



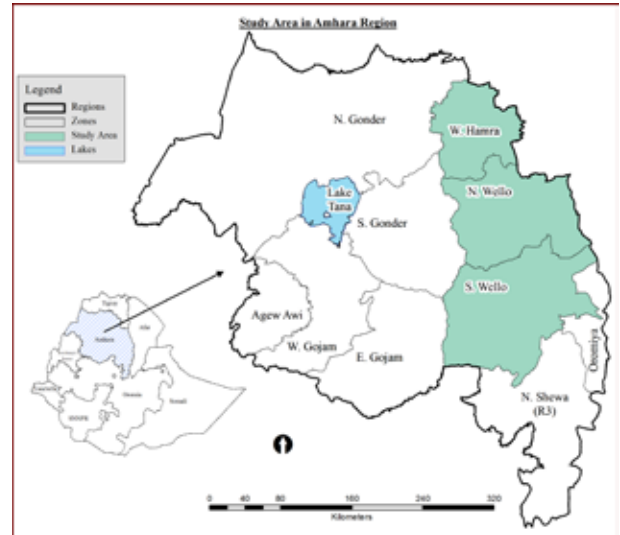
El Niño in Ethiopia

Early impacts of drought in Amhara National Regional State

Introduction

In September 2015 an AKLDP Technical Brief explained why the failure of the spring *belg* rains was a major problem in some areas of Ethiopia.ⁱ The Brief also reported a deepening El Niño episode, causing delays in the onset of the main summer *kiremt* rains which normally fall from June to September, leading to the main *meher* harvest from October to January. In December 2015 a second Technical presented more detailed information of the impact of the El Niño on the summer *kiremt* rains, using June to September monthly rainfall maps, as deviations against the 30-year average rainfall.ⁱⁱ The rainfall maps confirm National Meteorological Agency (NMA) reports that the *kiremt* rains were delayed, erratic, below normal and that the withdrawal was early. The impact of the 2015 El Niño episode on rain-fed farming was forecast to be significant.

In these **Field Notes** the AKLDP describes some of the impacts of the failed spring *belg* and the 2015 El Niño-induced erratic and poor summer *kiremt* rains on rain-fed smallholder farming communities in North and South Wollo and Wag Himra zones, Amhara National Regional State. The Field Notes are based on visits to communities in November and December 2015, and the use of focus group discussions, key informant interviews and participatory methodsⁱⁱⁱ with smallholder farmers, traders and government staff. A more detailed report on this work will be released later in 2016. Secondary data was gathered from zonal and *woreda* Early Warning and Response Departments, and from the 2016 Humanitarian Requirements Document.^{iv} The fieldwork also enabled smallholder farmers to prioritize emergency response interventions that might best mitigate the impact of the El Niño at household and community level.



Rural livelihoods

In the study area, dependence on rain-fed crop and livestock farming continues to dominate rural livelihoods in both spring *belg* and summer *kiremt* rainfall agro-ecologies. Barley is the staple cereal in the spring *belg* areas and is normally harvested in June and July. Sorghum, followed by teff and maize are the staple cereals in summer *kiremt* areas, and are harvested from October onwards. Sorghum and maize are typically grown for household consumption while teff is sold as a cash crop.

The neat division between spring *belg* and summer *kiremt* rainfall cropping is complicated by the planting of 'long cycle sorghum'. Typically, this crop planted in April and May if the spring *belg* rains are poor, or, in the summer *meher* season if the rains are early and soil is sufficiently moist for early field preparation and planting. 'Long cycle sorghum' is commonly harvested from October onwards.

Livestock - cattle and small ruminants - are kept in each of the three zones and serve as a major source of income. Livestock are typically sold in the dry season and income used to purchase of cereals and ensure adequate food throughout the year. Therefore, many livestock are sold in a drought year when production is well below normal. Information on the seasonal agriculture calendar is presented in Table 1.

