POLICY BRIEF

OCTOBER 2019

LIVING WITH DROUGHTS IN ASALS:
Integrating Scientific Forecasts with Indigenous Knowledge

KEY MESSAGES

1. Drought re-occurs within shorter interval and are disruptive to livestock asset-based livelihoods
2. ASALs will continue to experience decreasing trends in total annual rainfall, re- current droughts and even become drier over time
3. Seasonal climate/weather forecasts are effective in predicting drought events and therefore a useful tool in decision-making to safeguard pastoral livelihood
4. Combining traditional climate knowledge with scientific climate forecasts is a better approach in overcoming challenges involved in the development, communication and uptake of scientific forecasts

Pastoralists in Saimosoi Ward, Baringo lost over 2000 cattle in May 2017 as a result of drought

The drought of 2016 was declared a national disaster and over 3.4 million people were affected

In 2019, 23 out of 47 counties were affected by National Drought

More than 2.6 million Kenyan were declared food insecure as of May 2017

Introduction:

Drought events in Kenya have increased in frequency, severity and duration and associated impacts are more severe on pastoral livelihoods in Arid and Semi-arid Lands (ASALs) (NDMA, 2016). The severity of drought impacts is associated with low adaptive capacities (Eriyagama, Smakhtin & Gamage, 2009; Kipterer & Ndegwa, 2004).

When drought events reoccur with high frequency and severity, livestock asset based livelihoods are destabilised (Wang, Zhu, Zhao & Zhao, 2015). This results from significant changes in precipitation patterns that expose livestock to scarcity of water and feed resources and sometimes to disease outbreaks. This is a development concern that is attracting increasing attention for adaptation options that can stabilise livelihoods of pastoral households (Wilhite, 2005; Wilhite, 1990).

Droughts are recurrent events which on average, are catastrophic every 10 years (Orindi, Nyong, & Herrero, 2007; Netherlands Commission for Environmental Assessment [NCEA, 2015]) but are almost on annual basis in the ASALs of Kenya (United Nations Development Programme [UNDP, 2016]), resulting in cyclic years of destabilised livestock based livelihoods. Forecasting seasonal climate could be a strategy to build necessary adaptive capacity through effective dissemination of the information to the vulnerable groups (Klopper, Vogel & Landman, 2006).

Climate information and predictions are useful in making informed management options relating to pastoral livestock production (Gadgil, Friedman, Rao & Rao, 2002; Hansen & Indeje, 2004). Klopper, Vogel & Landman, (2006) have suggested that combining seasonal climate forecasts with a range of other tools and methods can enhance decision-making and improve overall risk management.

The current seasonal climate forecasts involve a multi-disciplinary focus aimed at producing integrated assessments and participatory models of science – policy interactions, with the potential of increasing usability and solving end-users' problems. However, Lemos & Rood (2010) highlights sources of climate projections uncertainties that vary across scale and systems including product of research process that makes decision-making process more complex, institutional mismatch and constraints, competing issues, lack of resources and faulty communications. These are potential barriers to effective use of seasonal climate forecast even if disseminated and therefore require resolving. They are barriers because of uncertainty about forecast information accuracy, timing of release, data format and mode of communication and the relative social and economic vulnerability of the targeted households (Lemos, Finan, Fox, Nelson & Tucker, 2002).

Enhancing access and use of seasonal climate forecasts among pastoral households in the ASAL areas such as Baringo County would be beneficial to stabilising livestock asset based livelihoods. The Kenya Meteorological services release forecasts while the National Drought Management Authority disseminates early warnings. Most stakeholders do not understand well the degree of usage and barriers to seasonal climate forecasts and early warnings, a probable explanation to continued vulnerability of pastoralists to drought.

Map of Baringo County

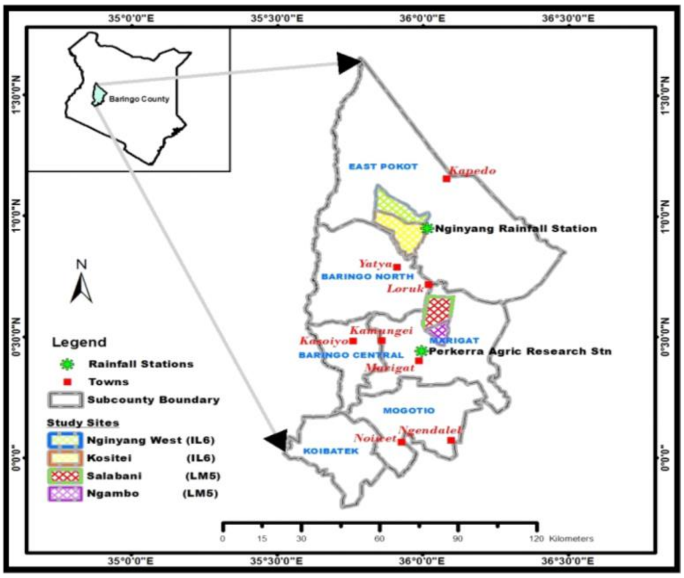

Figure 1: Map of Baringo County
Source: Modified from Jaetzold, Schmidt, Hornetz & Shisanya, 2011

What is the Problem?

- Drought is the main cause of livestock deaths in ASAL regions
- Pastoralists are not effectively using scientific seasonal climate/weather forecasts information to inform decisions.

