

HOW DO EAST AFRICA'S PASTORALISTS DEAL WITH RISK?



Sipke Shaughnessy
PhD Candidate - Department of Geography
Trustee - Laikipia Pastoralist Community Trust



**UNIVERSITY OF
CAMBRIDGE**

2018 Cambridge - McKinsey Risk Prize Bio-sketch and Photo Page



Student Name: Sipke Shaughnessy

Email contact: sfbs3@cam.ac.uk

Title of Submission: How do East Africa's

deal with risk?

I am a candidate for the degree:

PhD, Geography

Sipke Shaughnessy is a third-year PhD student at the Department of Geography. Following an eight-month period of fieldwork in Laikipia, Kenya, during which he conducted research on the political and economic history of the Ilng'wesi Maasai, he is currently writing his PhD thesis. His primary research interests include ecological and economic resilience in relation to pastoralism, as well as economic geography and anthropology more broadly. He also maintains an active interest in the politics of East Africa, on which he supervises undergraduates alongside political ecology.

Sipke is a trustee of the Laikipia Pastoralist Community Trust, which aims to establish cooperative meat production facilities in pastoralist areas of Kenya. He has written for the Irish Times and Think Africa Press, and hopes to continue pursuing his interest in African political economy after the completion of his PhD, whether through academia, journalism or in political risk analysis.

2018 Cambridge - McKinsey Risk Prize Declaration Form

Student Name: Sipke Shaughnessy

Email contact: sfbs3@cam.ac.uk

Title of Submission: How do East Africa's pastoralists

deal with risk?

Number of words of submission: 3483, including references

I am a candidate for the degree: PhD

Academic Institution/Department: Geography

Declaration

I confirm that this piece of work is my own and does not violate the University of Cambridge Judge Business School's guidelines on Plagiarism.

I agree that my submission will be available as an internal document for members of both Cambridge Judge Business School and McKinsey & Co's Global Risk Practice.

If my submission either wins or receives an honourable mention for the Risk Prize, then I agree that (a) I will be present at the award presentation ceremony 20 June 2018, (b) my submission can be made public on a Cambridge Judge Business School and/or McKinsey & Co websites.

This submission on risk management does not exceed 10 pages.

Signed: *Sipke Shaughnessy*

"Edoorie enker modooni nkuta." A blind sheep might chance upon rainwater – Maasai proverb.

What are pastoralists?

Broadly defined, pastoralists are people for whom livestock rearing is their primary economic activity. In the East African context, the term is usually used to refer to **semi-nomadic groups who herd animals across the region's famous savannah and semi-arid rangelands**. Some of these groups, such as the Maasai, have become globally iconic due to their prominence in promotional imagery for the safari tourist industry and their historical reputation as fierce warriors. Others, such as the Nuer and Dinka, have featured heavily in the news media in recent years, owing to their role in the South Sudanese civil war.

Stereotypes aside, East Africa's pastoralist communities are culturally, linguistically and religiously diverse and can be found throughout the region. What unites them all is a cultural, economic and political commitment to nomadic animal herding as a way of life, which is often thought of as more noble, honourable and dignified than other livelihood strategies. Having been practiced in East Africa since potentially as early as 9500 BP (before present) (Smith 1992), pastoralism is well suited to the highly unpredictable environments in which pastoralists tend to live. This is because, owing the mobility enabled by a reliance on animal herding, pastoralists are able to move easily to areas where essential resources are in relatively high abundance. Varying degrees of nomadism have thus enabled pastoralist communities to not only survive, but to thrive in these high-risk environments.

