



Think Note

Recognising the dynamics that surround drought impacts

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The argument that the impacts of extreme events are to large extent contingent on how stresses are managed – at various scales – is already well established in thought and practice (Bohle et al., 1994; Chambers, 1989; Ribot, 2014; Wisner et al., 2004). What we feel is not so often considered is the wider interaction of drought with other environmental and societal dynamics. These dynamics significantly shape the nature and extent of drought impacts, and, equally, shape the chances of success of drought response measures (Sandstrom and Juhola, 2017). Moreover, the rapidity of many of these societal dynamics is likely to outstrip the pace of long-term changes in climatic conditions, underlining why it is crucial not to focus narrowly on anthropogenic climate change and variability when discussing future risk from droughts. In this Think Note we use examples from research in East Africa to illustrate the interaction of drought with a set of other dynamics in the lives of pastoralists and agro-pastoralists (Catley et al., 2013).

We draw on data analysed through the ASSAR (Adaptation at Scale in Semi-Arid Regions) project, focussing especially on case studies in the Middle Awash Valley in Afar, Ethiopia, and Isiolo and Meru Counties in northern Kenya, in which we applied social and environmental research to understand land use, livelihoods and wellbeing dynamics along the rural-urban continuum. The examples referred to in this Think Note link primarily with qualitative data collection carried out in these sites between October 2015 and December 2016, comprising 45 semi-structured group interviews in communities, 24 household-level interviews, and 17 rural appraisal activities (social and mobility mapping and transect walks), plus 47 key informant interviews at local, subnational and national levels. In structuring the following discussion around dynamics identified in these studies, we raise questions around how the implications of drought should be understood and how such analyses should inform risk management in the region and beyond.

Through 2016 and into 2017 extensive dryland areas in East Africa received rainfall well below average, associated at least in part with cyclical El Niño and La Niña events. In some places this extended a phase of recurrent drought that stretches back several years, prompting claims that an intensified drought hazard potentially associated with anthropogenic climate change is already gripping the region (Carty, 2017; FEWS NET, 2017; FAO, 2017; WHO, 2017). But the occurrence of drought presents neither a rupture from the norm nor a discrete

problem. In dryland environments drought periodically emerges (or is identified) in a context of chronic water security challenges where managing water scarcity is a continual not exceptional task (Levine et al., 2011; Sandstrom and Juhola, 2017). Moreover, drought impacts and response can only be understood within the context of much wider stresses and changes – environmental, economic, social, cultural, demographic and managerial (Catley et al., 2013; Fraser et al., 2011; Galvin, 2009). The key for successful risk reduction, we argue, is how drought effects are both shaped by, and shape, those dynamics.

In many sites within the case study areas, the predominantly rangeland landscape is undergoing significant change in the composition and cover of vegetation. Though overgrazing has been readily stated as a cause of soil and vegetation degradation, in reality the changes are likely to have multiple causes, including economic, social, ecological and climatic factors (Müller-Mahn et al., 2010). In Ethiopia, the spread of the invasive alien shrub *Prosopis juliflora* has become a dramatic feature of environmental change in the Middle Awash Valley. Characterized by vigorous growth that helps it to outcompete indigenous plant species, the shrub's spread has made it yet more difficult for livestock to find scarce pasture at times of deficient rainfall (Haregeweyn et al., 2013; Mehari, 2015; Wakie et al., 2016).

Other constraints on access to pasture and water resources emerge from changes in human land use (Catley et al., 2013). For example, along stretches of the Awash river, the expansion of irrigated cultivation and changes in the crop types and production methods near watercourses, has in some cases cut off access to customary dry season grazing areas and water sources for pastoralists. Movements toward privatisation and enclosure of land are also taking place, although the emerging patterns of individualised level tenure do not necessarily preclude continuation of the cultural norms of shared water access and reciprocal grazing rights (Lesorogol and Boone, 2016). Both the form and the mix of livelihood activity is changing in the drylands, as increasing market penetration and development of different economic sectors takes place (Catley and Aklilu, 2013; Makki, 2012). But this too is difficult to separate from changes relating to water security. A shift toward agro-pastoralism associated with resettlement (villagisation) is evident in irrigable areas of the Middle Awash Valley, providing sources of income diversification that can spread economic risk for households. On the other hand, crop productivity has been chronically undermined

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in some areas by increased crop-raiding from wildlife and salinization of soils, intensifying susceptibility to harvest failure during times when the supply of irrigation water ceases.

Environmental and economic dynamics are taking place in tandem with social and cultural changes, noticeable in both countries not just across social groups but also within households. Many communities with long-held traditions and norms seem to be experiencing a change in household structures, inter-generational relations, responsibilities, livelihood roles and aspirations (Rao et al., 2017; Tafere, 2015). Interviewees in Isiolo-Meru communities referred to recurrent droughts as a spur for many women to set up a range of petty trade and business activities. Meanwhile, men are increasingly finding it hard to fulfil traditional provider roles through livestock activities. As with many of the dynamics being described, the interaction between these changes and drought can produce mixed effects. For example, strengthening of income sources through productive engagement of women may reduce both personal and household income vulnerability, but the continuation of a customary role for women of fetching water becomes a significant added burden on top of productive activity if drought conditions force them to travel greater distances to locate adequate water sources. Moreover, there is evidence from interviews in Kenya that phenomena such as household splitting – through which individual household members operate in a variety of different locations whilst retaining active links with each other – is emerging in part as a translocal mechanism for risk management. Through these translocal mechanisms, we can see that households (and its members) are simultaneously embedded within different places but maintain strong links with each other through transfers of information, knowledge, materials, and experiences (Greiner and Sakdapolrak, 2013).

