (PET) in the Dida Hara site of Yabello.

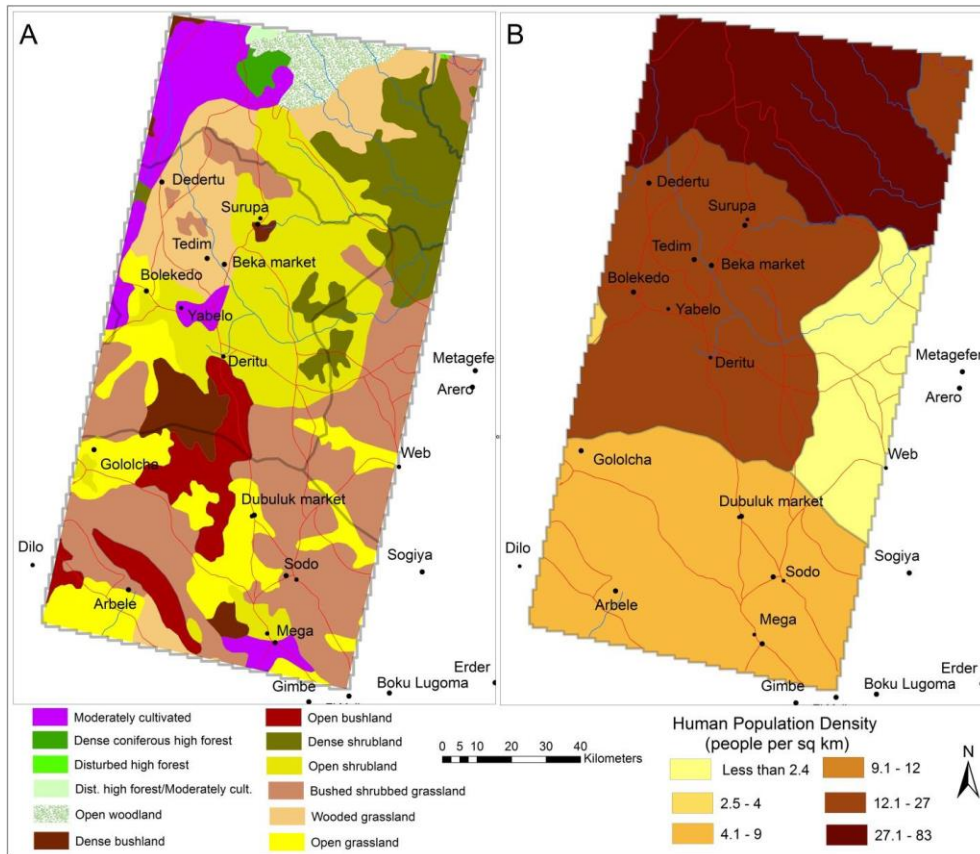


Figure 2: Land cover and population density in Dida Hara, Yabello district.