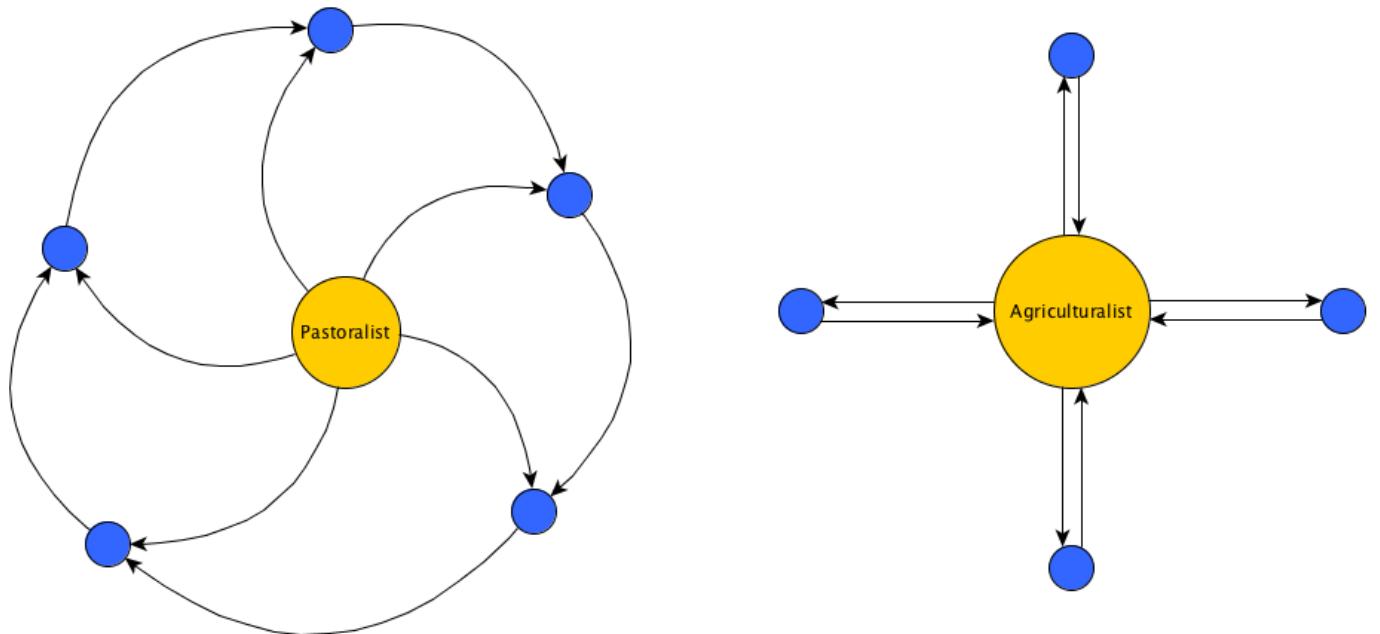
However, while in many ways the most efficient use of rangeland environments, nomadic pastoralism also brings a variety of risks. For instance, a heavy reliance on animal herding leaves pastoralists vulnerable to environmental shocks such as drought, or to having their assets wiped out by disease epizootics. The worsening effects of climate change and land privatisation (which limits nomadic mobility) have significantly exacerbated these risks. How, then, do pastoralists deal with them? This essay will explore three key strategies used by pastoralists to mitigate the risks they face while herding animals across the East African rangelands. These are 1) social bonding, 2) 'commoning' and 3) diversification. The first two work by enabling 'risk-pooling', while the final strategy facilitates the ability to respond to market fluctuations and environmental shocks. This essay will explore each of these in turn before briefly assessing how the example of East African pastoralists could inform wider approaches to risk management. First, however, I will outline the way in which pastoralist capitalise on the inherent risk and uncertainty of living on the East African rangelands.