Traditional pastoral systems for informing communal decisions around resource use and mobility remain widely valued and trusted in both the Kenya and Ethiopian case study sites, but there is evidence that non-traditional sources of information are gradually complementing, supplementing or replacing traditional knowledge. A key component of many adaptation interventions in semi-arid areas is knowledge provision through improved forecasting, early warning and associated advice to herders and farmers (Singh et al., 2017). This presents a long-term dynamic that must be influencing how people make sense of their environment and their agency to manage risk within it. But information itself is not a resource unless it is useful, appropriate and valued (Lemos et al., 2012), and if it does not attain these characteristics there is a danger that a replacement source of information will undermine rather than strengthen ability to sustain livelihoods and wellbeing in periods of risk. Concern that the erosion of valuable community-based mechanisms for interpreting and communicating advice may be increasing vulnerability to drought and seasonal water stress has prompted some interventions in the region to work with existing skills in communities and support local systems of communication.

Dynamics in how dryland resources are managed interlink with the changing mechanisms of knowledge production and authority. In both the Ethiopian and Kenyan case study areas, traditional mechanisms for managing resource scarcity are based around communal decisions on mobility and established norms of seasonal access to specific grazing lands and water sources (Kaye-Zwiebel and King, 2014). There is indication from both countries that these traditional mechanisms are under strain, especially during drought when competition for access to resources in areas such as drought reserves is intensified by the convergence of pastoralists from beyond the normal range, in turn heightening instances of conflict such as recent cases in Isiolo and Laikipia, Kenya (Apollos, 2017). However, when analysing ostensibly ‘drought-induced’ conflicts it is always critical to recognise that wider governance issues including land tenure, rights, security and corruption typically lie behind these confrontations. At a broader scale, governance of resource management in both countries is in a phase of changing relations between central and local government, one in which efforts towards decentralisation are bringing planning authority closer to the

local scale but which create their own strains and capacity demands for often over-stretched local government officials (Carabine et al., 2015). The decentralisation process is thus creating new institutional and political spaces for resource governance, with attendant opportunities and challenges that may enhance or undermine its effectiveness (Conyers, 2017; Kahn Mohmand and Loureiro, 2017 and other articles in the same issue).

If we think of meteorological drought as itself part of a climate dynamic (both in terms of background variability and longer-term climate change trends), then we need to view it as one element of change among a range of other critical changes that are taking place in the dryland regions. These interactions make it difficult to analyse and respond to the implications of drought separately from other changes and challenges: drought is seldom a standalone problem. Further, these often long-term dynamics interact similarly with more chronic patterns of water stress. Indeed, though drought may be scientifically delimited, there is typically a continuum between this long-duration, slow-onset hazard and seasonal water stress conditions (something that is often reflected in colloquial use of the term). For many purposes, this brings into question the value of trying to distinguish the effects and interactions of a specific drought ‘event’ from the normality of water stress and climatic trends (especially a situation of change over time in which the abnormal becomes the normal).

There are limitations, therefore, in the extent to which we can talk about drought events in isolation – from chronic water security issues and from the wider, but associated dynamics taking place in drylands. These dynamics include positive changes in the sense of reducing risk, but also changes that intensify pressures on livelihoods and wellbeing, often ones with deep-seated root causes that are increasing people’s vulnerability to water scarcity. This interaction of dynamics presents challenges for chronic and extreme water stress management, in that it makes it more difficult to pinpoint specific instruments for risk reduction. But it should also be seen as an opportunity, in that action to reduce negative pressures in one sector is capable of bringing multiple benefits, including decreasing the underlying vulnerability of people to all forms of water stress. In any case, ignoring the existence of these interactions is unlikely to lead to sustainable intervention.

During this period of drought crises a number of high-level strategic meetings and initiatives were held or planned in the region and across Africa, including the adoption of a Strategic Framework for Drought Risk Management and Enhancing Resilience by African Member States and Parties to the United Nations Convention to Combat Desertification in August 2016 (Windhoek Declaration for Enhancing Resilience to Drought in Africa) and continuing work of the Intergovernmental Authority on Development’s Drought Resilience Platform including an experts and ministerial meeting on drought response and recovery held in Nairobi in March 2017. Such forums and strategies typically have an aim of strengthening drought resilience through promoting approaches that go beyond emergency response to a deeper engagement with the principles of disaster risk reduction. The rationale of these and many other drought-focussed programmes typically make reference to the dynamic social and environmental contexts of drought risk and the need to reduce underlying societal factors that elevate risk, through a broad set of related development interventions to enhance water security, natural resource management, market access and livelihood support. However, we argue that to date they do not truly focus discussion, nor, even less, galvanise action on this. Instead, the concrete programmes promoted tend to focus on a more narrow and temporally-proscribed set of actions in drought monitoring, early warning, emergency preparedness and emergency response. In both our case study areas, policy and intervention on the chronic issues of water and resource scarcity that underlie the severity of drought impacts remain weak and fragmented, and drought resilience remains largely interpreted as improving preparations for the worst via emergency provision of water and food. Essential though these actions are, a genuine disaster resilience agenda implies a more challenging, yet fundamental,

integrated agenda for tackling the socio-environmental dynamics that shape the drought problem.

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