



## ILRI research charts ways to better livestock-related drought interventions in Kenya's drylands

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Repetitive drought has recently ravaged the arid and semi-arid parts of the Horn of Africa, resulting in great numbers of deaths of livestock and malnutrition in many livestock keeping communities. Appropriate drought relief needs to target livestock specifically, because pastoralists depend on livestock for their basic needs; losses of significant numbers of livestock undermine their economic and food security and makes them even more vulnerable to future drought events.

Two recent ILRI studies distinguish effective ways to mitigate the effects of drought on the pastoral livestock sector in this region. A study funded by the European Union (EU), 'An Assessment of the Response to the 2008–2009 Drought in Kenya,' which reviews the effectiveness of livestock-based interventions during Kenya's devastating 2008–2009 drought, suggests improving the country's current drought management system and incorporating climate change into Kenyan drought management policies. A study funded by the United Nations Food and Agriculture Organization (FAO) designed a prototype of a livestock drought management decision support tool.

### Drought and its management in Kenya

Drought is the prime recurrent natural disaster in Kenya. It is reportedly now affecting 10 million mostly livestock-dependent people in the country's arid and semi-arid lands. While reducing the country's economic performance, recurring droughts particularly erode the assets of the pastoral poor, who herd cattle, camels, sheep and goats over drylands. This repeated erosion of animal assets is undermining the livelihoods of Kenya's pastoral communities, provoking many households into a downward spiral of chronic hunger and severe poverty.

Since 1996, the Office of the President in Kenya, supported by the World Bank, has been implementing an Arid Lands Resource Management Project (ALRMP) to support the country's drought-prone communities. The ALRMP, further supported by the European Union, funded a Drought Management Initiative and consolidated a national drought management system with structures at the national (Kenya Food Security Meeting, Kenya Food Security Steering Group), district (District Steering Group) and community levels. This drought management system includes policies

and strategies, an early warning system, a contingency plan and an overall drought coordination and response structure. The main stakeholders involved, in addition to the Government of Kenya and its line ministries, are various development partners and non-governmental organizations (NGOs).

To date, the Kenyan drought management system has been subject to ad-hoc review and improvement. The most far-reaching changes to it since its inception are now under way, including major institutional changes through the creation of a Drought Management Authority and a National Drought Contingency Fund.

## The EU study on drought interventions

Late in 2009, at the end of the 2008–2009 drought, the Delegation of the European Union to Kenya commissioned ILRI to undertake a review of the NGO and government responses to the drought. The purpose of the review was to help Kenya make its drought management system more effective, recommending more appropriate, effective and timely livestock-based interventions.

The report first characterizes (Chapter 3) the two-year drought and assesses the severity of its impacts. Chapter 4 assesses the drought responses in six arid and semi-arid districts of Kenya (Kajiado, Isiolo, Samburu, Laikipia, Turkana and Marsabit), with feedback on 474 livestock-based interventions from a variety of stakeholders at district and national levels. Chapter 5 provides a checklist for drought-response scenarios; Chapter 6, guidelines for monitoring and evaluating responses to drought; and Chapter 7, a plan for commercial destocking in one of the districts. Chapter 8 summarizes climate change forecasts for Kenya and assesses the need for incorporating climate change adaptation into Kenyan drought management strategies. Chapter 9 discusses the implications of the findings and makes recommendations. The final chapter distills lessons learned and reviews whether recommendations made by an evaluation of the response to the 2000–2001 drought in Kenya have been implemented.