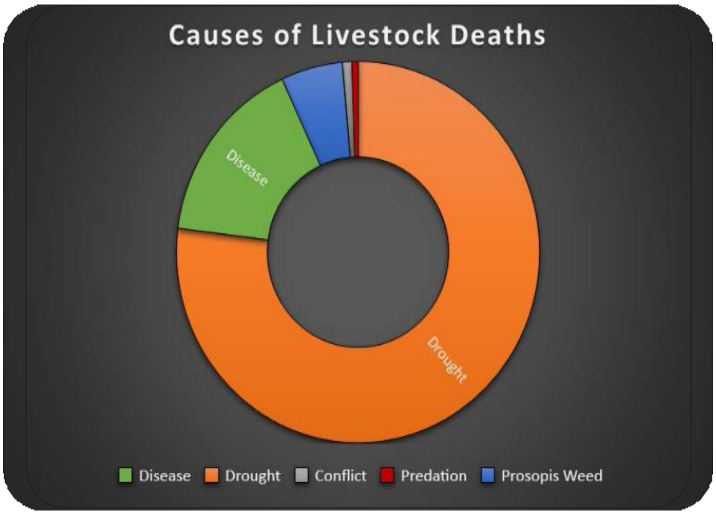

Figure 2: Causes of livestock deaths in ASALs

Current Situation

Use of Climate Information:

Majority of the sample population (95%) were aware of the indigenous knowledge of climate forecasting. This high awareness relates to more reliance (72.4%) upon traditional climate forecast methods than the scientific methods (Figure 3). According to them, they have relied on this information through the generations, they have remained valuable tools, and therefore majority (94%) give priority to information from indigenous climate forecast methods. However, about one fifth (21.27%) reported combining traditional and scientific forecasts in the face of changing climatic conditions. According to Ajibade & Shokemi (2003), information from indigenous weather forecasting methods with modern forecasting science can build up climate change intelligence and help make the data accessible to both pastoralists and help build resilience.

Pastoralists use various indigenous strategies of climate forecasting including observing changes in trees, sky, moon, wind and behaviour of animals. Sometimes, they use other traditional indicators including animal intestines (Haruspication), bird movements, animal behaviour, butterflies, wind direction, heat patterns and use of heavenly formation of stars. Different animals and insects display certain behaviours on the onset of the rainy seasons, for instance, the chirping of insects like cicadas (*Cryptotympana postulata*) and crickets (*Gryllus sp*) was associated with high temperatures at the beginning of the rainy season.

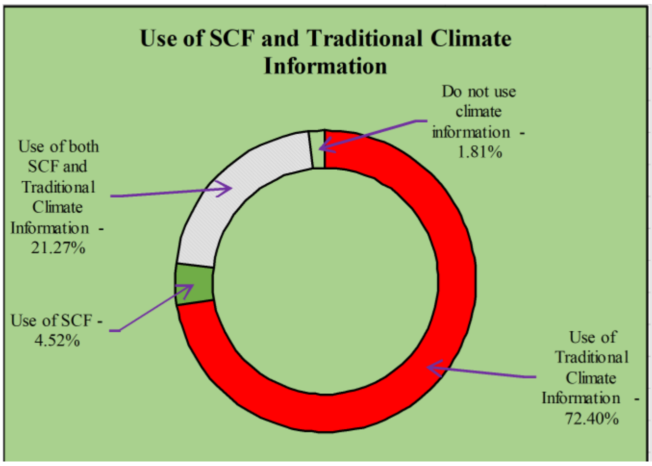

Figure 3: Usage of SCF and traditional climate information

Barriers to Use of Scientific Seasonal Climate Forecasts:

Four ranked most important hindrances to use of scientific seasonal climate/weather forecasts in informing decision making regarding drought events in Baringo include: insecurity/conflicts, illiteracy, resistance to uptake of new scientific information that ignores indigenous knowledge, lack of access to seasonal climate forecasts, and lack of information. For dissemination, access and uptake of scientific climate/weather information, the three most effective enabling condition ranked in order of importance were media, traditional climate information and extension services. Low literacy levels create a barrier to acceptance of new technologies but more value on indigenous knowledge than scientific knowledge hence creating a barrier to uptake of non-indigenous information. Such communities will not readily participate in workshops or seminars that focus on non-indigenous technologies, making over-reliance on indigenous knowledge a hindrance to use of scientific information (Patt, Suarez, & Gwata, 2005)

Communities that have depended on indigenous knowledge believes that neglect of indigenous knowledge in decision-making may lead to environmental deterioration while appropriate uptake is a guarantee to environmental conservation and sustenance of livelihoods.

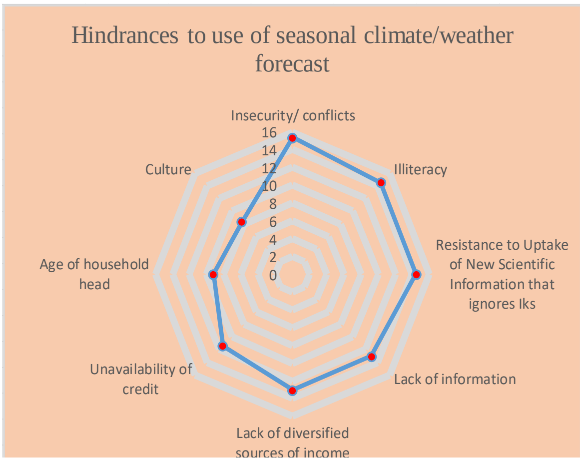

Figure 4: Hindrances to use of scientific seasonal climate/weather forecasts to respond to drought events

What Should be done

1. It is imperative for those responsible for generation and dissemination of seasonal climate forecasts to collaborate and put in place strategies aimed at removing barriers associated with access and application of climate information. Failure to integrate traditional/local climate knowledge with scientific climate information creates a barrier to uptake of scientific forecasts
2. Combining traditional climate knowledge with scientific climate forecasts is a better approach in overcoming challenges involved in the development, communication and uptake of scientific forecasts.

Figure 5: Elders from Baringo County studying intestines to predict drought

Acknowledgement

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