Pastoral mobility: capitalising on uncertainty

Throughout much of the twentieth century, nomadic pastoralism was seen as an irrational attachment to a traditional way of life. In contrast, recent ecologic models are beginning to emphasise the way in which pastoralists not only make efficient use of resources in rangelands and semi-arid lands, but also how pastoralists use their mobility to capitalise on highly uncertain environments. Such understandings have been facilitated by the recent adoption of non-equilibrium models of range ecology. To summarise, such models acknowledge, and indeed emphasise, the stochastic and irregular distribution of crucial non-biological resources in range ecosystems. For instance, rainfall in East African rangelands tends to fall in irregular patterns, both geographically but also over time. In turn, the vegetation necessary for animal grazing is likewise distributed in irregular patterns. It follows that, in order to make efficient and effective use of available rangeland resources, inhabitants of rangelands **must follow a livelihood strategy that enables them to be mobile**, both to escape exhausted resources in one area and to take advantage of opportunities elsewhere.

Herding grazing and browsing animals, such as cattle, sheep, goats and camels, in a nomadic or semi-nomadic manner, allows pastoralists to do just that. Compare pastoralists to agriculturalists, for instance. Whereas a pastoralist can move across an area with his or her herd with little to no upheaval, an agriculturalist is far more rooted in a particular location, owing to the fact that they rely on the cultivation of fixed plots of land (see Fig. 1). Because of this, several studies now suggest that pastoralism represents the most efficient use of resources in East African rangelands, enabling inhabitants to maximise returns from their highly uncertain environments (e.g. Hesse & MacGregor 2006, Krätli & Schareika 2010) and creating significant economic value for the nation states that host them (King-Okumu et al. 2015).

A high degree of mobility, enabled by the herding of animals, is the primary means by which pastoralists are able to take advantage of and profit from uncertainty where others (such as agriculturalists, who cultivate a fixed plot) are unable. Mobility enables pastoralists to move to areas of high quality grazing even when other areas experience relative drought. Such pastoral mobility takes a variety of forms. In some cases, pastoralists follow a truly nomadic lifestyle, in which there is no permanent base and the homestead moves from node to node according to season (often in a cyclical manner). In other cases, pastoralists have an established homestead at a fixed point, and move to smaller, temporary satellite camps during dry seasons and periods of drought (as in Figure 1).



(Fig. 1. As observed during my own research in Kenya, pastoralist mobility enables movement from a base homestead, to and between stochastically distributed resource nodes (blue) according to need. Agriculturalists have less flexibility, and are forced to bring scarce resources back to their farms from areas of plenty, if indeed they are able).

Their ability to do so, however, is coming under increasing strain throughout East Africa, owing to both land privatisation and the gazetting of savannah lands by governments to make way for national parks and conservancies (Homewood & Rodgers 1991; Galaty 2016). The risk of total land privatisation is therefore a 'known unknown', the mitigation strategies for which are described below in relation to the strategy 'commoning'. If we approach mobile animal herding as primarily an opportunistic strategy (i.e. one which enables the seizing of opportunities), rather than a mere coping strategy, what risks does such a strategy generally entail?

The most obvious, of course, is that animal herds are susceptible to wipe-out due to disease, theft and starvation. Often, this is unavoidable. In the late 19th century, a series of rinderpest and East Coast Fever epizootics, as well as successive droughts, nearly wiped out the majority of East African pastoralist herds, in a period still remembered today by the Maasai and Samburu of Kenya as *emutai* (the catastrophe) (Sobania 1980). Owing to increasingly restricted mobility (see above), and an unprecedented decline in rainfall in East Africa over the last 30 years (Tierney et al. 2015), the possibility of high losses or total herd devastation is higher than ever before. In what follows, I will therefore focus on the strategies used by pastoralists to deal with this particularly devastating risk. Although there are several ways of dealing with risk (Dorfman 2007), the following will focus primarily on pastoralist strategies for risk transfer and risk reduction.