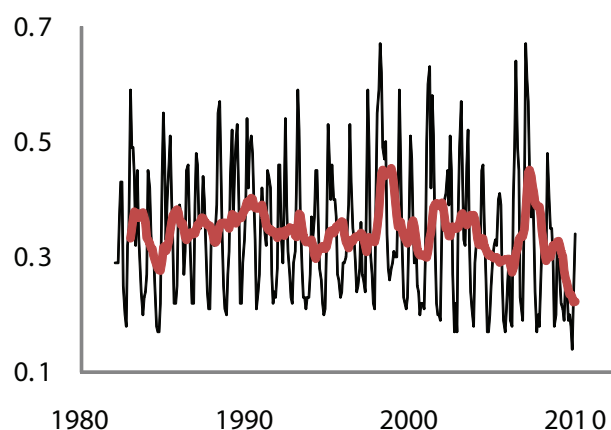
## The report's findings in a nutshell

A twelve-month running average of a remotely sensed NOAA-AVHRR NDVI<sup>1</sup> index accurately detected historic droughts. This index, which could have been available during the progression of the 2008–2009 drought, revealed that Kajiado and Laikipia districts were affected more severely than any other district. A 12 month running average of NDVI revealed that Kajiado (see figure below) and Laikipia suffered the worst drought since the start of the NOAA AVHRR data in 1982.

1 NDVI: Normalized Differential Vegetation Index, a remote-sensing index that tracks the greenness of vegetation. Low values reflect bare soil and dry vegetation, higher values reflect increasingly greener vegetation.

The drought was extreme not only in meteorological and rangeland production terms, but also because of its devastating impact on livestock. Some 57 per cent of cattle and 65 per cent of sheep, for example, perished in Samburu Central, while 64 per cent of cattle and 62 per cent of sheep died in Laikipia North.

NDVI



Monthly NDVI (-) for Kadjiado district show seasonal patterns in vegetation greenness; the 12 month running average of NDVI (-) reveals the 1998 and 2007 El Niño events and the 1984, 2000-2001, 2005 and 2008-2009 droughts.

The satellite imagery also revealed heterogeneity in drought intensity in northern Kenya, with drought in the lowlands accompanied by better vegetation conditions in mountains and across borders. Satellite imagery thus allows real-time screening of opportunities for migration and could provide in such cases evidence to support the need for remedial conflict resolution in areas of high insecurity.

The number of livestock interventions increased dramatically between the 2000/2001 drought (21 projects in 10 districts) and the 2008/2009 drought (474 interventions in 6 districts). The total expenditure was also greater in 2008/2009 (USD4.6 million for 6 districts) than in 2000/2001 (USD4 million in 10 districts). Unfortunately, most livestock-related interventions began very late in the last big drought, in early to mid-2009, well past the earlier phase where interventions like for example destocking would have been more effective. Lack of funds constrained most agencies, apart from ALRMP, which responded early as it had funds available when the drought emerged. That an emergency classification in the early-warning bulletins tracked social rather than biophysical conditions of the rangelands may have further delayed a timely response.

More than 1.5 million people benefited from interventions during 2008 and 2009 such as destocking, animal health and feeds. The cost per individual reached was KSh3,362, ranging from KSh163 for water trucking to KSh8,652 for emergency destocking. An estimated 15,873 tropical livestock units were purchased as part of emergency off-take and over 5.7 million animals were reached by health interventions.

## The importance of markets and mobility

Without exception, all interviewed pastoralists consider mobility and access to natural resources as the most potent mechanisms for coping with drought. Ironically, mobility is also the activity that is increasingly impeded, with conflicts over access to land and water remaining unresolved. Interventions that facilitate maintenance of migratory movement and that allow access to unused grazing areas remain the most cost-effective ways to mitigate livestock losses during droughts.

Markets are also important for mitigating the impacts of droughts. Participants of a one-day workshop on destocking in Marsabit District said that a successful commercial de-stocking would be next to impossible without a functioning dynamic livestock trade during 'normal' times. 'Emergency' commercial de-stocking, they said, should not be necessary because a functional commercial livestock trade sector should be capable to up-scale its activity if a drought-related surplus of stock appears.

## Drought responses are falling behind

The drought responses in 2008–2009 appeared to be more effective and timely than those in previous years. Yet the increased effectiveness of these responses is not keeping up with a decline in livestock assets and coping capacity among many pastoral households. Furthermore, poor governance and mismanagement of funds plague efforts to move from relief to longer term development interventions.

## Involvement of local communities

Local communities were not involved in the design and implementation of interventions to help them cope with drought, with exception of one community in Laikipia, where consultation was restricted to livestock off-take. Yet, the local communities were clear about what they thought they should do to increase their resilience to drought. A Kajiado Naserian community that wanted to reduce its reliance on food relief considered its community-driven goat project more effective than any relief program. A community in Merti, Isiolo, preferred a viable livestock market to government-funded livestock off-take projects and saw investments in pasture management as one way to solve feed shortages during droughts.