Table 1: Combined spring *belg* and summer *kiremt* seasonal calendar

| Agriculture activity | 2014 | | 2015 | | | | | | | | | | |
|------------------------|------|-----|------|-----|-----|----|----|-----|-----|-----|-----|-----|-----|
| | N | D | J | F | M | A | M | J | J | A | S | O | |
| Rains: | | | | | | | | | | | | | |
| Spring <i>belg</i> | | | √ | | | | | √ | | | √ | | |
| Summer <i>kiremt</i> | | | | | | | √ | √ | √ | √ | √ | √ | √ |
| Land preparation | √ | √ | √ | √ | | | √ | | | | | | |
| Planting: | | | | | | | | | | | | | |
| Sorghum/maize | | | | | | | √ | | √ | | | | |
| Teff/barley | | | | | | | √ | √ | √ | √ | | | |
| Replanting | | | | | | | | | | √ | √ | √ | √ |
| Harvesting & threshing | √ | √ | | | | | | | | | | | √ |
| Food stocks | ** | ** | ** | ** | * | * | * | * | * | * | * | * | * |
| Food prices | * | * | * | * | * | ** | ** | *** | *** | *** | *** | *** | *** |
| Livestock prices | *** | *** | *** | *** | *** | ** | ** | * | * | * | * | * | * |

Key: *= low, ** = medium, *** = high

Impact of the failed 2015 spring *belg* rains and poor summer *kiremt* rains

Belg-dependent smallholder farmers in Lagambo and Dese Zuria woredas, South Wollo reported they only planted a quarter of their fields in 2015 as a result of the poor spring *belg* rains and inadequate soil moisture. In the areas that were planted, poor germination and crop establishment was reported, and little or no harvest was expected in June and July. Therefore, most of these fields were grazed by livestock. *Belg* producing *woredas* received some rain in May 2015^v and some farmers took the opportunity to plant barley and fodder oats. However, the rains did not continue and the crops again wilted and were grazed by livestock.



Wilted, early-maturing sorghum in Kobo woreda, North Wollo, planted in July 2015

Almost all *belg*-dependent smallholder farmers visited in South Wollo and North Wollo reported the failure of the spring *belg* harvest. They also went on to say that spring *belg* rains failures had occurred in the previous two years^{vi}, and they also faced problems such as floods, hail, frost, pests and disease.



Failed crops in Sekota woreda, Wag Himra zone

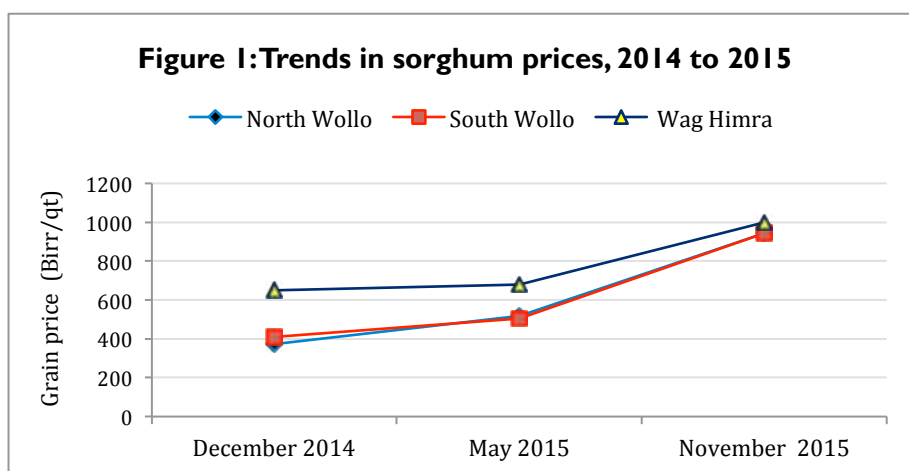
Farmers felt that repeated *belg* rain failure had resulted in knock-on effects in the livestock sector - the lack of livestock feed reducing growth, production and prices^{vii} - and shortages in drinking water as wells and streams dry out.

Meher dependent smallholder farmers in the study area confirmed that 90% of their

fields were planted after the onset of the summer *kiremt* rains with *meher* season crops. However in 2015, seed either failed to germinate or the crops withered in the early growth stages due to slow and erratic summer *kiremt* rains. These fields were grazed and then replanted in August and even September despite smallholders' concerns that late planting increased the risk of crop failure. Previous El Niño episodes were characterized by early withdrawal of the summer *kiremt* rains and 2015 was no exception, as the rains stopped a month ahead of normal. As a result, late-planted crops failed and losses of at least 75% were reported for the season. The wilted crops were harvested and stored for livestock feed. These losses were confirmed by zonal officials, who reported losses of up to 86%.^{viii} Household food security in these drought-affected areas is not expected to improve until the *meher* harvest of October 2016.