Strategy One: Social bonding

My use of the term 'social bonding' here goes beyond the mere cultivation of friendships or relationships, and refers to a particular kind of strong, reciprocity-governed 'bond' that East African pastoralists actively pursue with other individuals both within and across ethnic, clan or residential groups. Often, these bonds are initiated by a more or less formalised procedure of gift giving. The gifts usually consist of an animal or a favour, offered precisely for the purpose of creating a strong social bond, which must, in time, be reciprocated. A well-known example is that of *osotua* among the Maasai. *Osotua*, which translates as 'umbilical cord', usually begins with a request on behalf of one party for a gift or favour. The gift in favour is usually based on a genuine need, and its value is limited to that need alone. Once *osotua* is initiated, then an obligation to one day reciprocate (if able) or help the other party when they are in need is established for eternity, and there is no way of escaping it. However, the gifts given or received are distinguished from 'debts' (which also exist), as the exchange is based on a sense of deep friendship and mutual respect. For this reason, the verb 'payment' is never used in relation to *osotua*, owing to its associations with debt and commercial transaction.

As Aktipis et al (2011) argue, the value of social bonds like *osotua* is that they contribute to 'risk-pooling'. This is a form of risk transfer in which one party agrees to take on some of another parties risk as long as other party takes on some of their risk. Social bonding among pastoralists enables risk pooling in two ways. Firstly, because environmental disasters do not impact all herds with equal severity, those hit hardest can draw on their *osotua* partners in order to aid herd recovery following high losses. Secondly, because the *osotua* partners limit their request to their immediate needs, they limit their partners' exposure to their own risk. For this reason, Aktipis et al. (ibid.:135-137) found that Maasai herders who participated in *osotua* exchanges experienced significantly increased herd longevity, compared with those who took part in no such exchanges.

Strategy Two: Commoning

'Commoning' as a risk management strategy is becoming increasingly relevant in relation to the creeping 'known unknown' of land privatisation and consequent mobility restriction. There are various theoretical accounts of what 'the commons' refers to, and the principles or laws that govern their adequate management (or lack therefore). Famously, Garret Hardin (1968) used the example of livestock herders to describe 'the tragedy of the commons', in which open access to common resources inevitably lead to overexploitation, pollution and degradation. Later Ostrom (1990, 2002) distinguished between open access regimes, which conformed to Hardin's account of the commons and ostensibly led to disaster, and collectively managed

kinds of commons that, under certain conditions, could facilitate the sustainable management of natural resources.

Among East African pastoralists, however, scholars have identified a form of 'open access regime' that pertains to the right to 'common pool' grazing resources (Bollig and Lesorogol 2016). These accounts describe how the moral imperative to share grazing resource among pastoralists has led to various forms of commons and open access principles to emerge in pastoralist communities, even in cases where land is legally privately owned. As with *osotua* gifts, access to pasture is negotiated primarily through social networks. Archambault (2016) and Lesorogol and Boone (2016) demonstrate this for the Maasai of southern Kenya and the Samburu of northern Kenya respectively. They argue that the social networks of women in particular are proving increasingly important for negotiating access to dry season pasture in an increasingly privatised landscape. This does not mean that commons principles have remained the same as before privatisation. Whereas previously, access to a particular social group entitled one to pasture in that group's common territory, today access is organised along the lines of an individual's social networks, which may extend beyond that individual's ethnic group altogether. The principle that has remained the same, however, is an ability to press on the social obligations of others to share vital resources, which has enabled pastoralists to maintain a degree of mobility in spite of land privatisation. This 'new commons' approach (Bollig and Lesorogol 2016) can be seen, I argue, as another form of risk-pooling, albeit in response to a more slow-creeping and long-term risk than the environmental shocks buffered against by *osotua* exchanges.

Strategy Three: Diversification

The third and final strategy is essentially a form risk reduction through diversification, and partly stems from the fact that many pastoralists today also take on paid employment to supplement their herding activities. In business terms, diversification as a risk reduction strategy, can take many forms, including geographical diversification (Rugman 1976) and portfolio diversification (Goetzmann and Kumar 2008), both of which have parallels in pastoralist risk management strategies. Geographical diversification has already been covered in the above discussion on pastoralist mobility, although some pastoralists diversify even further in this sense through a strategy of herd splitting. This is where herds are split (usually according to species of animal) between members of a household and sent to different locations, in which the available vegetation might more suited to different breeds (for example, goats, as browsing animals, are more suited to areas with leafy bushes and scrub) (King et al. 1984; Mace and Houston 1989).