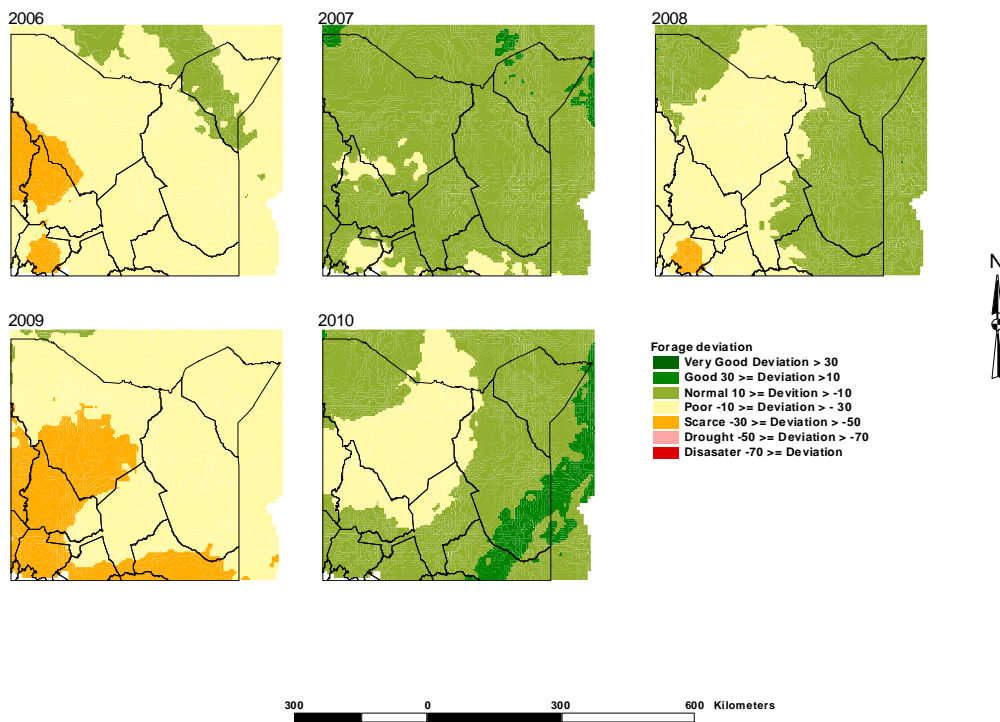


Figure 3: example of forage biomass deviation from the 10 year average for Northern Kenya (ILRI analysis)

In Kenya, ILRI has collected climate and land cover data for Tana River and Ijara (of indirect relevance to the Garissa/ Moyale work) for a project on the Dynamic Drivers of Disease, part of an ESRC –DFID funded consortium. The focus of the research is on Rift Valley Fever, which is of great interest to the CHAINS consortium partners. The project aims to understand how land use change affects RVF outbreaks in two types of land uses: Seasonal wetlands in Ijara/Garissa represent low rainfall savannas where RVF presence is established and outbreaks convincingly linked to rainfall events driven by El Niño. Irrigated areas in Ijara/Tana River represent a similar ecosystem with new opportunities for infection created by irrigation investments.

Links to networks for dissemination of results

As part of its mandate as an international agricultural research institute, ILRI is linked to several important stakeholders and networks in both Ethiopia and Kenya. These can be of direct benefit to the CHAINS project in year 3, when the results are disseminated through community meetings and policy briefs. In Ethiopia, ILRI staff member Fiona Flintan is a joint appointment with the Rangelands Initiative of the International Land Coalition. One of the key areas of focus is the planning and maintenance of livestock corridors in both Kenya and Ethiopia. This will include collecting data on the economic value of the trade enabled by these corridors. ILRI also has very close relationship with the pastoral division of the Ethiopian Agricultural Research Institute (EIAR). Finally in Ethiopia ILRI is piloting the Index-Based Livestock Insurance (IBLI) scheme in Borena, in the same area as the CHAINS Project. IBLI uses remote sensing data (NDVI) to track drought conditions, and in Ethiopia the project is also investigating the impact the provision of the insurance may have on livestock movement. The IBLI programme is very high profile throughout East Africa.

In Kenya, ILRI has close ties to the National Drought Management Authority and is a member of the ASAL Stakeholder forum. Both groups are concerned with supporting pastoral livelihoods and building pastoral livestock systems resilience to drought. The information generated by the CHAINS project on how pastoral producers manage the tradeoffs between moving animals to find fodder and water versus selling them in markets will be extremely useful to planning and interventions.

Finally, ILRI hosts the USAID-funded Technical Consortium for Resilience and Growth in the Horn of Africa. The TC was established to provide technical input to the IGAD member states (including Kenya and Ethiopia) as they develop long term investment plans for their drought-prone dryland areas. The TC has established strong links with the Ministries of Livestock as well as the respective drought management agencies in both Kenya and Ethiopia. These links could prove very useful to CHAINS in disseminating results.

Links to other ILRI research projects

ILRI is a partner on a project for the Kenya Rural Development Program with the Dutch NGO SNV which aims to strengthen pastoral livestock producers' access to and participation in markets. A secondary objective of the project is to show that increased market participation also enhances pastoralists' ability to manage drought risk. ILRI has particular responsibility for documenting evidence for the second

objective. The central hypothesis of the CHAINS project is thus extremely relevant to the SNV project.

Within the Livestock Systems and Environment program at ILRI, we are revitalizing our research on drivers of change in rangeland systems. This includes a project with the IUCN Drylands programme on Sustainable Rangeland management; research with the IBLI team about livestock movements in the context of rapid change; and research on good governance.