Impact of the El Niño drought on market and labour prices

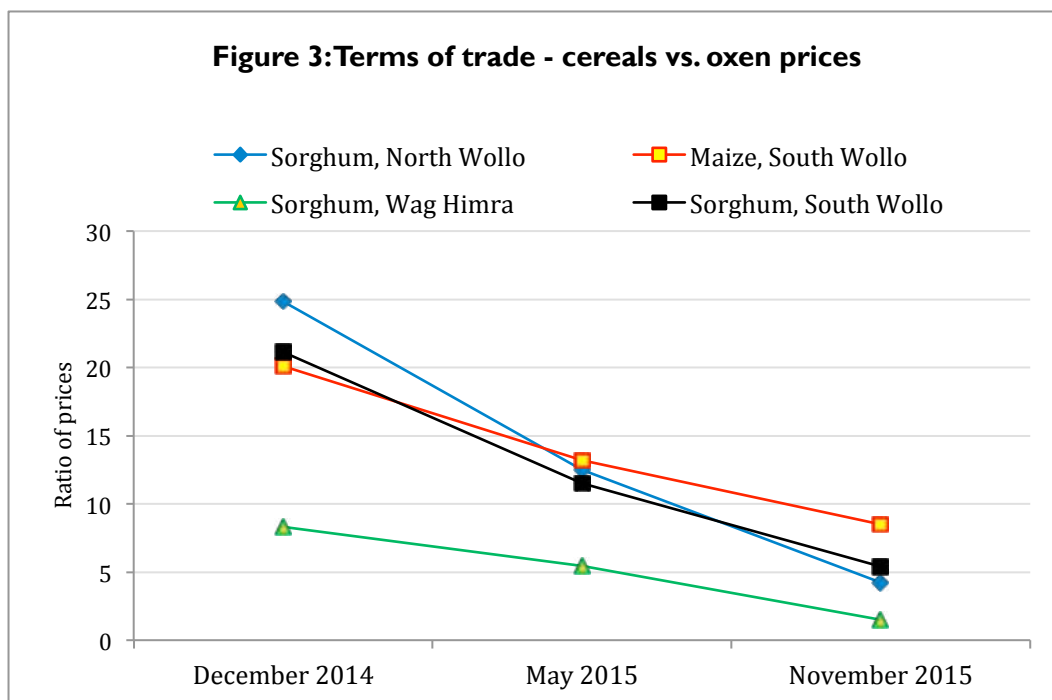
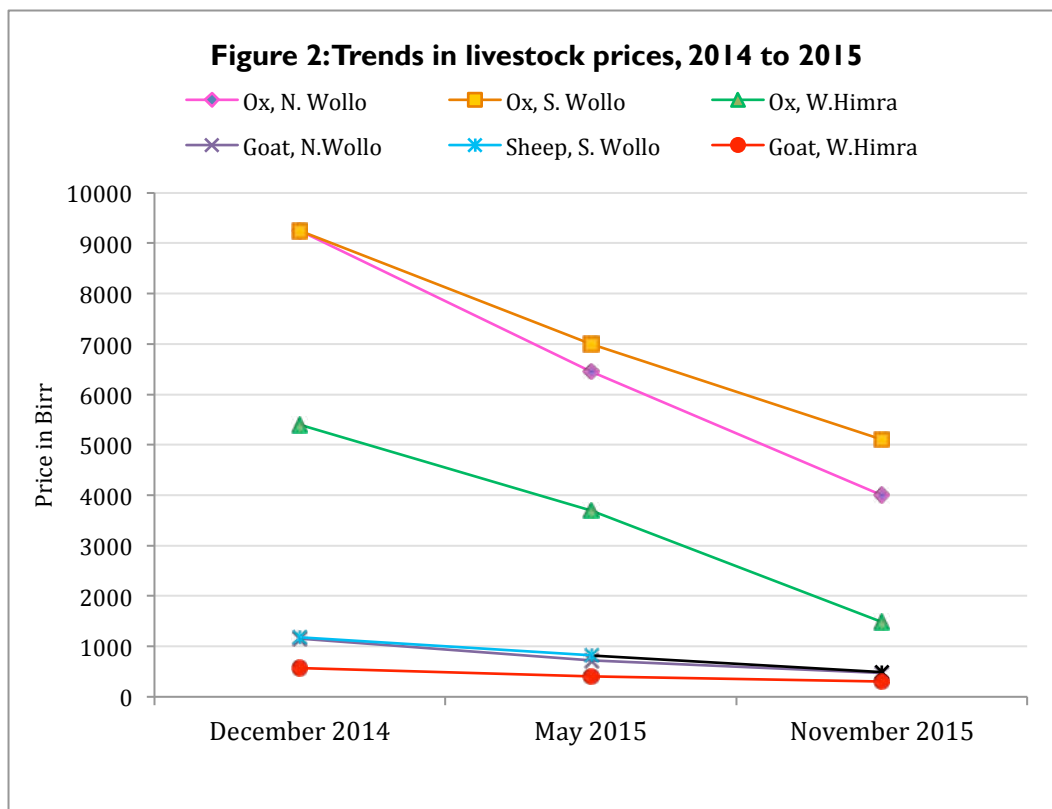
Sorghum is a major staple cereal in the study area. As expected, the failed spring *belg* and poor summer *kiremt* rains led to reduced sorghum yields and an increase in sorghum prices; prices doubled in some areas (see Figure 1).



