Climate Risk Management 11 (2016) 1–14

Contents lists available at ScienceDirect

Climate Risk Management

journal homepage: www.elsevier.com/locate/crm

Climate risk management information, sources and responses in a pastoral region in East Africa

Anthony Egeru *

Department of Environmental Management, Makerere University. P.O. Box 7062, Kampala, Uganda
Regional Universities Forum for Capacity Building in Agriculture (RUFORUM), P.O. Box 16811, Wandegeya, Kampala, Uganda

ARTICLE INFO

Article history:
Received 20 September 2014
Revised 9 December 2015
Accepted 15 December 2015
Available online 21 December 2015

Keywords:
Early warning
Process
Reactive adaptation
Karamoja

ABSTRACT

Pastoralists in East Africa face a range of stressors, climate variability and change being one of them. Effective climate risk management involves managing the full range of variability and balancing hazard management with efforts to capitalise on opportunity; climate risk management information is central in this process. In this study, pastoralists' perceptions of climate change, climate risk management information types, sources and attendant responses in a pastoral region in East Africa are examined. Through a multi-stage sampling process, a total of 198 heads of households in three districts were selected and interviewed using a semi-structured questionnaire. In addition, 29 focus group discussions and 10 key informant interviews were conducted to generate qualitative information to supplement survey data. Descriptive and thematic analysis were utilised in summarizing the data. Ninety-nine percent of the pastoralists noted that the climate had changed evidenced by high but erratic rainfall, occurrence of floods and variation in rainfall onset and cessation among other indicators. This change in climate had led to emergence of 'new' livestock and crop diseases, crop failure and low yields leading to frequent food shortages, water shortages, poor market access, and variation in pasture availability among other effects. Climate risk management information was received from multiple sources including; radio, diviners, community meetings, shrine elders, humanitarian agencies, and Uganda People's defence forces (UPDF). Community meetings were however perceived as most accessible, reliable and dependable sources of information. Shifting livestock to dry season grazing and watering areas, selling firewood and charcoal, seeking for military escorts to grazing areas, purchasing veterinary drugs, shifting livestock to disease 'free' areas, and performing rituals (depending on the perceived risk) constituted a set of responses undertaken in response to perceived climate risk. It is recommended that an integrated early warning system that captures the perceptions and practices of the pastoralists is implemented as this would increase the credibility of climate risk information disseminated.

Introduction

Climate risk represents the probability of a defined hydro-meteorological hazard affecting the livelihood of farmers, livestock herders, fishers and forest dwellers (Selvaraju, 2012). Managing climate related risk is at the centre of pastoralism and pastoralists in East Africa have elaborate set of practices, processes and institutions to deal with climate risks

* Address: Department of Environmental Management, Makerere University. P.O. Box 7062, Kampala, Uganda.
E-mail address: egeru81@gmail.com

http://dx.doi.org/10.1016/j.crm.2015.12.001
2212-0963/

especially drought (Swallow, 1994; Birch and Grahn, 2007; Ericksen et al., 2011; Christensen Fund, 2015). In managing climate risk; information, information sources and its transmission to the target audience is vital. This is because climate risk management information is central to providing answers to a range of questions relating to adaptation (Wilby et al., 2009). A better understanding of what information is available and valuable is key to managing climate risks in the present and the future in any place (Hellmuth, 2015). Effective climate risk management addresses the full range of variability, balancing protection against climate-related hazards with effort to capitalise on opportunity. It also includes a culture of climate awareness as well as systematic use of climate information among a range of stakeholders (Hansen et al., 2007).