The ability of pastoralists to engage in herd splitting depends on the extent to which they diversify the species of animal in their herd. Many pastoralists, for instance, will

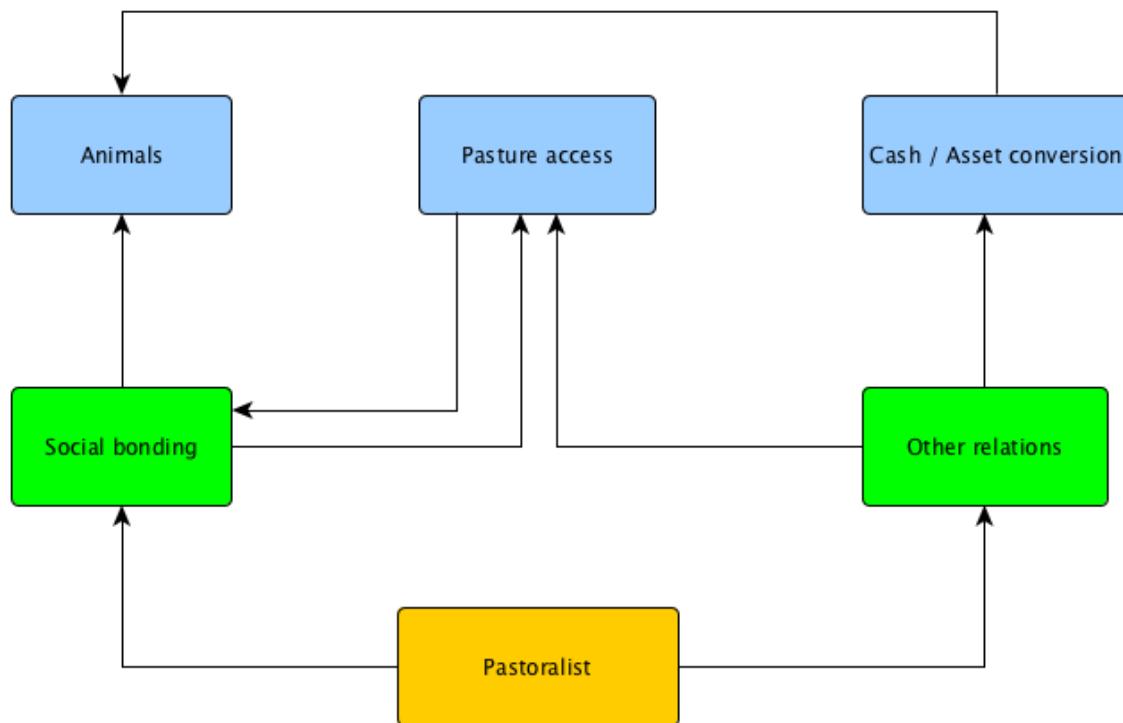
own a mix of cattle, sheep and goats (and in some cases, camels). This aids risk mitigation because many of the risks which pastoralists face are indeed diversifiable (see Watson et al 2016). Mixing browsing (leaf-eating) and grazing (grass-eating) animals, for instance, reduces competition for pasture during dry seasons. Likewise, camels, as taller browsing animals, are known to eat leaves from taller trees, which are inaccessible to goats (also browsers). Different species are also differentially susceptible to disease, which means that if there is an outbreak that primarily affects one species, the others should remain unaffected. Diversifying one's herd also leaves pastoralists less susceptible to market fluctuations, should they need to sell their animals for cash (to pay school fees, for instance).