# Lessons learned

**The good news**—An increased presence of non-governmental organizations in drought-prone areas substantially improved the speed of information and response, allowing for better and locally embedded management of the drought

cycle. This, in combination with improved coordination and collaboration between agencies, enhanced of both the quality and timeliness of responses to droughts. A carefully chosen bundle of appropriate preparedness activities remains the most cost-effective approach to reduce the impacts of shocks. Activities such as those implemented by ECHO (the European Commission's Humanitarian Aid department) and ELMT (Enhanced Livelihoods in the Mandera Triangle) are beginning to show marked impacts.

**The bad news**—But this good news is largely negated by other factors, such as reduced line ministry capacity, administrative and institutional changes such as the creation of new districts, and conflicts. Moreover, whereas rainfall anomalies trigger drought, other factors worsen its effect far beyond the shortfall of rain. The most important contributing factor is insufficient high-potential grazing lands, caused by relentlessly increasing demographic pressure along with insecure land tenure rights. The resulting scarcity of livestock resources is leaving whole populations increasingly vulnerable to drought and other shocks.

**Lesson 1**—The most effective interventions were those that facilitated mobility to provide access to disputed and underutilized grazing lands and water resources.

**Lesson 2**—Centrally organized ad hoc commercial de-stocking remains the least cost-effective drought intervention in Kenya. Poor and heavily delayed implementation due to complications in up-scaling interventions organized from outside make this kind of de-stocking unviable. But more than anything else, lack of connection to existing market systems precludes such ad hoc commercial de-stocking operations from being cost-effective.

**Lesson 3**—'Livestock-fodder-aid' comes a close second in terms of poor cost-effectiveness. Shipping substantial quantities of hay to remote locations is extremely costly and has had little if any measurable impact.

**Lesson 4**—Slaughter off-take, preferably carried out on the spot, with the meat distributed rapidly to needy families, is an intervention popular with beneficiaries and can provide substantial benefits. Those that sell a live animal often benefit also from the distribution of its meat. And the availability of this high-protein food can benefit household nutrition while allowing the selling households to maintain a little purchasing power a little longer.

## A livestock drought management decision support tool

Following on from the EU study, in mid-2010 the FAO Sub-Regional Emergency and Rehabilitation Office for East and Central Africa (REOA) commissioned IRLI to develop a proto-type 'Livestock Drought Management' (LDM) decision-support tool for use by emergency and relief planners and practitioners throughout the region. The tool is aimed

at improving the timeliness of interventions to support livestock, thereby saving the assets crucial to pastoralists. Timeliness of interventions is critical because interventions should be implemented before livestock are so weak they will die. Pastoralists have a number of coping and adaptive strategies to protect livestock assets, which they typically implement during droughts: chiefly moving the animals to areas with better forage and water, selling some animals, splitting herds or exchanging animals, or over time changing herd species composition. Interventions aimed at supporting these strategies have to be timely.

The LDM tool, which is still conceptual rather than operational, links the concepts of Drought Cycle Management (DCM) with the best practice in livestock-related interventions throughout all phases of a drought, from normal through the alert and emergency stages to recovery<sup>2</sup>. The DCM is designed to ensure that appropriate interventions are implemented at the 'right time' over the drought cycle. The LDM tool defines the phase of the drought cycle while combining data indicating the severity of the drought (hazard) and the ability of livestock to survive the drought

2. It was noted during these two studies that there are few interventions aimed at the recovery period.

(sensitivity). The hazard information is based on the NDVI index captured by the NOAA AVHRR system, while livestock body condition is used as the indicator for sensitivity. The hazard data has currently been parameterized for Kenya but can be used in any of the REOA countries. The information in the tool helps to estimate livestock condition and forage availability. It can be used to identify high-priority areas and potential hotspots. This information is useful for deciding how the drought is progressing and which phase of a drought cycle an area is in.

## References

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