The United Nations Framework Convention on Climate Change (UNFCC) indicates that climate risk management embodies three aspects of the risk management process: (i) risk assessments for informed decision-making; (ii) risk reduction, planning and preparation; and (iii) risk sharing, pooling and transfer in the context of adaptation (UNFCC, 2011). Pastoralists in East Africa have for long executed these aspects through deliberate and/or involuntary actions. In most of the pastoral communities in East Africa, different elements of risk are closely monitored by pastoralists (Barrett et al., 2001) and, elaborate social networks based on kin, ethnicity, age and other principles are maintained to gather and disseminate information about risk. Herders are well aware of the tough decisions that have to be made from time to time and in certain years (Little et al., 2001). The Turkana, Boran, Chamus, Gabra, Guii, Rendille, and Samburu for example conduct risk assessment from time to time using village meetings, forecasts, grazing committees, elder's memories and herders who monitor grazing and watering locations (Luseno et al., 2003; Oba, 2012). Based on the information obtained, response options are enforced, these may include among others: making alliances with friendly communities, escorting and arming herders with rifles owing to perceived and/or actual security threat, sharing and hospitality, livestock tenancy arrangements, and bride-wealth (Swallow, 1994; Hendrickson et al., 1996; Christensen Fund, 2015). Further, the Maasai, Turkana, Matheniko, Gabra, Rendille and the Afar alike exercise risk reduction, planning and preparation through herd splitting and transhumant grazing leveraging on pasture heterogeneity in space and time (Oba and Katrina, 2006; Oba, 2012; Opiyo et al., 2011).

In addition, an important strategy often adopted by pastoralists in East Africa is agistment. This is an alternative strategy that incurs low capital costs, and is flexible to changing spatial rainfall patterns. The arrangement is facilitated through a network of kin, friends of friends, business partners, and adversaries; these interactions match pastoralists who have a shortage of forage to pastoralists who have an excess (McAllister et al., 2006). The Maasai of Kenya for example often practice gifting with their Tanzanian Maasai friends and kin (Galvin et al., 2004; Lybbert et al., 2004; Radeny et al., 2007). Similarly, the Matheniko and Pokot of Uganda and Turkana and Pokot of Kenya practice agistment including transfer of stolen livestock across borders in some occasions (Agade, 2010; Eaton, 2010; Lambroschini, 2011).

Effective climate risk management involves managing the full range of variability, balancing hazard management with efforts to capitalise on opportunity (Hansen et al., 2007; Elhadi et al., 2015). However, climate risk management often faces a challenge of mismatch between information provided and information needed. Critical interpretation and tailoring of climate information forecasts can improve the quality and usability of climate information (Goddard, 2010; Asrar et al., 2013). In addition, understanding the sources of climate risk information is vital in focusing adaptation efforts by identify and bridging various gaps (Senaratne, 2014). It is also essential in rallying decision makers across society to take actions that will enhance their capacity and willingness to adapt to climate change (ACCCA, 2012). One of the weaknesses of climate risk reduction efforts has been the utilisation of inappropriate sources to communicate climate risk information. This partly, arising from the limited understanding of operations and interactions involved; including the different actors, stressors, experiences and meanings operating at community level. As such, responses to climate change ought to be understood from the perspective of an ongoing process involving negotiating and aligning different constructions of risks (Granderson, 2014). Climate risk information should thus be able to support this kind of process at every level. However, this has been in short supply in East Africa particularly because climate risk information is too technical, confusing, and difficult to translate into viable actions at local level. In addition, there is limited scope and practicality of information regarding the predicted implications of climate change (Daly et al., 2010).

As already noted earlier, climate risk management is central in pastoralism and as exercised by pastoral tribal communities of East Africa. Improved risk management and attendant diversification in pastoral areas is a complex issue requiring better access to information (Little et al., 2001). For example, pastoralist risk management efforts in Kenya and Ethiopia have revealed that better access to markets and market information increased rates of livestock sales and reduced livestock losses during drought. It also provided better opportunities to re-stock when ecological conditions improved (Bailey et al., 1999; McPeak, 2001; Kirkbride and Grahn, 2008). Thus, the integration of scientific and local knowledge is essential in enhancing risk-based management approaches and adaptation by providing insight into the adaptation process, facilitating community-based learning, co-production of knowledge, and increasing the usability of climate science information (Moser and Dilling, 2007). Undertaking such integration requires a proper understanding of information sources available to pastoral communities as well as the range of responses they exude when utilised. This is particularly important because knowledge sharing mechanisms relevant to local context are key for effective communication of value-added climate information (Selvaraju et al., 2004). Therefore, this study examined pastoral perceptions of climate change, climate risk management information, sources and the attendant responses in a pastoral region of East Africa.