Given the importance of species of diversification, a crucial strategy which pastoralists use to manage the composition of their herd is what I call '**'ease of asset convertibility'**. This refers to the fact that pastoralists actively maintain ways of either converting cash to animals, animals to cash, or one species of an animal to another, with as little delay or obstruction as possible, depending on need. Although in certain communities, cultural conventions prevent the easy conversion of cattle to cash (Ferguson 1985), many pastoralists develop relations with long-standing relations with certain brokers or business partners that enable them to make these conversions. Sometimes, this is done in the conventional manner by first converting animals to cash and then buying animals of a different species. Even in these cases, the speed of this process has been greatly enhanced by **'pastoralists' embrace of new technologies, such as the mobile payments system, MPESA, in Kenya (Rutten & Mwangi 2012)**. Using such platforms, pastoralists are able to make these transactions almost immediately over the phone, enabling them to react quickly to market fluctuations and news of disease outbreaks. In other instances, pastoralists are able to circumvent the cash economy by trading directly in animals with trusted partners, which speeds up the process further. Although less precise in terms of exchanging like for like, doing so helps further prevent reliance on species that are known to face certain risks in the immediate future. **'With its roots in the barter economy that preceded the introduction of currency in pastoralist areas, this ease of convertibility is an excellent example of how pastoralists have merged market principles and more traditional modes of exchange to mitigate risk in an increasingly marketised economy.'**

Conclusion: Lessons for risk management

What lessons, if any, can we abstract from these specific strategies and apply to our understanding of risk management, both generally and as applied to the business sector? If we look across all three strategies, the first and most noticeable principle is the importance of cultivating and maintaining a **'wide and meaningful social network'**. In Figure 2, I have integrated the varied social networks – including those

of social bonds, those that provide access to pasture, and those that facilitate asset conversion - that pastoralists draw upon in mitigating risk into one diagram. A diverse, wide and value-laden social network is essential for pastoralists in both risk-pooling – enabling them to recover after high herd losses and to access private pastures during periods of drought – and in facilitating quick and easy sales, purchase and asset conversions. The relative success of these strategies points to the potential of pursuing a distributed, network-based approach to risk management. Although perhaps anathema to the principles of competitive markets, we are seeing a trend towards the distribution of risk-relevant data provision in the proliferation and adoption of blockchain technologies (Swan 2015: 91-95). If such platforms could be harnessed to facilitate mutual trust between businesses, then network-distributed risk management strategies may be more than a distant pipedream. This will be of utmost importance in the near future. In the aftermath of the Brexit vote, the need to enhance the resilience of clusters (such as the financial sector in London) and complex supply chains in the face of changing trading conditions emphasises the importance of managing risk through a social network approach.



(Fig 2. Social networks that provide access to risk-mitigating resources. 'Relations' are in green. 'Resources' in blue.)

More generally, what the above account of pastoralist risk management strategies demonstrates is that many of the fundamental relations and values to which pastoralist communities are committed allow for risk mitigation in such a way that enables the exploitation of highly uncertain and risk-laden environments. Risk and opportunity, as is often noted, are two sides of the same coin. Pursuing risk mitigation

is therefore not necessarily mutually exclusive from the pursuit of high-reward opportunities found in high-risk scenarios – instead, for pastoralists, the former very much facilitates the latter. A future business-oriented research agenda should therefore consider learning from the practices of those who have benefited from uncertainty and risk for millennia – as the rangelands of East Africa and their pastoralist inhabitants amply demonstrate.