Pulses and other staple food prices also increased. In contrast, livestock prices in November 2015 were more than 50% lower than livestock prices in November 2014 across all markets in the study area (see Figure 2). Reasons for the price reductions include poor livestock body condition due to

poor pasture, a substantial increase in the numbers of livestock being presented at market, and the 'forced' nature of the sales - smallholders are unable to negotiate from a position of strength as traders are aware of the smallholders urgent need for cash to purchase food.

Based on a standard 100kg sack of sorghum or maize, the purchasing power (terms of trade) of livestock (oxen) reduced steadily from December 2014 through the summer to November 2015, across the areas visited (Figure 3). Together with the poor/failed harvests, the declining terms of trade threatens not only household food supply but also livestock assets, as an increasing number of livestock now need to be sold to secure food. The sale of plough oxen was reported as a particular concern.



Many if not most poor households in the highlands of Wollo and Wag Himra are dependent on seasonal employment on other larger and more productive farms e.g. for weeding and harvesting. However, opportunities for seasonal work were much reduced in 2015 due to the poor rainfall also affecting these larger farms. Even when seasonal work was available, the normal daily wage rate of around Eth birr 50 (about US\$2) fell by up to 50%. Young adults and an increasing number of household heads were migrating to other areas, including urban centers, in search of employment. Interviewees also reported that an increasing number of young adults had migrated to the Middle East.



Limited aftermath grazing on failed crops in Sekota woreda, Wag Himra, November 2015

Coping strategies

Interviewees were asked about current coping strategies and the following examples were reported:

- more consumption of cheaper and less preferred foods including poorer quality sorghum and maize which, in more normal years, are typically not consumed in the study area. A few households now mix sorghum with teff, and the percentage of sorghum husk in food is increasing.
- fewer households eat pulses and other supplements, and few if any consume animal source protein foods;
- fewer meals are eaten daily and the portion size is reduced – especially for women as priority is given to children. Few adults now consume breakfast;
- increased borrowing of money from relatives and neighbors to support household food purchases;
- increased requests for remittances;
- forced livestock sales – to buy food, but also to reduce livestock numbers and reduce livestock feed and water needs, and the associated labour;
- increased child labor, and out-migration to towns and the Middle East;
- renting-out of farmland for cash payments to better-off smallholder farmers and non-farming households;
- sale of household assets.

Priority emergency assistance interventions

Mention has been made of smallholder farmers' concerns that the spring *belg* rains were becoming less dependable and that crop failure was common. For example, smallholders in Wag Himra reported poor crop production in four of the last five years with a complete crop failure in 2015. Until the next harvest therefore smallholders in the study area recognize they will be increasingly dependent on the sale of livestock, off-farm employment, loans, remittances and food aid. The interviewees themselves chose to divide priority emergency assistance interventions into short and medium/ long-term categories (see Table 2).