Bibliography

- Aktipis, C., Cronk, L. and de Aguiar, R. 2011. Risk-Pooling and Herd Survival: An Agent-Based Model of a Maasai Gift-Giving System. *Human Ecology*. 39 (2): 131 – 140.
- Archambault, C. S. 2016. Re-Creating the Commons and Re-Configuring Maasai Women's Roles on the Rangelands in the Face of Fragmentation. *International Journal of the Commons*, 10(2): 728–746
- Bollig, M. & Lesorogol, C., 2016. Editorial: The “new pastoral commons” of eastern and southern Africa. *International Journal of the Commons*, 10(2): 665–687.
- Dorfman, M. A. 2007. *Introduction to Risk Management and Insurance*, ninth ed. Prentice-Hall, Saddle River.
- Ferguson, J 1985. The Bovine Mystique: Power, Property and Livestock in Rural Lesotho. *Man*. Vol. 20 (4): 647-674.
- Galaty, J. 2016. Reasserting the Commons: Pastoral Contestations of Private and State Lands in East Africa. *International Journal of the Commons*. Vol. 10 (2): 709-727.
- Goetzmann, W. N. and Kumar, A. 2008. Equity Portfolio Diversification. *Review of Finance*. Vol. 12 (3): 433-463.
- Hardin, G. 1968. The Tragedy of the Commons. *Science*. Vol. 162: 1243–1248.
- Hesse, C. and MacGregor, J. 2006. Pastoralism: Drylands' Invisible Asset? *IIED Issue Paper*. No. 142
- Homewood, K., and Rodgers, W., A. 1991. *Maasailand Ecology: Pastoralist Development and Wildlife Conservation in Ngorongoro, Tanzania*. Cambridge: Cambridge University Press.
- King, J. M., Sayers, A. R., Peacock, C. P., and Kontrohr, E. (1984). Maasai Herd and Flock Structures in Relation to Livestock Wealth, Climate, and Development. *Agricultural Systems* 13: 21–56.
- King-Okumu, C., Wasonga, O. V., Yimer, E. 2015. Pastoralism pays: New evidence from the Horn of Africa. *IIED Briefing*. October 2015 Issue.
- Krätsli, S. and Schareika, N. 2010. Living Off Uncertainty: The Intelligent Animal Production of Dryland Pastoralists. *The European Journal of Development Research*. Vol. 22 (5): 605–622.
- Lesorogol, C. K., and R. B. Boone. 2016. Which Way Forward? Using Simulation Models and Ethnography to Understand Changing Livelihoods Among Kenyan Pastoralists in a “New Commons.” *International Journal of the Commons*, 10(2): 747–770
- Mace, R., and Houston, A. I. 1989. Pastoralist Strategies for Survival in Unpredictable Environments: A Model of Herd Composition that Maximises Household Viability. *Agricultural Systems* 31(2): 185–204.

- Ostrom, E. 1990. *Governing the Commons: The evolution of institutions for collective action*. Cambridge: Cambridge University Press.
- Rutten, M. and Mwangi, M. 2012. Mobile Cash for Nomadic Livestock Keepers: The impact of mobile phone innovation (M-Pesa) on Maasai pastoralists in Kenya. In Gewald, J., Leliveld, A., and Peša, I (Eds.), *Transforming Innovations in Africa: Explorative Studies on Appropriation in African Societies*. Leiden, NL: Brill
- Smith, A. B. 1992. The Origins and Spread of Pastoralism in Africa. *Annual Review of Anthropology*. Vol. 21: 125-141
- Sobania, N.W. 1980. *The Historical Tradition of the Peoples of the Eastern Lake Turkana Basin c. 1840 - 1925*. Unpublished PhD thesis: School of Oriental and African Studies
- Swan, M. 2015. *Blockchain: Blueprint for a New Economy*. Sebastopol, CA: O'Reilly Press
- Tierney, J. E., Ummenhofer, C. C., and deMenocal, P. B. 2015. Past and Future Rainfall in the Horn of Africa. *Science Advances*. Vol. 1 (9): 1-8.
- Watson, E. E., Kochore, H., & Dabasso, B. 2016. Camels and Climate Resilience: Adaptation in Northern Kenya. *Human Ecology: An Interdisciplinary Journal*, Vol. 44 (6): 701-713.