Table 2: Short and medium-term priority emergency assistance intervention

| Short-term priorities | Medium/long term priorities |
|---|---|
| <ol style="list-style-type: none"> 1. Food aid and school feeding for school children 2. Drinking water supply/water tankering 3. Supplementary livestock feed | <ol style="list-style-type: none"> 1. Emergency - improved drought tolerant sorghum, teff and maize - seeds 2. Small-scale irrigation 3. Restocking including with plough oxen |

Conclusions

The fieldwork confirmed Government estimates that within the study area there was little or no crop production in 2015. As a result, sorghum prices in particular are significantly increased and as livestock prices fall, household purchasing power declines. As increasing numbers of people leave their farms in search for employment, daily wage rates have halved and household access to seasonal income and therefore food is much reduced. While November and December are typically associated with increased household food security and the lowest food prices, households were already resorting to coping strategies in November and December 2015. In response, interviewees prioritized food - including school feeding for their children - and water emergency assistance interventions^{ix} followed by supplementary livestock feed to protect their livestock assets - plough oxen, dairy cattle and small ruminants.

As household are likely to continue to sell livestock assets until the spring *belg*, long cycle crop and summer *meher* harvests, it is vitally important that the Government continue to provide emergency assistance to meet short-term needs. As and when harvests return to normal and the recovery is underway, smallholders have articulated their medium/ long-term agriculture sector priorities: drought tolerant crop varieties, small-scale irrigation - both of which reduce dependence on rainfall – and restocking.

While recognizing the technical appropriateness of these interventions, the AKLDP also recognizes that declining farm size^x is a critical determinant of resilient and sustainable livelihoods. For this reason, the AKLDP supports the view that increased investment in alternative, non-agriculture related employment in particular in Ethiopia's drought prone areas, will be central to improving resilience in the study area in the coming years.

For further information:

- Visit www.agri-learning-ethiopia.org
- Email Adrian Cullis, AKLDP adrian.cullis@tufts.edu

Disclaimer

The views and information in this brief are an output of the AKLDP project and do not necessarily reflect the views of USAID or the United States Government.

Endnotes

ⁱ AKLDP (2015a). El Nino in Ethiopia: Uncertainties, impacts and decision-making. AKLDP Technical Brief, September 2015 <http://www.agri-learning-ethiopia.org/wp-content/uploads/2015/09/AKLDP-El-Nino-brief-Sept-2015.pdf>

ⁱⁱ AKLDP (2015b). El Nino in Eyhiopia: Analyzing the summer *kiremt* rains in 2015. AKLDP Technical Brief, December 2015 <http://www.agri-learning-ethiopia.org/wp-content/uploads/2016/01/AKLDP-El-Nino-Rains-Technical-Brief.pdf>

ⁱⁱⁱ Including proportional piling and ranking, seasonal calendars, coping strategies index, year ranking, transect walks and observations.

^{iv} Crop Assessment Reports in Wag Himra, North Wollo and South Wollo zones (2015); Humanitarian Requirement Documents (released in January and August 2015) as well as products of the Ethiopia Humanitarian Country Team-EHCT (released in September and November 2015).

^v AKLDP (2015a), *Ibid.*

^{vi} Typically, the *belg* rains in Ethiopia show high variability and analysis of rainfall data over 42 years concluded no trends in *belg* in northern Ethiopia (Cheung et al., 2008). However, other research reports minor changes in *belg* rainfall but greater variability since the 1960s (Rosell and Homer, 2007), whereas a FEWSNET analysis (Funk et al., 2012) reports more substantial declines in *belg* rain. Overall, there is limited consistency across these analyses, and the main conclusion seems to be that the *belg* rains have always been highly variable and are likely to remain so.

^{vii} Low livestock prices result in poorer terms of trade and reduced cereal purchasing capacity.

^{viii} Early Warning and Response analysis as well as monthly marketing Reports in Wag Himra, South and North Wollo zones

^{ix} Subsequent to the field work the AKLDP researcher has been informed that as increasing numbers of water points fail, that water is now prioritized over food in some areas.

^x IFPRI estimate that farm size in Ethiopia is decreasing at a rate of 1.4% per year.